



# PROGRAM MANAGER FOR ROCKY MOUNTAIN ARSENAL

U.S. ARMY  
MATERIEL COMMAND

— COMMITTED TO PROTECTION OF THE ENVIRONMENT —

DRAFT FINAL  
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OF ALTERNATIVES REPORT  
VERSION 2.0  
SOILS DAA  
VOLUME IV of VII

JULY 1993  
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## APPENDIX A COST ESTIMATES

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## LIST OF ACRONYMS AND ABBREVIATIONS

|                         |                                                                       |
|-------------------------|-----------------------------------------------------------------------|
| µg/l                    | micrograms per liter                                                  |
| 3-D                     | three-dimensional                                                     |
| ACGIH                   | American Conference of Governmental Industrial Hygienists             |
| ACM                     | asbestos-containing material                                          |
| AMC                     | Army Materiel Command                                                 |
| AOC                     | Area of Contamination                                                 |
| AOPs                    | advanced oxidation processes                                          |
| AR                      | Army Regulations                                                      |
| ARARs                   | applicable or relevant and appropriate requirements                   |
| Army                    | U.S. Army                                                             |
| atm-m <sup>3</sup> /mol | atmospheres per cubic meters per mole                                 |
| ATP                     | Anaerobic Thermal Processor                                           |
| ATSDR                   | Agency for Toxic Substances and Disease Registry                      |
| BCY                     | bank cubic yard                                                       |
| BDAT                    | best demonstrated available technology                                |
| BEST                    | Basic Extraction Sludge Treatment                                     |
| BFI                     | Browning Ferris Industries                                            |
| BOD                     | Biological Oxygen Demand                                              |
| BTEX                    | benzene, toluene, ethylbenzene, and xylenes                           |
| BTU                     | British thermal unit                                                  |
| CAMU                    | Corrective Action Management Unit                                     |
| CAR                     | Contamination Assessment Report                                       |
| CCA                     | chromated-copper-arsenate                                             |
| CCR                     | Code of Colorado Regulations                                          |
| CERCLA                  | Comprehensive Environmental Response, Compensation, and Liability Act |
| cfm                     | cubic feet per minute                                                 |
| CFR                     | Code of Federal Regulations                                           |
| CLC2A                   | Chloroacetic Acid                                                     |
| cm/sec                  | centimeters per second                                                |
| cm <sup>2</sup>         | centimeters squared                                                   |
| COC                     | contaminant of concern                                                |
| CPE                     | chlorinated polyethylene                                              |
| CPRP                    | Chemical Personnel Reliability Program                                |
| CRL                     | certified reporting limit                                             |
| CSI                     | Conservation Services, Inc.                                           |
| CSPE                    | chlorosulfonated polyethylene                                         |
| CWA                     | Clean Water Act                                                       |
| CY                      | cubic yards                                                           |
| DA                      | Department of the Army                                                |
| DAA                     | Detailed Analysis of Alternatives                                     |
| DADS                    | Denver Arapahoe Disposal Service, Inc.                                |
| db(A)                   | decibels                                                              |
| DBCP                    | dibromochloropropane                                                  |
| DCPD                    | dicyclopentadiene                                                     |
| DDE                     | dichlorodiphenylethane                                                |
| DDT                     | dichlorodiphenyltrichloroethane                                       |
| DHHS                    | Department of Health and Human Services                               |
| DIMP                    | diisopropylmethyl phosphorate                                         |
| DNAPL                   | dense nonaqueous phase liquid                                         |
| DOD                     | Department of Defense                                                 |



|                               |                                                         |
|-------------------------------|---------------------------------------------------------|
| DOT                           | Department of Transportation                            |
| DRE                           | destruction removal efficiency                          |
| DRMO                          | Defense Reutilization and Marketing Office              |
| DSA                           | Development and Screening of Alternatives               |
| EA                            | Endangerment Assessment                                 |
| Ecology                       | U.S. Ecology, Inc.                                      |
| EDSVEP                        | Enhanced Deep Soil Vapor Extraction Process             |
| ENSCO                         | Environmental Systems Company                           |
| Envirosafe                    | Envirosafe Services of Idaho, Inc.                      |
| EOD                           | Explosive Ordnance Disposal                             |
| EPA                           | U.S. Environmental Protection Agency                    |
| ERC                           | Ecological Risk Characterization                        |
| ESSVEP                        | Enhanced Surface Soil Vapor Extraction Process          |
| ETTS                          | Ecotechniek Thermal Treatment System                    |
| FC2A                          | fluoroacetic acid                                       |
| FFA                           | Federal Facility Agreement                              |
| FML                           | flexible membrane liner                                 |
| fpm                           | feet per minute                                         |
| FRP                           | fiber - reinforced plastic                              |
| FS                            | feasibility study                                       |
| ft/day                        | feet per day                                            |
| ft                            | feet or foot                                            |
| ft <sup>3</sup>               | cubic feet                                              |
| GAA                           | granulated activated alumina                            |
| GAC                           | granular activated carbon                               |
| GB                            | isopropylmethylphosphonosfluoridate (nerve agent-sarin) |
| gpm                           | gallons per minute                                      |
| H:V                           | horizontal to vertical                                  |
| H <sub>2</sub> O <sub>2</sub> | hydrogen peroxide                                       |
| HBr                           | hydrogen bromide                                        |
| HCCPD                         | hexachlorocyclopentadiene                               |
| HCL                           | hydrochloric acid                                       |
| HCPD                          | Hexachloro pentadiene                                   |
| HDPE                          | high-density polyethylene                               |
| HE                            | high explosive                                          |
| HEP                           | habitat evaluation protocol                             |
| HEPA                          | high efficiency particulate                             |
| HF                            | hydrofluoric acid                                       |
| Hg                            | mercury                                                 |
| HHEA                          | Human Health Exposure Assessment                        |
| HHRC                          | Human Health Risk Characterization                      |
| HI                            | hazard index                                            |
| ICP                           | inductively coupled plasma                              |
| ICS                           | Irondale Containment System                             |
| IDLH                          | Immediately Dangerous to Life and Health                |
| IEA                           | Integrated Endangerment Assessment                      |
| IITRI                         | IIT Research Institute                                  |
| IRA                           | interim response action                                 |
| IT                            | International Technology                                |
| IWT                           | International Waste Technologies                        |
| K <sub>oc</sub>               | partition coefficient                                   |
| kw                            | Kilowatt                                                |
| kWh                           | Kilowatt hour                                           |

|                    |                                               |
|--------------------|-----------------------------------------------|
| L                  | Lewisite                                      |
| lbs                | pounds                                        |
| lbs/acre           | pounds per acre                               |
| LCY                | loose cubic yards                             |
| LCY/hr             | loose cubic yards per hour                    |
| LDR                | land disposal restriction                     |
| LF                 | Linear Foot                                   |
| LNAPL              | light nonaqueous phase liquid                 |
| LT <sup>3</sup>    | Low-Temperature Thermal Treatment             |
| LTTA               | Low-Temperature Thermal Aeration              |
| mg/l               | micrograms per liter                          |
| mg/cm <sup>3</sup> | milligrams per cubic centimeter               |
| mg/m <sup>3</sup>  | milligram per cubic meter                     |
| mg/kg              | milligrams per kilogram                       |
| mg/l               | microgram per liter                           |
| MKE                | Morrison-Knudsen Engineering                  |
| ml/g               | milliliters per gram                          |
| mm                 | millimeters                                   |
| MMBTU              | million British thermal units                 |
| mph                | miles per hour                                |
| MTR                | minimum technology requirement                |
| NaOH               | sodium hydroxide                              |
| NBCS               | North Boundary Containment System             |
| NCP                | National Contingency Plan                     |
| NEPA               | National Environmental Policy Act             |
| NWBCS              | Northwest Boundary Containment System         |
| O&M                | operations and maintenance                    |
| OAS                | Organizations and State                       |
| °C                 | degrees Centigrade                            |
| OCP                | organochlorine pesticides                     |
| OCPD               | dicyclopentadiene                             |
| °F                 | degrees Fahrenheit                            |
| OPHGB              | organophosphorus compounds, GB-agent related  |
| OPHP               | organophosphorus Compounds; pesticide related |
| OSCH               | organosulfur compounds; herbicide related     |
| OSCM               | organosulfur Compounds; mustard agent related |
| OSHA               | Occupational Health and Safety Administration |
| PAHs               | polynuclear aromatic hydrocarbons             |
| PBC                | probabalistic biota criteria                  |
| PCB                | polychlorinated biphenyls                     |
| pcf                | pounds per cubic foot                         |
| PCP                | pentachlorophenol                             |
| PEC                | plume evaluation criteria                     |
| PKPP               | potassium pyrophosphate                       |
| ppb                | parts per billion                             |
| PPE                | personal protective equipment                 |
| PPLV               | preliminary pollutant limit value             |
| ppm                | parts per million                             |
| PRG                | preliminary remediation goal                  |
| psi                | pounds per square inch                        |
| PVC                | polyvinyl chloride                            |
| QA/QC              | quality assurance/quality control             |
| RAO                | remedial action objectives                    |

|        |                                                                    |
|--------|--------------------------------------------------------------------|
| RCRA   | Resource Conservation and Recovery Act                             |
| RF     | radio frequency                                                    |
| RI     | Remedial Investigation                                             |
| RISR   | Remedial Investigation Summary Report                              |
| RMA    | Rocky Mountain Arsenal                                             |
| ROD    | Record of Decision                                                 |
| RPO    | representative process option                                      |
| SACWSA | South Adams County Water and Sanitation District                   |
| SAR    | Study Area Report                                                  |
| SARA   | Superfund Amendments and Reauthorization Act                       |
| SCC    | Secondary Combustion Chamber                                       |
| SEC    | Site evaluation criteria                                           |
| SF     | square feet                                                        |
| Shell  | Shell Oil Company                                                  |
| SHO    | Semivolatile halogenated organics                                  |
| SITE   | Superfund Innovative Technology Evaluation                         |
| STC    | Silicate Technology Corporation                                    |
| SVE    | soil vapor extraction                                              |
| SVOCs  | semivolatile organic compounds                                     |
| SY     | square yards                                                       |
| T.DI.  | Services HT-5                                                      |
| TBC    | to be considered                                                   |
| TCE    | trichloroethylene                                                  |
| TCLP   | Toxicity Characteristic Leaching Procedure                         |
| TEA    | triethylamine                                                      |
| TEC    | Target Effluent Concentrations                                     |
| TIS    | transportable incineration system                                  |
| TMV    | toxicity, mobility, and volume                                     |
| TOC    | total organic carbon                                               |
| tpd    | tons per day                                                       |
| TSCA   | Toxic Substances Control Act                                       |
| TSD    | Treatment Storage and Disposal                                     |
| TSMG   | two-step geometric mean                                            |
| USCS   | Unified Soil Classification System                                 |
| USDA   | U.S. Department of Agriculture                                     |
| USFWS  | U.S. Fish and Wildlife Service                                     |
| USGS   | U.S. Geological Survey                                             |
| USPCI  | U.S. Pollution Control, Inc.                                       |
| UV     | ultraviolet                                                        |
| UXO    | unexploded ordnance                                                |
| VAO    | volatile aromatic organic compounds                                |
| VHC    | volatile hydrocarbon compounds                                     |
| VHO    | volatile halogenated organics                                      |
| VOC    | volatile organic compound                                          |
| VX     | ethyl s-dimethyl aminoethyl methyl phosphonothiolate (nerve agent) |
| WES    | Waterways Experimental Station                                     |

APPENDIX A

VOLUME AND AREA ESTIMATES

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## LIST OF ACRONYMS AND ABBREVIATIONS

|       |                                         |
|-------|-----------------------------------------|
| As    | arsenic                                 |
| BCY   | bank cubic yard                         |
| CLC2A | chloroacetic acid                       |
| COCs  | contaminants of concern                 |
| CY    | cubic yard                              |
| DBCP  | dibromochloropropane                    |
| DCCPD | dicyclopentadiene                       |
| DAA   | Detailed Analysis of Alternatives       |
| FC2A  | fluoroacetic acid                       |
| ft    | feet                                    |
| Hg    | mercury                                 |
| OCP   | organochlorine pesticide                |
| OSCM  | organosulfur compound - mustard related |
| PRG   | preliminary remediation goal            |
| RI    | remedial investigation                  |
| RISR  | Remedial Investigation Summary Report   |
| RMA   | Rocky Mountain Arsenal                  |
| SAR   | study area report                       |
| SEC   | site evaluation criteria                |
| SY    | square yard                             |
| UXO   | unexploded ordnance                     |
| VHC   | volatile hydrocarbon                    |

## A.1 INTRODUCTION

The analysis of remedial alternatives requires an estimate of the amount of soil that each alternative must address. Most remedial alternatives evaluated in the DAA use a volume estimate for developing costs, but some alternatives are based on area (e.g., capping, landfarm/agricultural practices). This appendix explains estimation methods and summarizes volume and area estimates that were generated for Rocky Mountain Arsenal (RMA) soils exceedance sites.

As discussed in Section 3.0, 111 exceedance sites have been identified as requiring consideration for remediation in the DAA. These sites were organized into 27 subgroups. Exceedance volumes and areas were estimated separately for each of the sites. The estimates for each site were summed into medium group or subgroup totals to allow sites with similar remediation characteristics to be evaluated together.

The medium subgroups are classified into four categories based on the type of criteria that are exceeded. These categories are the Potential Unexploded Ordnance (UXO) Presence, Potential Agent Presence, Biota Exceedance, and Human Health Exceedance Categories. The 27 medium subgroups are listed below by exceedance category.

### Potential UXO Presence Category

- Munitions Testing Medium Group

### Potential Agent Presence Category

- North Plants Subgroup
- Toxic Storage Yards Subgroup

### Biota Exceedance Category

- Lake Sediments Medium Group
- Surficial Soils Medium Group
- Ditches/Drainage Areas Medium Group



### Human Health Exceedance Category

- Basin A Medium Group
- Basin F Wastepile Medium Group
- Secondary Basins Subgroup
- Former Basin F Subgroup
- Basin F Exterior Subgroup
- Sanitary/Process Water Sewers Subgroup
- Chemical Sewers Subgroup
- Complex Trenches Subgroup
- Shell Trenches Subgroup
- Hex Pit Subgroup
- Sanitary Landfills Medium Group
- Section 36 Lime Basins Subgroup
- Buried M-1 Pits Subgroup
- South Plants Central Processing Area Subgroup
- South Plants Ditches Subgroup
- South Plants Tank Farm Subgroup
- South Plants Balance of Areas Subgroup
- Buried Sediments Subgroup
- Sand Creek Lateral Subgroup
- Section 36 Balance of Areas Subgroup
- Burial Trenches Subgroup

Site Evaluation Criteria (SEC) used to determine Biota exceedance volumes, Human Health exceedance volumes, and Principal Threat exceedance volumes are listed in Table 1.4-1. Principal Threat exceedance volume is a specific category of exceedance and is contained within the Human Health exceedance volume.

### A.2 ESTIMATION FOR POTENTIAL UXO AND AGENT PRESENCE CATEGORIES

The sites included in the UXO or agent exceedance categories potentially contain agent and/or UXO but do not exceed Biota or Human Health Site Evaluation Criteria (SEC) except as isolated exceedances. Area estimates for sites in these groups are determined from boundaries on maps presented in the Remedial Investigation Summary Report (RISR) (EBASCO 1992/RIC 92017R01). Potential depth of contamination for the agent category sites are based on the distribution of analytes as presented in the study area reports (SARs) (EBASCO 1989a-g). The potential depth of contamination used for UXO calculations is assumed to be 2 ft except for the

impact area of Site ESA-4A which is assumed to be 6 ft. These depths are used with the area estimates to calculate potential volumes for the UXO and agent categories. The estimated volume of soil reflects a 0.1 percent factor to account for actual agent or UXO occurrence within the potential soils volume. Further characterization for both the agent and UXO categories is ongoing and will be used for remedial design purposes.

### A.3 ESTIMATION FOR BIOTA AND HUMAN HEALTH EXCEEDANCE CATEGORIES

Exceedance volume estimates for sites in the Biota or Human Health Exceedance Categories are generated by one of two methods. The distributions of contaminants in larger sites are modeled using a commercial software package (TECHBASE). Modeled sites account for the majority of contaminated area and volume in the Biota and Human Health Exceedance Categories and include the basins, lakes, South Plants complex, and other selected sites. Section A.4 presents a detailed description of the TECHBASE modeling procedure and resulting estimates.

Volume and area estimates from the SARs (EBASCO 1989a-g) are used for small sites or sites that are not considered amenable to modeling by computer. In general, if modeling is subject to great uncertainty due to the particular physical characteristics of a site or limited data availability, volume estimates from the SARs are utilized. This is the case for disposal trenches/pits or landfills, where the contaminants are highly heterogenous; for the chemical and sanitary sewers where there is highly uneven spatial contamination; and for ditches where the site configuration is extremely long and narrow. The specific assumptions made in calculating estimates for these various sites are detailed in each SAR document (EBASCO 1989a-g).

The exceedance volume estimates for sites in the Biota Exceedance Category are determined by computer or from the SARs. In both methods, the area exceeding the biota SEC for each COC is also estimated, and a total biota exceedance area for the site is generated by overlapping the exceedance areas for individual contaminants. As discussed in Section 7.1, three sites included in the Lake Sediments Medium Group also contain limited volumes exceeding Human Health SEC. These volumes are estimated from computer models of the sites by the method discussed in Section A.4.

Exceedance volumes are generated for human health exceedance sites based on the Human Health SEC which consists of a  $10^{-4}$  cumulative cancer risk and a noncarcinogenic hazard index of one. Exceedance volumes between the soil surface and a depth of 10 ft (or to the water table if shallower than 10 ft) are estimated independently for each COC exceeding the Human Health SEC within a site. Under both estimation methods used, contaminant-specific exceedance volumes are subsequently combined to generate additive totals for contaminant groups (i.e., OCPs), contaminant types (i.e., organic or inorganic), and for the total contaminants. These totals are calculated by taking into account overlapping volumes among contaminants in order to avoid counting the same soil volume more than once in the total volume estimates. Estimates of the surface area corresponding to the total human health exceedance volumes (0 to 10 ft in depth) are also generated for each site.

Volumes and areas are also estimated for the Principal Threat Criteria of 1000 times PRGs. Estimation methods are the same as for the Human Health SEC. For the Complex Trenches subgroup, principal threat areas are considered to be all anomalies in which trenches were discovered. Volumes are estimated using the anomaly area projected over the trench depth as determined in the RI. The depth used for Anomaly G is based on the maximum of encountered depths for other anomalies investigated.

Portions of human health exceedance sites do not exceed Human Health SEC but are of concern because of potential agent presence, potential UXO presence, or biota exceedances. The volumes and areas that potentially contain UXO or agent are estimated by the same approach used for the agent and UXO categories discussed in Section A.2.0. The parts of these sites that exceed Biota SEC but do not exceed Human Health SEC are estimated as outlined earlier in this section for biota exceedance sites. It should be clearly noted, therefore, that exceedances for any category (biota, UXO or agent) may be present within the human health exceedance medium groups.

#### A.4 COMPUTERIZED MODELING AND ESTIMATION PROCEDURES

Computerized models provide the capability to readily generate exceedance volumes for individual contaminants and totals for combinations of contaminants under a variety of scenarios

in an efficient and timely manner. Because of this need to modify scenarios in the DAA, a computer software program was selected to model the exceedance volumes. TECHBASE, developed by MINEsoft, Ltd., is a relational database management system that features statistics, graphics, and two- and three-dimensional modeling capabilities. This software is used to create models of soil contamination at the RMA sites where modeling is considered appropriate.

A database is set up for each site, and the analytical data from the remedial investigation (RI) soil borings are loaded into the TECHBASE databases. A three-dimensional model is created for each site, bounded vertically by the ground surface and the depth of the water table, and bounded laterally by the site boundary as defined in the RI. Setting up a site model in TECHBASE requires defining various model parameters as described below.

#### A.4.1 MODELING PARAMETERS

Each model can be visualized as a three-dimensional stack of blocks; the number and dimensions of the blocks are specified by the user. Block sizes are chosen to be a constant 1 ft in thickness with side length equal to at most one-third the average distance between soil borings. This block sizing is chosen to allow for a distribution of model values between the boring locations. Block sizes range from 10 ft square to 75 ft square in the RMA sites modeled.

A concentration for each contaminant is then estimated for each block in the model using the analytical data collected during the RI. The TECHBASE routine searches within a predefined volume around each block for detected concentrations in soil borings as well as samples below the certified reporting limit. An inverse distance squared algorithm is used to calculate the concentration at the center of the block based on all data found in the search volume (i.e., measured concentrations at a distance of  $2X$  ft from the center of the block were weighted one-quarter as much as concentrations at  $X$  ft from the center of the block). The search volume is defined based on the density of analytical data available for a site. The vertical search radius is chosen as the average distance between samples in a standard soil boring (5 ft). The horizontal search radius is chosen as twice the approximate average distance between soil borings in a site (150 ft to 1200 ft in the sites modeled), which allows for complete site coverage by the model.

#### A.4.2 VOLUME ESTIMATION TECHNIQUE

The soil exceedance volumes in the 0 to 10 ft (or water table) depth range are calculated for each analyte by using a filter to identify the number of blocks in the model in exceedance and multiplying this number by the volume of a block. The total soil volume in exceedance for all contaminants in a site is calculated accounting for additivity among contaminants. Additivity accounts for the potential cumulative effect of multiple contaminants, none of which, by themselves, generate exceedances. The calculated concentration of each contaminant in a block is divided by the Human Health PRG to produce an exceedance factor. These exceedance factors are summed separately for carcinogenic contaminants and for noncarcinogenic contaminants. If the respective additive sum is greater than one for noncarcinogenic contaminants or 100 for carcinogenic contaminants, then that block is counted into the total human health exceedance volume for the site. This procedure for handling additivity among contaminants is based on the methodology used in the Exposure Assessment (EBASCO 1990/RIC 90277R06).

Biota exceedances are also estimated to account for additivity. Calculated concentrations for biota contaminants of concern in a block are divided by the Biota PRG to produce exceedance factors. If the sum of the exceedance factors for the biota COCs in a block is greater than ten, then the volume contained in the block is counted as being in exceedance of biota criteria. Principal threat volumes are estimated using the same additivity exceedance. Model blocks counted as principal threat exceedances are those with the additive sum of exceedance factors greater than 1000 for either carcinogenic or noncarcinogenic contaminants.

Areas for both biota and human health sites are determined by projecting exceedance blocks to the surface and multiplying the number of projected blocks by the area of a block. In some cases the human health areas reported are adjusted to incorporate some biota area since remedial alternatives would not be applied to the actual irregular shape of the exceedance area. This results in the inclusion of biota exceedance areas within the human health area totals in some sites. Perimeters are estimated from these adjusted projected areas and can exhibit the same incorporation of biota exceedance area.

It is important to note that the inverse distance squared algorithm used in TECHBASE to estimate analyte concentrations between soil borings is one of many possible ways to generate a contaminant model and estimate exceedance volumes for the sites. For example, the TECHBASE method described in this section tends to be more conservative and generate larger exceedance volumes than a two-dimensional Thiessen polygon method of extending contamination halfway between soil boring hits and nonhits. For contaminants with low SEC (which account for the majority of exceedance volume), the inverse distance squared algorithm will tend to extend the area of exceedance more than halfway to adjacent non-exceedance borings, resulting in a larger estimate of exceedance area and volume than the half-distance Thiessen polygon approach. The TECHBASE methodology resulting in conservative estimates is considered appropriate for alternative evaluation in the DAA.

#### A.5 EXCEEDANCE VOLUMES AND AREAS

Tables A-1 through A-5 summarize the areas and volumes that were calculated for the 111 exceedance sites and present subtotals by medium subgroups. Table A-1 lists the exceedance volume and area estimates for medium/subgroups in the Potential Agent Presence and Potential UXO Presence Categories in addition to portions of the Human Health Exceedance Category. Table A-2 presents the exceedance areas and volumes for the medium groups in the Biota Exceedance Category. The table lists volume estimates for the OCP contaminant group, total organic, total inorganic and overall exceedance volumes for each site and medium group in the Biota Exceedance Category. Table A-3 lists the human health exceedance volume estimates for OCPs, volatiles (VHC), fluoroacetic acid (FC2A), total organic, total inorganic, and overall exceedance volumes for each site and medium group/subgroup in the Human Health Exceedance Category. Table A-4 presents the exceedance volumes and areas for the Principal Threat scenario and Table A-5 presents the volume exceeding only the Biota SEC in sites in the Human Health Exceedance Category. Table A-6 lists the areal extent of exceedances for human health areas and combined biota plus human health areas for each site and medium group/subgroup in the Human Health Exceedance Category.

## A.6 REFERENCES

RIC 89166R08

EBASCO (Ebasco Services Incorporated) 1989a, May. Final Remedial Investigation Report Volume XII, Western Study Area. Version 3.3, Volumes I through V.

RIC 89166R03

EBASCO 1989b, June. Final Remedial Investigation Report Volume VI, Southern Study Area. Version 3.3, Volumes I through V.

RIC 89166R02

EBASCO 1989c, June. Final Remedial Investigation Report Volume VII, Eastern Study Area. Version 3.3, Volumes I through IV.

RIC 89166R04

EBASCO 1989d, July. Final Remedial Investigation Report Volume VIII, South Plants Study Area. Version 3.3, Volumes I through VI.

RIC 89166R05

EBASCO 1989e, July. Final Remedial Investigation Report Volume IX, North Plants Study Area. Version 3.3, Volumes I through III.

RIC 89166R06

EBASCO 1989f, July. Final Remedial Investigation Report Volume X, Central Study Area. Version 3.3, Volumes I through VIII.

RIC 89166R07

EBASCO 1989g, July. Final Remedial Investigation Report Volume XI, North Central Study Area. Version 3.3, Volumes I through XIV.

RIC 90277R06

EBASCO 1990, September. Final Human Health Exposure Assessment for Rocky Mountain Arsenal; Volume VII, Summary Exposure Assessment.

RIC 92017R01

EBASCO 1992, January. Final Remedial Investigation Summary Report, Version 3.2.

Table A-1. Potential UXO Presence and Agent Presence Areas and Volumes

| Medium Group<br>or Subgroup       | SARSite<br>Number | Potential Agent<br>Area (sy) | Depth<br>(ft) | Estimated<br>Volume (cy) | Potential UXO<br>Area (sy) | Depth<br>(ft) | Estimated<br>Volume (cy) |
|-----------------------------------|-------------------|------------------------------|---------------|--------------------------|----------------------------|---------------|--------------------------|
| Munitions Testing<br>Medium Group | ESA-1a            | --                           | --            | --                       | 8,133                      | 2             | 5                        |
|                                   | ESA-1b            | --                           | --            | --                       | 6,592                      | 2             | 4                        |
|                                   | ESA-1c            | --                           | --            | --                       | 5,442                      | 2             | 4                        |
|                                   | ESA-1d            | --                           | --            | --                       | 8,044                      | 2             | 5                        |
|                                   | ESA-4a            | --                           | --            | --                       | 205,954                    | 6             | 412                      |
|                                   | ESA-4b            | --                           | --            | --                       | 29,541                     | 2             | 20                       |
|                                   | ESA-2c            | --                           | --            | --                       | 2,589                      | 2             | 2                        |
|                                   | ESA-2d            | --                           | --            | --                       | 1,186                      | 2             | 1                        |
| <b>Subtotal</b>                   |                   |                              |               |                          | <b>270,000</b>             |               | <b>450</b>               |
| Toxic Storage Yards<br>Subgroup   | ESA -3a           | 10,566                       | 5             | 18                       | --                         | --            | --                       |
|                                   | ESA-3b            | 121,411                      | 5             | 202                      | --                         | --            | --                       |
|                                   | ESA-3c            | 73,776                       | 5             | 123                      | --                         | --            | --                       |
|                                   | ESA-3d            | 32,600                       | 5             | 54                       | --                         | --            | --                       |
|                                   | ESA-3e            | 574                          | 5             | 1                        | --                         | --            | --                       |
|                                   | ESA-3f            | 9,791                        | 5             | 16                       | --                         | --            | --                       |
|                                   | ESA-3g            | 1,554                        | 5             | 3                        | --                         | --            | --                       |



Table A-1. Potential UXO Presence and Agent Presence Areas and Volumes

| Medium Group<br>or Subgroup | SAR Site<br>Number | Potential Agent<br>Area (sy) | Depth<br>(ft) | Estimated<br>Volume (cy) | Potential UXO<br>Area (sy) | Depth<br>(ft) | Estimated<br>Volume (cy) |
|-----------------------------|--------------------|------------------------------|---------------|--------------------------|----------------------------|---------------|--------------------------|
| North Plants<br>Subgroup    | ESA-3h             | 3,452                        | 5             | 6                        | --                         | --            | --                       |
|                             | ESA-3i             | 14,826                       | 5             | 24                       | --                         | --            | --                       |
|                             | <b>Subtotal</b>    | <b>270,000</b>               | <b>5</b>      | <b>450</b>               |                            |               |                          |
|                             |                    |                              |               |                          |                            |               |                          |
|                             | NPSA-3             | 3,444                        | 10            | 12                       | --                         | --            | --                       |
|                             | NPSA-5             | 3,074                        | 10            | 10                       | --                         | --            | --                       |
|                             | NPSA-6             | 2,778                        | 10            | 9                        | --                         | --            | --                       |
|                             | Bldg 1601          | 10,837                       | 5             | 18                       | --                         | --            | --                       |
|                             | Bldg 1606          | 4,998                        | 5             | 8                        | --                         | --            | --                       |
|                             | Bldg 1607          | 3,199                        | 5             | 6                        | --                         | --            | --                       |
|                             | <b>Subtotal</b>    | <b>28,000</b>                |               | <b>63</b>                |                            |               |                          |
| Basin A<br>Medium Group     |                    |                              |               |                          |                            |               |                          |
|                             | NCSA-1a            | 404,728                      | 5             | 676                      | 120,987                    | 2             | 81                       |
|                             | NCSA-1e            | 13,423                       | 5             | 22                       | 13,423                     | 2             | 9                        |
|                             | <b>Subtotal</b>    | <b>420,000</b>               |               | <b>700</b>               | <b>130,000</b>             |               | <b>90</b>                |

Table A-1. Potential UXO Presence and Agent Presence Areas and Volumes

| Medium Group<br>or Subgroup                         | SAR Site<br>Number | Potential Agent<br>Area (sy) | Depth<br>(ft) | Estimated<br>Volume (cy) | Potential UXO<br>Area (sy) | Depth<br>(ft) | Estimated<br>Volume (cy) |
|-----------------------------------------------------|--------------------|------------------------------|---------------|--------------------------|----------------------------|---------------|--------------------------|
| Complex Trenches<br>Subgroup                        | CSA-1c             | 374,538                      | 10            | 1,248                    | 374,538                    | 10            | 1,248                    |
| Chemical Sewers<br>Subgroup                         | CSA-3              | 8,200                        | 2             | 60                       | --                         | --            | --                       |
|                                                     | NPSA-1             | 16,900                       | 2             | 110                      | --                         | --            | --                       |
|                                                     | SPSA-10            | 49,000                       | 3             | 470                      | --                         | --            | --                       |
|                                                     | <b>Subtotal</b>    | <b>74,000</b>                |               | <b>640</b>               |                            |               |                          |
| Section 36 Lime<br>Basins Subgroup                  | NCSA-1b            | 33,870                       | 8             | 90                       | --                         | --            | --                       |
| Buried M-1 Pits<br>Subgroup                         | SPSA-1e            | 8,600                        | 10            | 29                       | --                         | --            | --                       |
| South Plants Central<br>Processing Area<br>Subgroup | SPSA-1a            | 86,519                       | 10            | 288                      | --                         | --            | --                       |

Table A-1. Potential UXO Presence and Agent Presence Areas and Volumes

| Medium Group<br>or Subgroup               | SAR Site<br>Number | Potential Agent<br>Area (sy) | Depth<br>(ft) | Estimated<br>Volume (cy) | Potential UXO<br>Area (sy) | Depth<br>(ft) | Estimated<br>Volume (cy) |
|-------------------------------------------|--------------------|------------------------------|---------------|--------------------------|----------------------------|---------------|--------------------------|
| South Plants Balance<br>of Areas Subgroup | SPSA-1b            | 25,759                       | 10            | 86                       | --                         | --            | --                       |
|                                           | SPSA-1g            | 3,556                        | 10            | 12                       | --                         | --            | --                       |
|                                           | SPSA-5b            | 13,204                       | 10            | 44                       | --                         | --            | --                       |
|                                           | SPSA-7c            | --                           | --            | --                       | 14,667                     | 10            | 49                       |
|                                           | <b>Subtotal</b>    | <b>43,000</b>                |               | <b>140</b>               | <b>15,000</b>              |               | <b>49</b>                |
| Section 36 Balance of<br>Areas Subgroup   | CSA-1b             | 74,056                       | 10            | 247                      | 75,204                     | 2             | 50                       |
|                                           | CSA-2A             | 6,185                        | 5             | 10                       | --                         | --            | --                       |
|                                           | CSA-4              | 8,037                        | 5             | 13                       | 134,067                    | 2             | 89                       |
|                                           | <b>Subtotal</b>    | <b>89,000</b>                |               | <b>270</b>               | <b>210,000</b>             |               | <b>89</b>                |
| Burial Trenches<br>Subgroup               | ESA-2a             | --                           | --            | --                       | 163,347                    | 10            | 544                      |
|                                           | ESA-2c             | 7,079                        | 5             | 12                       | 7,079                      | 2             | 5                        |
|                                           | <b>Subtotal</b>    | <b>7,100</b>                 |               | <b>12</b>                | <b>170,000</b>             |               | <b>550</b>               |
| <b>Total</b>                              |                    | <b>1,400,000</b>             |               | <b>3,600</b>             | <b>1,200,000</b>           |               | <b>2,600</b>             |



Table A-2. Exceedance Volumes and Areas for Biota Exceedance Category

| Medium Group           | SARSite Number  | Source of Estimate | Exceedance Area (sq) | OCPS           | Exceedance Volumes (bcy) | Organic        | Inorganic      | Total          | Predominant COCs  |
|------------------------|-----------------|--------------------|----------------------|----------------|--------------------------|----------------|----------------|----------------|-------------------|
| Lake Sediments         |                 |                    |                      |                |                          |                |                |                |                   |
|                        | SSA-1b          | Computer           | 94,000               | 94,815         | 94,815                   | 94,815         | 54,722         | 93,425         | OCPs, Mercury     |
|                        | SSA-1c          | Computer           | 130,000              | 55,093         | 55,093                   | 55,093         | 54,722         | 115,926        | OCPs, Mercury     |
|                        | SSA-1e          | Computer           | 110,000              | 2,593          | 2,593                    | 2,593          | 91,481         | 96,667         | Mercury           |
|                        | NCSA-7          | SAR/RI             | 1,944                | 3,117          | 3,117                    | 3,117          | 0              | 3,117          | Dieldrin          |
|                        | <b>Subtotal</b> |                    | <b>340,000</b>       | <b>160,000</b> | <b>160,000</b>           | <b>160,000</b> | <b>200,000</b> | <b>310,000</b> |                   |
| Surficial Soils        |                 |                    |                      |                |                          |                |                |                |                   |
|                        | NCSA-1g         | Inferred           | 63,000               | 11,000         | 11,000                   | 11,000         | 0              | 11,000         | Inferred OCPs     |
|                        | Surf. Soils     | Computer           | 5,500,000            | 814,815        | 814,815                  | 814,815        | 0              | 814,815        | Endrin, Dieldrin  |
|                        | <b>Subtotal</b> |                    | <b>5,500,000</b>     | <b>830,000</b> | <b>830,000</b>           | <b>830,000</b> | <b>0</b>       | <b>830,000</b> |                   |
| Ditches/Drainage Areas |                 |                    |                      |                |                          |                |                |                |                   |
|                        | CSA-2b          | SAR/RI             | 222                  | 81             | 81                       | 81             | 67             | 148            | Dieldrin, Mercury |
|                        | ESA-6c          | SAR/RI             | 170                  | 0              | 0                        | 0              | 1,056          | 1,056          | Arsenic           |
|                        | NCSA-1C         | SAR/RI             | 2,700                | 2,385          | 2,385                    | 2,385          | 1,215          | 2,667          | OCPs, Arsenic     |
|                        | NCSA-1d         | SAR/RI             | 5,196                | 4,006          | 4,006                    | 4,006          | 0              | 4,006          | Dieldrin, Endrin  |

Table A-2. Exceedance Volumes and Areas for Biota Exceedance Category

| Medium Group | SAR Site Number | Source of Estimate | Exceedance Area (sy) | OCPs             | Exceedance Volumes (bcy)<br>Organic | Inorganic      | Total            | Predominant COCs  |
|--------------|-----------------|--------------------|----------------------|------------------|-------------------------------------|----------------|------------------|-------------------|
|              | NCSA-1f         | SAR/RI             | 1,700                | 3,184            | 3,184                               | 1,971          | 3,184            | OCPs, Arsenic     |
|              | NCSA-2d         | SAR/RI             | 510                  | 751              | 751                                 | 685            | 751              | Dieldrin, Mercury |
|              | NCSA-5d         | SAR/RI             | 2,611                | 1,741            | 1,741                               | 0              | 1,741            | Dieldrin          |
|              | NPSA-8C         | SAR/RI             | 1,835                | 1,223            | 1,223                               | 0              | 1,223            | OCPs              |
|              | NPSA-8c         | SAR/RI             | 1,650                | 0                | 0                                   | 1,100          | 1,100            | Arsenic           |
|              | NPSA-9f         | SAR/RI             | 390                  | 0                | 0                                   | 651            | 651              | Arsenic           |
|              | SSA-2a          | SAR/RI             | 6,033                | 7,968            | 7,968                               | 0              | 7,968            | OCPs              |
|              | SSA-2c          | SAR/RI             | 683                  | 456              | 456                                 | 0              | 456              | DDE               |
|              | WSA-1f          | SAR/RI             | 138                  | 93               | 93                                  | 0              | 93               | Aldrin, Dieldrin  |
|              | <b>Subtotal</b> |                    | <b>25,000</b>        | <b>22,000</b>    | <b>22,000</b>                       | <b>7,100</b>   | <b>25,000</b>    |                   |
|              | <b>Total</b>    |                    | <b>5,900,000</b>     | <b>1,000,000</b> | <b>1,000,000</b>                    | <b>210,000</b> | <b>1,200,000</b> |                   |

Subtotals and totals rounded to 2 significant figures.

Predominant COCs column indicates contaminant(s) driving volume at each site.

bcy - bank cubic yard

COCs - contaminants of concern

DDE - dichlorodiphenylethane

OCPs - organochlorine pesticides

SAR/RI - Study Area Reports issued as part of the Remedial Investigation (EBASCO, 1989a-g)

sy - square yard

Note: The assumed depth of exceedance of Biota Site Evaluation Criteria are as follows:

Lake Sediments: Exceedance depth based on actual data to a maximum of 5 ft.

Surficial Soils: Exceedance depth of 6 inches.

Ditches/Drainage Areas: Exceedance depth based on actual data to a maximum of 10 ft.

Table A-3. Exceedance Volumes for Human Health Exceedance Category: Human Health Site Evaluation Criteria

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| Medium Group<br>or Subgroup       | SAR Site<br>Number | Source of<br>Estimate | OCP            | VHC      | Exceedance Volumes by Contaminant Group (bcy) | Organic    | Inorganic | Total          | Predominant<br>COCs |
|-----------------------------------|--------------------|-----------------------|----------------|----------|-----------------------------------------------|------------|-----------|----------------|---------------------|
| Basin A Medium<br>Group           | NCSA-1a            | Computer              | 261,574        | 0        | 327,000                                       | 556        |           | 327,500        | OCPs                |
|                                   | NCSA-1e            | Computer              | 548            | 0        | 548                                           | 133        |           | 2,700          | Chlordane, As       |
|                                   | <b>Subtotal</b>    |                       | <b>260,000</b> | <b>0</b> | <b>330,000</b>                                | <b>700</b> |           | <b>330,000</b> |                     |
| Basin F Wastepile<br>Medium Group |                    | Survey                | 580,000        | 580,000  | 580,000                                       | 0          |           | 580,000        | OCPs, VHC,<br>CLC2A |
| Secondary Basins<br>Subgroup      | NCSA-2a            | Computer              | 6,296          | 0        | 6,667                                         | 0          |           | 6,667          | OCPs                |
|                                   | NCSA-2b            | Computer              | 0              | 0        | 0                                             | 0          |           |                |                     |
|                                   | NCSA-5a            | Computer              | 89             | 0        | 6,400                                         | 0          |           | 104            | OCPs                |
|                                   | <b>Subtotal</b>    |                       | <b>6,400</b>   | <b>0</b> | <b>6,800</b>                                  | <b>0</b>   |           | <b>6,800</b>   |                     |
| Former Basin F<br>Subgroup        | NCSA-3             | Computer              | 366,667        | 100,093  | 700,731                                       | 0          |           | 701,111        | OCPs,<br>CLC2A      |

Table A-3. Exceedance Volumes for Human Health Exceedance Category: Human Health Site Evaluation Criteria

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| Medium Group<br>or Subgroup  | SAR Site<br>Number | Source of<br>Estimate | Exceedance Volumes by Contaminant Group (bcy) |               |               | Total         | Predominant<br>COCs                      |
|------------------------------|--------------------|-----------------------|-----------------------------------------------|---------------|---------------|---------------|------------------------------------------|
|                              |                    |                       | OCP                                           | VHC           | Organic       | Inorganic     |                                          |
| Basin F Exterior<br>Subgroup | NCSA-4a            | Computer              | 1,389                                         | 0             | 3,380         | 0             | Isodrin<br>3,380                         |
|                              | NCSA-4b            | Computer              | 75,312                                        | 0             | 76,146        | 0             | OCPs<br>76,146                           |
|                              | <b>Subtotal</b>    |                       | <b>77,000</b>                                 | <b>0</b>      | <b>80,000</b> | <b>0</b>      | <b>80,000</b>                            |
| Chemical Sewers<br>Subgroup  | CSA-3              | SAR/RI                | 0                                             | --            | 5,500         | 0             | CLC2A<br>5,500                           |
|                              | NCSA-6a            | SAR/RI                | 17,700                                        | --            | 17,700        | 0             | OCPs<br>17,700                           |
|                              | NCSA-6b            | SAR/RI                | 0                                             | --            | 1,500         | 0             | CLC2A<br>1,500                           |
|                              | NPSA-1             | SAR/RI                | 0                                             | --            | 11,000        | 0             | CLC2A<br>11,000                          |
|                              | SPSA-10            | SAR/RI                | 46,500                                        | 46,500        | 46,500        | 46,500        | OCPs, DBCP<br>Hg, As,<br>CLC2A<br>46,500 |
|                              | <b>Subtotal</b>    |                       | <b>64,000</b>                                 | <b>47,000</b> | <b>82,000</b> | <b>47,000</b> | <b>82,000</b>                            |



Table A-3. Exceedance Volumes for Human Health Exceedance Category: Human Health Site Evaluation Criteria

| Medium Group<br>or Subgroup                  | SAR Site<br>Number | Source of<br>Estimate | Exceedance Volumes by Contaminant Group (bcy) |     |         |           | Total   | Predominant<br>COCs          |
|----------------------------------------------|--------------------|-----------------------|-----------------------------------------------|-----|---------|-----------|---------|------------------------------|
|                                              |                    |                       | OCP                                           | VHC | Organic | Inorganic |         |                              |
| Sanitary/Process<br>Water Sewers<br>Subgroup | NCSA-8a            | SAR/RI                | 59,600                                        | --  | 59,600  | 18,000    | 59,600  | Dieldrin, Lead               |
|                                              | SPSA-11            | SAR/RI                | 17,000                                        | --  | 17,000  | 0         | 17,000  | Dieldrin                     |
|                                              | SPSA-12            | SAR/RI                | 78,000                                        | --  | 78,000  | 0         | 78,000  | Dieldrin                     |
|                                              | WSA-7a             | SAR/RI                | 0                                             | --  | 0       | 0         | 0       | None                         |
|                                              | Subtotal           |                       | 150,000                                       | 0   | 150,000 | 18,000    | 150,000 |                              |
| Complex Trenches<br>Subgroup                 | CSA-1c             | SAR/RI                | 470,000                                       | 0   | 470,000 | 470,000   | 470,000 | OCPs,<br>Arsenic,<br>Mercury |
| Shell Trenches<br>Subgroup                   | CSA-1a             | SAR/RI                | 100,000                                       | 0   | 100,000 | 0         | 100,000 | OCPs, DBCP                   |
| Hex Pit Subgroup                             | SPSA-1f            | SAR/RI                | 3,300                                         | 0   | 3,300   | 3,300     | 3,300   | OCPs                         |

Table A-3. Exceedance Volumes for Human Health Exceedance Category: Human Health Site Evaluation Criteria Page 4 of 7

| Medium Group<br>or Subgroup        | SAR Site<br>Number | Source of<br>Estimate | OCP            | VHC      | Organic        | Inorganic      | Total          | Predominant<br>COCs                    |
|------------------------------------|--------------------|-----------------------|----------------|----------|----------------|----------------|----------------|----------------------------------------|
| Sanitary Landfills<br>Medium Group | CSA-1d             | SAR/RI                | 60,310         | 0        | 60,310         | 0              | 60,310         | OCPs                                   |
|                                    | ESA-2b             | SAR/RI                | 210,645        | 0        | 210,645        | 0              | 210,645        | Inferred OCPs                          |
|                                    | SSA-4              | SAR/RI                | 10,469         | 0        | 10,469         | 0              | 10,469         | OCPs                                   |
|                                    | WSA-2              | SAR/RI                | 0              | 0        | 0              | 57,926         | 57,926         | Chromium                               |
|                                    | WSA-3c             | SAR/RI                | 0              | 0        | 0              | 695            | 695            | Cadmium                                |
|                                    | WSA-5a             | Inferred              | 29,200         | 0        | 29,200         | 29,200         | 29,200         | Inferred<br>Isodrin, Lead,<br>Chromium |
|                                    | WSA-5c             | Inferred              | 7,467          | 0        | 7,467          | 7,467          | 7,467          | Inferred<br>Isodrin, Lead,<br>Chromium |
| Section 36 Lime<br>Basins Subgroup | WSA-5d             | SAR/RI                | 15,050         | 0        | 15,050         | 50,359         | 50,359         | Isodrin, Lead,<br>Chromium             |
|                                    | <b>Subtotal</b>    |                       | <b>330,000</b> | <b>0</b> | <b>330,000</b> | <b>150,000</b> | <b>430,000</b> |                                        |
|                                    | NCSA-1b            | Computer              | 82,801         | 0        | 106,000        | 0              | 106,000        | OCPs                                   |
| Buried M-1 Pits<br>Subgroup        | SPSA-1e            | Computer              | 337            | 1,611    | 2,259          | 29,063         | 29,063         | Arsenic,<br>Mercury                    |

Table A-3. Exceedance Volumes for Human Health Exceedance Category: Human Health Site Evaluation Criteria Page 5 of 7

| Medium Group<br>or Subgroup                         | SAR Site<br>Number | Source of<br>Estimate | Exceedance Volumes by Contaminant Group (bcy) |         |         |           | Total   | Predominant<br>COCs                   |
|-----------------------------------------------------|--------------------|-----------------------|-----------------------------------------------|---------|---------|-----------|---------|---------------------------------------|
|                                                     |                    |                       | OCF                                           | VHC     | Organic | Inorganic |         |                                       |
| South Plants<br>Central Processing<br>Area Subgroup | SPSA-1a            | Computer              | 361,542                                       | 43,606  | 400,000 | 58,000    | 437,274 | OCPs,<br>Arsenic,<br>Mercury          |
|                                                     |                    |                       |                                               |         |         |           |         |                                       |
| South Plants Ditches<br>Subgroup                    |                    | Computer              | 57,481                                        | 0       | 60,030  | 415       | 60,030  | OCPs,<br>Chlordane                    |
| South Plants Tank<br>Farm Subgroup                  |                    | Computer              | 0                                             | 119,230 | 119,230 | 0         | 119,230 | DCPD<br>(Indirect)                    |
| South Plants Balance<br>of Areas Subgroup           |                    | Computer              | 33,556                                        | 0       | 62,000  | 112,000   | 151,000 | OCPs,<br>Chromium                     |
| Buried Sediments<br>Subgroup                        | SSA-3a             | Computer              | 0                                             | 0       | 0       | 0         | 0       | Biota<br>exceedances<br>only for OCPs |
|                                                     | SSA-3b             | Computer              | 12,967                                        | 0       | 26,800  | 0         | 26,800  | Dieldrin                              |
|                                                     | Subtotal           |                       | 13,000                                        | 0       | 27,000  | 0         | 27,000  |                                       |

Table A-3. Exceedance Volumes for Human Health Exceedance Category: Human Health Site Evaluation Criteria

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| Medium Group<br>or Subgroup             | SAR Site<br>Number | Source of<br>Estimate | Exceedance Volumes by Contaminant Group (bcy) |          |                |              | Total          | Predominant<br>COCs |
|-----------------------------------------|--------------------|-----------------------|-----------------------------------------------|----------|----------------|--------------|----------------|---------------------|
|                                         |                    |                       | OCP                                           | VHC      | Organic        | Inorganic    |                |                     |
| Sand Creek Lateral<br>Subgroup          | NCSA-5c            | SAR/RI                | 2,703                                         | 0        | 2,703          | 0            | 2,703          | Dieldrin            |
|                                         | NPSA-4             | SAR/RI                | 130                                           | 0        | 130            | 0            | 130            | CLC2A               |
|                                         | NCSA-5b            | Inferred              | 2,667                                         | 0        | 2,667          | 0            | 2,667          | Chlordane           |
|                                         | SSA-2b             | SAR/RI                | 5,850                                         | 0        | 5,850          | 1,704        | 7,554          | OCPs                |
|                                         | WSA-6a             | SAR/RI                | 0                                             | 0        | 0              | 512          | 512            | Chromium,<br>Lead   |
|                                         | <b>Subtotal</b>    |                       | <b>11,000</b>                                 | <b>0</b> | <b>4,000</b>   | <b>2,200</b> | <b>14,000</b>  |                     |
| Section 36 Balance<br>of Areas Subgroup |                    |                       |                                               |          |                |              |                |                     |
|                                         | CSA-1b             | Computer              | 63,843                                        | 0        | 150,949        | 0            | 150,949        | OCPs,<br>Chlordane  |
|                                         | CSA-2a             | SAR/RI                | 0                                             | 0        | 0              | 0            | 0              | None                |
|                                         | CSA-4              | Computer              | 0                                             | 0        | 0              | 0            | 0              | None                |
|                                         | <b>Subtotal</b>    |                       | <b>64,000</b>                                 | <b>0</b> | <b>150,000</b> | <b>0</b>     | <b>150,000</b> |                     |

Table A-3. Exceedance Volumes for Human Health Exceedance Category: Human Health Site Evaluation Criteria Page 7 of 7

| Medium Group<br>or Subgroup | SAR Site<br>Number | Source of<br>Estimate | Exceedance Volumes by Contaminant Group (bcy) |         |           |           | Total     | Predominant<br>COCs |
|-----------------------------|--------------------|-----------------------|-----------------------------------------------|---------|-----------|-----------|-----------|---------------------|
|                             |                    |                       | OCP                                           | VHC     | Organic   | Inorganic |           |                     |
| Burial Trenches<br>Subgroup |                    |                       |                                               |         |           |           |           |                     |
|                             | ESA-2a             | SAR/RI                | 0                                             | 0       | 0         | 31,156    | 31,156    | Chromium,<br>Lead   |
|                             | ESA-2c             | SAR/RI                | 0                                             | 0       | 0         | 0         | 0         | None                |
|                             | Total              |                       | 3,000,000                                     | 890,000 | 3,800,000 | 920,000   | 4,100,000 |                     |

Subtotals and totals rounded to 2 significant figures.  
Predominant COCs column indicates contaminant(s) driving volume at each site.

As - arsenic  
bcy - bank cubic yard  
CLC2A - chloroacetic acid  
COCs - contaminants of concern  
DCPD - dicyclopentadiene  
DBCP - dibromochloropropane  
Hg - Mercury  
OCPs - organochlorine pesticides  
SAR/RI - Study Area Reports issued as part of the Remedial Investigation (EBASCO, 1989a-g)  
VHC - volatile hydrocarbon

Table A-4. Exceedance Areas and Volumes for Human Health Exceedance Category: Principal Threat Criteria

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| Medium Group<br>or Subgroup       | SAR Site<br>Number | Source of<br>Estimate | Exceedance<br>Area (sy) | Exceedance Volumes by Contaminant Group (bcy) |               | Total     | Predominant<br>COCs     |
|-----------------------------------|--------------------|-----------------------|-------------------------|-----------------------------------------------|---------------|-----------|-------------------------|
|                                   |                    |                       |                         | OCPs                                          | Organic       | Inorganic |                         |
| Basin A Medium<br>Group           | NCSA-1a            | Computer              | 17,000                  | 4,074                                         | 4,074         | 0         | OCPs                    |
|                                   | NCSA-1e            | Computer              | 0                       | 0                                             | 0             | 0         |                         |
|                                   | <b>Subtotal</b>    |                       | <b>17,000</b>           | <b>4,100</b>                                  | <b>4,100</b>  | <b>0</b>  | <b>4,600</b>            |
| Basin F Wastepile<br>Medium Group |                    |                       | 75,000                  | 580,000                                       | 580,000       | 0         | OCPs,<br>DBCP,<br>CLC2A |
|                                   |                    |                       |                         |                                               |               |           |                         |
| Former Basin F<br>Subgroup        | NCSA-3             | Computer              | 109,769                 | 157,037                                       | 223,573       | 0         | Aldrin,<br>Dieldrin     |
|                                   |                    |                       |                         |                                               |               |           |                         |
| Basin F Exterior<br>Subgroup      | NCSA-4a            | Computer              | 0                       | 0                                             | 0             | 0         |                         |
|                                   | NCSA-4b            | Computer <sup>1</sup> | 213,687                 | 33,854                                        | 34,271        | 0         | Dieldrin                |
|                                   | <b>Subtotal</b>    |                       | <b>210,000</b>          | <b>34,000</b>                                 | <b>34,000</b> | <b>0</b>  | <b>34,000</b>           |

Table A-4. Exceedance Areas and Volumes for Human Health Exceedance Category: Principal Threat Criteria

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| Medium Group<br>or Subgroup                     | SAR Site<br>Number | Source of<br>Estimate | Exceedance<br>Area (sy) | Exceedance Volumes by Contaminant Group (bcy) |         |           | Total   | Predominant<br>COCs            |
|-------------------------------------------------|--------------------|-----------------------|-------------------------|-----------------------------------------------|---------|-----------|---------|--------------------------------|
|                                                 |                    |                       |                         | OCPs                                          | Organic | Inorganic |         |                                |
| Chemical Sewers<br>Subgroup                     | SPSA-10            | SAR/RI                | 49,000                  | 47,000                                        | 47,000  | 47,000    | 47,000  | OCPs, DBCP<br>CLC2A, As,<br>Hg |
| Complex Trenches<br>Subgroup                    | CSA-1c             | SAR/RI                | 120,000                 | 362,000                                       | 362,000 | 402,000   | 440,000 | OCPs, As,<br>Hg                |
| Shell Trenches<br>Subgroup                      | CSA-1a             | SAR/RI                | 32,000                  | 100,000                                       | 100,000 | 0         | 100,000 | OCPs, DBCP                     |
| Hex Pit Subgroup                                | SPSA-1f            | SAR/RI                | 1,000                   | 3,300                                         | 3,300   | 3,300     | 3,300   | OCPs                           |
| Section 36 Lime <sup>1</sup><br>Basins Subgroup | NCSA-1b            | Computer              | 13,000                  | 1,134                                         | 19,000  | 0         | 19,000  | OCPs                           |
| Buried M-1 Pits<br>Subgroup                     | SPSA-1e            | Computer              | 8,600                   | 0                                             | 0       | 29,000    | 29,000  | Arsenic                        |

Table A-4. Exceedance Areas and Volumes for Human Health Exceedance Category: Principal Threat Criteria Page 3 of 3

| Medium Group<br>or Subgroup                         | SAR Site<br>Number | Source of<br>Estimate | Exceedance<br>Area (sy) | Exceedance Volumes by Contaminant Group (bcy) |           |           | Total     | Predominant<br>COCs |
|-----------------------------------------------------|--------------------|-----------------------|-------------------------|-----------------------------------------------|-----------|-----------|-----------|---------------------|
|                                                     |                    |                       |                         | OCPs                                          | Organic   | Inorganic |           |                     |
| South Plants Central<br>Processing Area<br>Subgroup |                    | Computer              | 180,000                 | 302,630                                       | 318,040   | 3,913     | 322,430   | OCPs,<br>Arsenic    |
| South Plants Ditches<br>Subgroup                    |                    | Computer              | 12,000                  | 6,281                                         | 6,281     | 0         | 6,281     | Aldrin              |
| South Plants Balance<br>of Areas Subgroup           |                    | Computer              | 17,000                  | 19,000                                        | 19,000    | 0         | 19,000    | Aldrin,<br>Dieldrin |
|                                                     | Total              |                       | 850,000                 | 1,600,000                                     | 1,600,000 | 490,000   | 1,800,000 |                     |

1 Principal Threat volume will not be addressed due to uncertainty in locating and excavating contamination.

Subtotals and totals rounded to 2 significant figures.

Predominant COCs column indicates the contaminant(s) driving volume at each site.

As - arsenic  
bcy - bank cubic yard  
CLC2A - chloroacetic acid  
DBCP - dibromochloropropane  
Hg - mercury  
OCPs - organochlorine pesticides  
sy - square yard  
SAR/RI - Study Area Reports issued as part of te Remedial Investigation 9EBASCO, 1989a-g)



Table A-5. Exceedance Areas and Volumes for Human Health Exceedance Category: Biota Site Evaluation Criteria Page 1 of 7

| Medium Group<br>or Subgroup       | SAR Site<br>Number | Source of<br>Estimate | Excess Biota<br>Area (sq) | Exceedance Volumes by Contaminant Group (bcy) | Mercury        | Total         | Predominant<br>COCs    |
|-----------------------------------|--------------------|-----------------------|---------------------------|-----------------------------------------------|----------------|---------------|------------------------|
| Basin A Medium<br>Group           | NCSA-1a            | Computer              | 286,257                   | 282,963                                       | 245,185        | 56,019        | 480,370 As, OCP        |
|                                   | NCSA-1e            | Computer              | 8,358                     | 13,541                                        | 14,593         | 14,696        | 15,911 OCPs, As,<br>Hg |
|                                   | <b>Subtotal</b>    |                       | <b>290,000</b>            | <b>300,000</b>                                | <b>260,000</b> | <b>71,000</b> | <b>500,000</b>         |
| Basin F Wastepile<br>Medium Group |                    | Survey                | 0                         | 0                                             | 0              | 0             | None                   |
|                                   |                    |                       |                           |                                               |                |               |                        |
|                                   |                    |                       |                           |                                               |                |               |                        |
| Secondary Basins<br>Subgroup      | NCSA-2a            | Computer              | 363,024                   | 221,944                                       | 11,481         | 0             | 248,981 OCPs           |
|                                   | NCSA-2b            | Computer              | 38,694                    | 18,015                                        | 3,970          | 0             | 21,807 OCPs            |
|                                   | NCSA-5a            | Computer              | 18,301                    | 11,970                                        | 6,133          | 104           | 18,281 OCPs            |
|                                   | <b>Subtotal</b>    |                       | <b>420,000</b>            | <b>250,000</b>                                | <b>22,000</b>  | <b>104</b>    | <b>290,000</b>         |
| Former Basin F<br>Subgroup        | NCSA-3             | Computer              | 57,000                    | 80,648                                        | 9,444          | 0             | 89,167 OCPs            |
|                                   |                    |                       |                           |                                               |                |               |                        |
|                                   |                    |                       |                           |                                               |                |               |                        |

Table A-5. Exceedance Areas and Volumes for Human Health Exceedance Category: Biota Site Evaluation Criteria Page 2 of 7

| Medium Group<br>or Subgroup  | SAR Site<br>Number | Source of<br>Estimate | Excess Biota<br>Area (sy) | Exceedance Volumes by Contaminant Group (bcy) |         |         | Total   | Predominant<br>COCs |
|------------------------------|--------------------|-----------------------|---------------------------|-----------------------------------------------|---------|---------|---------|---------------------|
|                              |                    |                       |                           | OCPs                                          | Arsenic | Mercury |         |                     |
| Basin F Exterior<br>Subgroup | NCSA-4a            | Computer              | 13,582                    | 51,088                                        | 0       | 0       | 51,088  | OCPs                |
|                              | NCSA-4b            | Computer              | 2,011,872                 | 379,688                                       | 0       | 0       | 400,833 | OCPs                |
|                              | Subtotal           |                       | 2,000,000                 | 430,000                                       | 0       | 0       | 450,000 |                     |
|                              |                    |                       |                           |                                               |         |         |         |                     |
| Chemical Sewers<br>Subgroup  | CSA-3              | SAR/RI                | 0                         | 0                                             | 0       | 0       | 0       | None                |
|                              |                    |                       |                           |                                               |         |         |         |                     |
|                              | NCSA-6a            | SAR/RI                | 0                         | 0                                             | 0       | 0       | 0       | None                |
|                              | NCSA-6b            | SAR/RI                | 0                         | 0                                             | 0       | 0       | 0       | None                |
|                              | NPSA-1             | SAR/RI                | 0                         | 0                                             | 0       | 0       | 0       | None                |
|                              | SPSA-10            | SAR/RI                | 0                         | 0                                             | 0       | 0       | 0       | None                |
|                              | Subtotal           |                       |                           |                                               |         |         |         |                     |

Table A-5. Exceedance Areas and Volumes for Human Health Exceedance Category: Biota Site Evaluation Criteria Page 3 of 7

| Medium Group<br>or Subgroup               | SAR Site<br>Number | Source of<br>Estimate | Excess Biota<br>Area (sy) | Exceedance Volumes by Contaminant Group (bcy) |         |         | Total         | Predominant<br>COCs |
|-------------------------------------------|--------------------|-----------------------|---------------------------|-----------------------------------------------|---------|---------|---------------|---------------------|
|                                           |                    |                       |                           | OCPs                                          | Arsenic | Mercury |               |                     |
| Sanitary/Process Water<br>Sewers Subgroup | NCSA-8a            | SAR/RI                | 0                         | 0                                             | 0       | 0       | 0             | None                |
|                                           | SPSA-11            | SAR/RI                | 0                         | 0                                             | 0       | 0       | 0             | None                |
|                                           | SPSA-12            | SAR/RI                | 0                         | 0                                             | 0       | 0       | 0             | None                |
|                                           | WSA-7a             | SAR/RI                | 19,300                    | 19,300                                        | 0       | 0       | 19,300        | Dieldrin            |
|                                           | <b>Subtotal</b>    |                       | <b>19,000</b>             | <b>19,000</b>                                 |         |         | <b>19,000</b> |                     |
| Complex Trenches<br>Subgroup              | CSA-1c             | SAR/RI                | 160,000                   | 37,254                                        | 23,893  | 0       | 39,000        | OCPs,<br>Arsenic    |
|                                           |                    |                       |                           |                                               |         |         |               |                     |
| Shell Trenches<br>Subgroup                | CSA-1a             | SAR/RI                | 0                         | 0                                             | 0       | 0       | 0             | None                |
|                                           |                    |                       |                           |                                               |         |         |               |                     |
| Hex Pit Subgroup                          | SPSA-1f            | SAR/RI                | 0                         | 0                                             | 0       | 0       | 0             | None                |
|                                           |                    |                       |                           |                                               |         |         |               |                     |

Table A-5. Exceedance Areas and Volumes for Human Health Exceedance Category: Biota Site Evaluation Criteria Page 4 of 7

| Medium Group<br>or Subgroup        | SAR Site<br>Number | Source of<br>Estimate | Excess Biota<br>Area (sy) | Exceedance Volumes by Contaminant Group (bcy) |          |              | Total        | Predominant<br>COCs |
|------------------------------------|--------------------|-----------------------|---------------------------|-----------------------------------------------|----------|--------------|--------------|---------------------|
|                                    |                    |                       |                           | OCPs                                          | Arsenic  | Mercury      |              |                     |
| Sanitary Landfills<br>Medium Group | CSA-1d             | SAR/RI                | 3,214                     | 1,454                                         | 0        | 1,722        | 3,176        | OCPs, Hg            |
|                                    | ESA-2b             | SAR/RI                | 0                         | 0                                             | 0        | 0            | 0            | None                |
|                                    | SSA-4              | SAR/RI                | 0                         | 0                                             | 0        | 0            | 0            | None                |
|                                    | WSA-2              | SAR/RI                | 0                         | 0                                             | 0        | 0            | 0            | None                |
|                                    | WSA-3c             | SAR/RI                | 0                         | 0                                             | 0        | 0            | 0            | None                |
|                                    | WSA-5a             | Inferred              | 0                         | 0                                             | 0        | 0            | 0            | None                |
|                                    | WSA-5c             | Inferred              | 0                         | 0                                             | 0        | 0            | 0            | None                |
|                                    | WSA-5d             | SAR/RI                | 0                         | 0                                             | 0        | 0            | 0            | None                |
|                                    | <b>Subtotal</b>    |                       | <b>3,200</b>              | <b>1,500</b>                                  | <b>0</b> | <b>1,700</b> | <b>3,200</b> |                     |
| Section 36 Lime Basins<br>Subgroup | NCSA-1b            | Computer              | 11,000                    | 82,245                                        | 49,745   | 21,806       | 92,801       | OCPs                |
|                                    |                    |                       |                           |                                               |          |              |              |                     |
| Buried M-1 Pits<br>Subgroup        | SPSA-1e            | Computer              | 0                         | 0                                             | 0        | 0            | 0            | None                |

Table A-5. Exceedance Areas and Volumes for Human Health Exceedance Category: Biota Site Evaluation Criteria Page 5 of 7

| Medium Group<br>or Subgroup                         | SAR Site<br>Number | Source of<br>Estimate | Excess Biota<br>Area (sy) | Exceedance Volumes by Contaminant Group (bcy) |         |         | Total   | Predominant<br>COCs |
|-----------------------------------------------------|--------------------|-----------------------|---------------------------|-----------------------------------------------|---------|---------|---------|---------------------|
|                                                     |                    |                       |                           | OCPs                                          | Arsenic | Mercury |         |                     |
| South Plants Central<br>Processing Area<br>Subgroup | SPSA-1a            | Computer              | 3,600                     | 179,852                                       | 61,570  | 48,652  | 179,852 | OCPs                |
| South Plants Ditches<br>Subgroup                    |                    | Computer              | 38,000                    | 132,089                                       | 0       | 11,556  | 137,363 | OCPs                |
| South Plants Tank<br>Farm Subgroup                  |                    | Computer              | 21,000                    | 32,000                                        | 0       | 0       | 32,000  | OCPs                |
| South Plants Balance<br>of Areas Subgroup           |                    | Computer              | 500,000                   | 485,807                                       | 178     | 36,622  | 569,244 | OCPs                |
| Buried Sediments<br>Subgroup                        | SSA-3a             | Computer              | 4,254                     | 0                                             | 0       | 8,333   | 8,333   | Hg                  |
|                                                     | SSA-3b             | Computer              | 44,571                    | 138,033                                       | 0       | 54,633  | 138,033 | OCPs                |
|                                                     | Subtotal           |                       | 47,000                    | 140,000                                       | 0       | 63,000  | 150,000 |                     |

Table A-5. Exceedance Areas and Volumes for Human Health Exceedance Category: Biota Site Evaluation Criteria Page 6 of 7

| Medium Group<br>or Subgroup             | SAR Site<br>Number | Source of<br>Estimate | Excess Biota<br>Area (sy) | Exceedance Volumes by Contaminant Group (bcy) |            |               | Total          | Predominant<br>COCs |
|-----------------------------------------|--------------------|-----------------------|---------------------------|-----------------------------------------------|------------|---------------|----------------|---------------------|
|                                         |                    |                       |                           | OCs                                           | Arsenic    | Mercury       |                |                     |
| Sand Creek Lateral<br>Subgroup          | NCSA-5b            | Inferred              | 1,245                     | 1,008                                         | 519        | 519           | 1,008          | OCs                 |
|                                         | NCSA-5c            | SAR/RI                | 24,500                    | 18,740                                        | 0          | 0             | 18,740         | OCs                 |
|                                         | NPSA-4             | SAR/RI                | 0                         | 0                                             | 0          | 0             | 0              | None                |
|                                         | SSA-2b             | SAR/RI                | 7,112                     | 5,410                                         | 0          | 0             | 5,410          | OCs                 |
|                                         | WSA-6a             | SAR/RI                | 0                         | 0                                             | 0          | 0             | 0              | None                |
|                                         | <b>Subtotal</b>    |                       | <b>33,000</b>             | <b>25,000</b>                                 | <b>520</b> | <b>520</b>    | <b>25,000</b>  |                     |
| Section 36 Balance of<br>Areas Subgroup |                    |                       |                           |                                               |            |               |                |                     |
| Burial Trenches<br>Subgroup             | CSA-1b             | Computer              | 129,252                   | 130,671                                       | 0          | 20,833        | 152,593        | OCs                 |
|                                         | CSA-2a             | SAR/RI                | 2,583                     | 1,722                                         | 0          | 0             | 1,722          | Dieldrin            |
|                                         | CSA-4              | Computer              | 386,549                   | 83,981                                        | 0          | 0             | 84,074         | OCs                 |
|                                         | <b>Subtotal</b>    |                       | <b>520,000</b>            | <b>220,000</b>                                | <b>0</b>   | <b>21,000</b> | <b>240,000</b> |                     |
|                                         | ESA-2a             | SAR/RI                | 0                         | 0                                             | 0          | 0             | 0              | None                |

Table A-5. Exceedance Areas and Volumes for Human Health Exceedance Category: Biota Site Evaluation Criteria Page 7 of 7

| Medium Group<br>or Subgroup | SAR Site<br>Number | Source of<br>Estimate | Excess Biota<br>Area (sy) | Exceedance Volumes by Contaminant Group (bcy) | Total          | Predominant<br>COCs |
|-----------------------------|--------------------|-----------------------|---------------------------|-----------------------------------------------|----------------|---------------------|
|                             | ESA-2c             | SAR/RI                | 80                        | 0                                             | 134            | As                  |
|                             | <b>Subtotal</b>    |                       | <b>80</b>                 | <b>0</b>                                      | <b>130</b>     |                     |
|                             | <b>Total</b>       |                       | <b>4,200,000</b>          | <b>2,400,000</b>                              | <b>280,000</b> | <b>2,800,000</b>    |

Subtotals and totals rounded to 2 significant figures.

Predominant COCs column indicates contaminant(s) driving volume at each site.

As - arsenic  
bcy - bank cubic yard  
COCs - contaminants of concern  
Hg - Mercury  
OCPs - organochlorine pesticides  
SAR/RI - Study Area Reports issued as part of the Remedial Investigation (EBASCO, 1989a-g)

Table A-6. Exceedance Areas for Human Health Exceedance Category Medium Subgroups

| Medium Group<br>or Subgroup       | SAR Site<br>Number | Excess Biota<br>Area (sy) | Human Health<br>Area (sy) | Biota plus Human Health<br>Area (sy) |
|-----------------------------------|--------------------|---------------------------|---------------------------|--------------------------------------|
| <b>Basin A Medium Group</b>       |                    |                           |                           |                                      |
|                                   | NCSA-1a            | 286,257                   | 278,208                   | 564,465                              |
|                                   | NCSA-1e            | 8,358                     | 2,524                     | 10,882                               |
|                                   | <b>Subtotal</b>    | <b>290,000</b>            | <b>280,000</b>            | <b>560,000</b>                       |
| <b>Basin F Wastepile Subgroup</b> |                    |                           |                           |                                      |
|                                   | <b>Subtotal</b>    | <b>0</b>                  | <b>75,000</b>             | <b>75,000</b>                        |
| <b>Secondary Basins Subgroup</b>  |                    |                           |                           |                                      |
|                                   | NCSA-2a            | 363,024                   | 9,986                     | 373,010                              |
|                                   | NCSA-2b            | 38,694                    | 0                         | 38,694                               |
|                                   | NCSA-5a            | 18,301                    | 403                       | 18,301                               |
|                                   | <b>Subtotal</b>    | <b>420,000</b>            | <b>10,000</b>             | <b>430,000</b>                       |
| <b>Former Basin F Subgroup</b>    |                    |                           |                           |                                      |
|                                   | NCSA-3             | 57,000                    | 366,913                   | 420,000                              |



Table A-6. Exceedance Areas for Human Health Exceedance Category Medium Subgroups

| Medium Group<br>or Subgroup      | SARSite<br>Number | Excess Biota<br>Area (sy) | Human Health<br>Area (sy) | Biota plus Human Health<br>Area (sy) |
|----------------------------------|-------------------|---------------------------|---------------------------|--------------------------------------|
| <b>Basin F Exterior Subgroup</b> |                   |                           |                           |                                      |
|                                  | NCSA-4a           | 13,582                    | 4,887                     | 18,469                               |
|                                  | NCSA-4b           | 2,011,872                 | 255,223                   | 2,267,095                            |
|                                  | <b>Subtotal</b>   | <b>2,000,000</b>          | <b>260,000</b>            | <b>2,300,000</b>                     |
| <b>Chemical Sewers Subgroup</b>  |                   |                           |                           |                                      |
|                                  | CSA-3             | 0                         | 8,200                     | 8,200                                |
|                                  | NCSA-6a           | 0                         | 23,600                    | 23,600                               |
|                                  | NCSA-6b           | 0                         | 2,200                     | 2,200                                |
|                                  | SPSA-10           | 0                         | 49,000                    | 49,000                               |
|                                  | <b>Subtotal</b>   | <b>0</b>                  | <b>100,000</b>            | <b>100,000</b>                       |

Table A-6. Exceedance Areas for Human Health Exceedance Category Medium Subgroups

| Medium Group<br>or Subgroup                    | SAR Site<br>Number | Excess Biota<br>Area (sy) | Human Health<br>Area (sy) | Biota plus Human Health<br>Area (sy) |
|------------------------------------------------|--------------------|---------------------------|---------------------------|--------------------------------------|
| <b>Sanitary/Process Water Sewers<br/>Group</b> |                    |                           |                           |                                      |
|                                                | NCSA-8a            | 0                         | 51,900                    | 51,900                               |
|                                                | WSA-7a             | 19,300                    | 0                         | 19,300                               |
|                                                | SPSA-11            | 0                         | 25,000                    | 25,000                               |
|                                                | SPSA-12            | 0                         | 118,000                   | 118,000                              |
|                                                | <b>Subtotal</b>    | <b>19,000</b>             | <b>190,000</b>            | <b>210,000</b>                       |
| <b>Complex Trenches Subgroup</b>               |                    |                           |                           |                                      |
|                                                | CSA-1c             | 160,000                   | 190,000                   | 350,000                              |
| <b>Shell Trenches Subgroup</b>                 |                    |                           |                           |                                      |
|                                                | CSA-1a             | 0                         | 32,000                    | 32,000                               |
| <b>Hex Pit Subgroup</b>                        |                    |                           |                           |                                      |
|                                                | SPSA-1f            | 0                         | 1,000                     | 1,000                                |

Table A-6. Exceedance Areas for Human Health Exceedance Category Medium Subgroups

| Medium Group<br>or Subgroup        | SAR Site<br>Number | Excess Biota<br>Area (sy) | Human Health<br>Area (sy) | Biota plus Human Health<br>Area (sy) |
|------------------------------------|--------------------|---------------------------|---------------------------|--------------------------------------|
| Sanitary Landfills<br>Medium Group |                    |                           |                           |                                      |
|                                    | CSA-1d             | 3,214                     | 23,105                    | 26,319                               |
|                                    | ESA-2b             | 0                         | 58,280                    | 58,280                               |
|                                    | WSA-2              | 0                         | 17,378                    | 17,378                               |
|                                    | WSA-3c             | 0                         | 1,042                     | 1,042                                |
|                                    | WSA-5a             | 0                         | 10,950                    | 10,950                               |
|                                    | WSA-5c             | 0                         | 2,800                     | 2,800                                |
|                                    | WSA-5d             | 0                         | 20,884                    | 20,884                               |
|                                    | SSA-4              | 0                         | 13,136                    | 13,136                               |
|                                    | <b>Subtotal</b>    | <b>3,200</b>              | <b>150,000</b>            | <b>150,000</b>                       |
| Section 36 Lime Basins Subgroup    |                    |                           |                           |                                      |
|                                    | NCSA-1b            | 11,000                    | 52,000                    | 63,000                               |
| Buried M-1 Pits Subgroup           |                    |                           |                           |                                      |
|                                    | SPSA-1e            | 0                         | 8,600                     | 8,600                                |

Table A-6. Exceedance Areas for Human Health Exceedance Category Medium Subgroups

| Medium Group<br>or Subgroup                      | SARSite<br>Number | Excess Biota<br>Area (sy) | Human Health<br>Area (sy) | Biota plus Human Health<br>Area (sy) |
|--------------------------------------------------|-------------------|---------------------------|---------------------------|--------------------------------------|
| South Plants Central Processing<br>Area Subgroup | SPSA-1a           | 3,600                     | 220,000                   | 220,000                              |
| South Plants Ditches Subgroup                    |                   | 38,000                    | 55,000                    | 99,000                               |
| South Plants Tank Farm Subgroup                  |                   | 21,000                    | 73,000                    | 94,000                               |
| South Plants Balance of Areas<br>Subgroup        |                   | 500,000                   | 120,000                   | 620,000                              |
| Buried Sediments Subgroup                        | SSA-3a            | 4,254                     | 0                         | 4,254                                |
|                                                  | SSA-3b            | 44,571                    | 10,189                    | 54,760                               |
|                                                  | <b>Subtotal</b>   | <b>49,000</b>             | <b>10,000</b>             | <b>59,000</b>                        |

Table A-6. Exceedance Areas for Human Health Exceedance Category Medium Subgroups

| Medium Group<br>or Subgroup             | SARSite<br>Number | Excess Biota<br>Area (sy) | Human Health<br>Area (sy) | Biota plus Human Health<br>Area (sy) |
|-----------------------------------------|-------------------|---------------------------|---------------------------|--------------------------------------|
| Sand Creek Lateral Subgroup             | NCSA-5b           | 1,245                     | 1,600                     | 2,845                                |
|                                         | NCSA-5c           | 24,500                    | 3,166                     | 27,666                               |
|                                         | NPSA-4            | 0                         | 389                       | 389                                  |
|                                         | SSA-2b            | 7,112                     | 4,778                     | 11,890                               |
|                                         | WSA-6a            | 0                         | 778                       | 778                                  |
|                                         | <b>Subtotal</b>   | <b>33,000</b>             | <b>11,000</b>             | <b>44,000</b>                        |
| Section 36 Balance of Areas<br>Subgroup | CSA-1b            | 129,252                   | 122,202                   | 251,454                              |
|                                         | CSA-2a            | 2,583                     | 0                         | 2,583                                |
|                                         | CSA-4             | 386,549                   | 0                         | 386,549                              |
|                                         | <b>Subtotal</b>   | <b>520,000</b>            | <b>120,000</b>            | <b>640,000</b>                       |

Table A-6. Exceedance Areas for Human Health Exceedance Category Medium Subgroups Page 7 of 7

| Medium Group<br>or Subgroup | SARSite<br>Number | Excess Biota<br>Area (sy) | Human Health<br>Area (sy) | Biota plus Human Health<br>Area (sy) |
|-----------------------------|-------------------|---------------------------|---------------------------|--------------------------------------|
| Burial Trenches Subgroup    | ESA-2a            | 0                         | 42,900                    | 42,900                               |
|                             | ESA-2c            | 80                        | 0                         | 80                                   |
|                             | <b>Subtotal</b>   | <b>80</b>                 | <b>43,000</b>             | <b>43,000</b>                        |
|                             | <b>Total</b>      | <b>4,200,000</b>          | <b>2,400,000</b>          | <b>6,500,000</b>                     |

Subtotals and totals rounded to 2 significant figures

sy - square yard

APPENDIX B

COST ESTIMATES FOR REMEDIAL ALTERNATIVES

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#### AGENT STORAGE GROUP - TOXIC STORAGE YARDS SUBGROUP

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#### SURFICIAL SOILS GROUP

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##### BASIN A GROUP

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|                |                                                                                                    |
|----------------|----------------------------------------------------------------------------------------------------|
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## SECONDARY BASINS GROUP - SECONDARY BASINS SUBGROUP

|                |                                                                                                                                       |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------|
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## SECONDARY BASINS GROUP - FORMER BASIN F SUBGROUP

|                |                                                                                                                                                          |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
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## SECONDARY BASINS GROUP - BASIN F EXTERIOR SUBGROUP

|                |                                                                                         |
|----------------|-----------------------------------------------------------------------------------------|
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## SEWER SYSTEMS GROUP - SANITARY/PROCESS WATER SEWERS SUBGROUP

|                |                                                             |
|----------------|-------------------------------------------------------------|
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## SEWER SYSTEMS GROUP - CHEMICAL SEWERS SUBGROUP

|                |                                                                                                                                   |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------|
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| Table B4.7-2a  | Alternative 2a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Access Restrictions (Modifications to FFA) |
| Table B4.7-3a  | Alternative 3a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Landfill (On-Post Landfill)                |
| Table B4.7-8a  | Alternative 8a: Alternative 8a: Direct Soil Washing (Solvent Washing)                                                             |
| Table B4.7-13a | Alternative 13a: Direct Thermal Desorption (Direct Heating)                                                                       |

## DISPOSAL TRENCHES GROUP - COMPLEX TRENCHES SUBGROUP

|               |                                                                                                  |
|---------------|--------------------------------------------------------------------------------------------------|
| Table B4.8-1  | Alternative 1: No Additional Action (Provisions of FFA)                                          |
| Table B4.8-5b | Alternative 5b: Caps/Covers (Clay/Soil Cap); Vertical Barriers (Slurry Walls) with Consolidation |
| Table B4.8-14 | Alternative 14: Incineration/Pyrolysis (Rotary Kiln); Landfill (On-Post Landfill)                |

## DISPOSAL TRENCHES GROUP - SHELL TRENCHES SUBGROUP

|               |                                                                                                                     |
|---------------|---------------------------------------------------------------------------------------------------------------------|
| Table B4.9-1  | Alternative 1: No Additional Action (Provisions of FFA)                                                             |
| Table B4.9-5a | Alternative 5a: Caps/Covers (Clay/Soil Cap); Vertical Barriers (Slurry Walls) with Modifications to Existing System |
| Table B4.9-14 | Alternative 14: Incineration/Pyrolysis (Rotary Kiln); Landfill (On-Post Landfill)                                   |

## DISPOSAL TRENCHES GROUP - HEX PIT SUBGROUP

|                |                                                                                   |
|----------------|-----------------------------------------------------------------------------------|
| Table B4.10-1  | Alternative 1: No Additional Action (Provisions of FFA)                           |
| Table B4.10-5  | Alternative 5: Caps/Covers (Clay/Soil Cap); Vertical Barriers (Slurry Walls)      |
| Table B4.10-14 | Alternative 14: Incineration/Pyrolysis (Rotary Kiln); Landfill (On-Post Landfill) |

## SANITARY LANDFILLS GROUP

|                 |                                                                                          |
|-----------------|------------------------------------------------------------------------------------------|
| Table B4.11-1   | Alternative 1: No Additional Action (Provisions of FFA)                                  |
| Table B4.11-2   | Alternative 2: Access Restrictions (Modifications to FFA)                                |
| Table B4.11-3   | Alternative 3: Landfill (On-Post Landfill)                                               |
| Table B4.11-5   | Alternative 5: Caps/Covers (Clay/Soil Cap); Vertical Barriers (Slurry Walls)             |
| Table B4.11-13b | Alternative 13b: Direct Thermal Desorption (Direct Heating); Landfill (On-Post Landfill) |

## LIME BASINS GROUP - LIME BASINS SUBGROUP

|                 |                                                                                   |
|-----------------|-----------------------------------------------------------------------------------|
| Table B4.12-1   | Alternative 1: No Additional Action (Provisions of FFA)                           |
| Table B4.12-6d  | Alternative 6d: Caps/Covers (Clay/Soil Cap) with Modifications to Existing System |
| Table B4.12-10  | Alternative 10: Direct Solidification/Stabilization (Cement-Based Solidification) |
| Table B4.12-13a | Alternative 13a: Direct Thermal Desorption (Direct Heating)                       |
| Table B4.12-19a | Alternative 19a: In Situ Thermal Treatment (RF/Microwave Heating)                 |

## LIME BASINS GROUP - BURIED M-1 PITS SUBGROUP

|                |                                                                                                                                      |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Table B4.13-1  | Alternative 1: No Additional Action (Provisions of FFA)                                                                              |
| Table B4.13-5  | Alternative 5: Caps/Covers (Clay/Soil Cap); Vertical Barriers (Slurry Walls)                                                         |
| Table B4.13-10 | Alternative 10: Direct Solidification/Stabilization (Cement-Based Solidification)                                                    |
| Table B4.13-19 | Alternative 19: In Situ Thermal Treatment (RF/Microwave Heating); In Situ Solidification/Stabilization (Cement-Based Solidification) |
| Table B4.13-21 | Alternative 21: In Situ Thermal Treatment (In Situ Vitrification)                                                                    |

## SOUTH PLANTS GROUP - SOUTH PLANTS CENTRAL PROCESSING AREA SUBGROUP

|                |                                                                                                                                                                                                       |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Table B4.14-1  | Alternative 1: No Additional Action (Provisions of FFA)                                                                                                                                               |
| Table B4.14-1b | Alternative 1b: Direct Thermal Desorption (Direct Heating) and Direct Solidification/Stabilization (Cement-Based Solidification) of Principal Threat Volume; No Additional Action (Provisions of FFA) |
| Table B4.14-3  | Alternative 3: Landfill (On-Post Landfill)                                                                                                                                                            |
| Table B4.14-6  | Alternative 6: Caps/Covers (Clay/Soil Cap)                                                                                                                                                            |
| Table B4.14-6a | Alternative 6a: Direct Thermal Desorption (Direct Heating) and Direct Solidification/Stabilization (Cement-Based Solidification) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap)              |
| Table B4.14-13 | Alternative 13: Direct Thermal Desorption (Direct Heating); Direct Solidification/Stabilization (Cement-Based Solidification)                                                                         |
| Table B4.14-19 | Alternative 19: In Situ Thermal Treatment (RF/Microwave Heating); In Situ Solidification/Stabilization (Cement-Based Solidification)                                                                  |

## SOUTH PLANTS GROUP - SOUTH PLANTS DITCHES SUBGROUP

|                 |                                                                                                                                       |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Table B4.15-1   | Alternative 1: No Additional Action (Provisions of FFA)                                                                               |
| Table B4.15-1a  | Alternative 1a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; No Additional Action (Provisions of FFA)       |
| Table B4.15-3   | Alternative 3: Landfill (On-Post Landfill)                                                                                            |
| Table B4.15-6   | Alternative 6: Caps/Covers (Clay/Soil Cap)                                                                                            |
| Table B4.15-6b  | Alternative 6b: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap) with Consolidation |
| Table B4.15-13a | Alternative 13a: Direct Thermal Desorption (Direct Heating)                                                                           |

## SOUTH PLANTS GROUP - SOUTH PLANTS TANK FARM AREA SUBGROUP

|                 |                                                                          |
|-----------------|--------------------------------------------------------------------------|
| Table B4.16-1   | Alternative 1: No Additional Action (Provisions of FFA)                  |
| Table B4.16-3   | Alternative 3: Landfill (On-Post Landfill)                               |
| Table B4.16-6   | Alternative 6: Caps/Covers (Clay/Soil Cap)                               |
| Table B4.16-13a | Alternative 13a: Direct Thermal Desorption (Direct Heating)              |
| Table B4.16-16a | Alternative 16a: In Situ Physical/Chemical Treatment (Vacuum Extraction) |
| Table B4.16-19a | Alternative 19a: In Situ Thermal Treatment (RF/Microwave Heating)        |

#### SOUTH PLANTS GROUP - SOUTH PLANTS BALANCE OF AREA SUBGROUP

|                |                                                                                                                                                                                 |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Table B4.17-1  | Alternative 1: No Additional Action (Provisions of FFA)                                                                                                                         |
| Table B4.17-1a | Alternative 1a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; No Additional Action (Provisions of FFA)                                                 |
| Table B4.17-3  | Alternative 3: Landfill (On-Post Landfill)                                                                                                                                      |
| Table B4.17-6  | Alternative 6: Caps/Covers (Clay/Soil Cap)                                                                                                                                      |
| Table B4.17-6b | Alternative 6b: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap) with Consolidation                                           |
| Table B4.17-13 | Alternative 13: Direct Thermal Desorption (Direct Heating); Direct Solidification/Stabilization (Cement-Based Solidification)                                                   |
| Table B4.17-19 | Alternative 19: In Situ Thermal Treatment (RF/Microwave Heating); In Situ Solidification/Stabilization (Cement-Based Solidification)                                            |
| Table B4.17-20 | Alternative 20: In Situ Thermal Treatment (Surface Soil Heating); Direct Thermal Desorption (Direct Heating); Direct Solidification/Stabilization (Cement-Based Solidification) |

#### BURIED SEDIMENT/DITCHES GROUP - BURIED SEDIMENT SUBGROUP

|                 |                                                                   |
|-----------------|-------------------------------------------------------------------|
| Table B4.18-1   | Alternative 1: No Additional Action (Provisions of FFA)           |
| Table B4.18-2   | Alternative 2: Access Restrictions (Modifications to FFA)         |
| Table B4.18-3   | Alternative 3: Landfill (On-Post Landfill)                        |
| Table B4.18-6   | Alternative 6: Caps/Covers (Clay/Soil Cap)                        |
| Table B4.18-6g  | Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation    |
| Table B4.18-13a | Alternative 13a: Direct Thermal Desorption (Direct Heating)       |
| Table B4.18-19a | Alternative 19a: In Situ Thermal Treatment (RF/Microwave Heating) |

#### BURIED SEDIMENT/DITCHES GROUP - SAND CREEK LATERAL SUBGROUP

|                 |                                                                |
|-----------------|----------------------------------------------------------------|
| Table B4.19-1   | Alternative 1: No Additional Action (Provisions of FFA)        |
| Table B4.19-3   | Alternative 3: Landfill (On-Post Landfill)                     |
| Table B4.19-6g  | Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation |
| Table B4.19-13a | Alternative 13a: Direct Thermal Desorption (Direct Heating)    |

#### UNDIFFERENTIATED GROUP - SECTION 36 BALANCE OF AREA SUBGROUP

|                 |                                                                   |
|-----------------|-------------------------------------------------------------------|
| Table B4.22-1   | Alternative 1: No Additional Action (Provisions of FFA)           |
| Table B4.22-2   | Alternative 2: Access Restrictions (Modifications to FFA)         |
| Table B4.22-3   | Alternative 3: Landfill (On-Post Landfill)                        |
| Table B4.22-6   | Alternative 6: Caps/covers (Clay/Soil Cap)                        |
| Table B4.22-6g  | Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation    |
| Table B4.22-13a | Alternative 13a: Direct Thermal Desorption (Direct Heating)       |
| Table B4.22-19a | Alternative 19a: In Situ Thermal Treatment (RF/Microwave Heating) |

#### UNDIFFERENTIATED GROUP - BURIAL TRENCHES SUBGROUP

|                |                                                                                                                               |
|----------------|-------------------------------------------------------------------------------------------------------------------------------|
| Table B4.23-1  | Alternative 1: No Additional Action (Provisions of FFA)                                                                       |
| Table B4.23-3  | Alternative 3: Landfill (On-Post Landfill)                                                                                    |
| Table B4.23-6  | Alternative 6: Caps/Covers (Clay/Soil Cap)                                                                                    |
| Table B4.23-10 | Alternative 10: Direct Solidification/Stabilization (Cement-Based Solidification)                                             |
| Table B4.23-13 | Alternative 13: Direct Thermal Desorption (Direct Heating); Direct Solidification/Stabilization (Cement-Based Solidification) |



## APPENDIX B5-COST ESTIMATES FOR PREFERRED ALTERNATIVES

|                 |                                                                                                                                                                                                                                             |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Table B5.M1-U4a | Resized Alternative-Munitions Testing Medium Group-<br>Alternative U4a: Detonation (Off-Post Army Facility)                                                                                                                                 |
| Table B5.A1-A4  | Resized Alternative-Agent Storage Medium Group-North Plants Subgroup-<br>Alternative A4: Incineration/Pyrolysis (Rotary Kiln)                                                                                                               |
| Table B5.A2-A4  | Resized Alternative-Agent Storage Medium Group-Toxic Storage Yards<br>Subgroup-Alternative A4: Incineration/Pyrolysis (Rotary Kiln)                                                                                                         |
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| Table B5.B3-B5a | Resized Alternative-Ditches/Drainage Areas Medium Group-Alternative B5a:<br>Caps/Covers (Clay/Soil Cap) with Consolidation                                                                                                                  |
| Table B5.1-6f   | Resized Alternative-Basin A Medium Group-Alternative 6f: Direct Thermal<br>Desorption (Direct Heating) of Principal Threat Volume; Caps/Covers<br>(Clay/Soil Cap)                                                                           |
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| Table B5.3-6g   | Resized Alternative-Secondary Basins Medium Group-Secondary Basins<br>Subgroup-Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation                                                                                               |
| Table B5.4-6c   | Resized Alternative-Secondary Basins Medium Group-Former Basin F<br>Subgroup-Alternative 6c: Direct Thermal Desorption (Direct Heating) of<br>Principal Threat Volume; Caps/Covers (Clay/Soil Cap) with Modifications<br>to Existing System |
| Table B5.5-6g   | Resized Alternative-Secondary Basins Medium Group-Basin F Exterior<br>Subgroup-Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation                                                                                               |
| Table B5.6-2    | Resized Alternative-Sewer Systems Medium Group-Sanitary/Process Water<br>Sewers Subgroup-Alternative 2: Access Restrictions (Modifications to<br>FAA)                                                                                       |
| Table B5.7-3a   | Resized Alternative-Sewer Systems Medium Group-Chemical Sewers<br>Subgroup-Alternative 3a: Direct Thermal Desorption (Direct Heating) of<br>Principal Threat Volume; Landfill (On-Post Landfill)                                            |
| Table B5.8-5b   | Resized Alternative-Disposal Trenches Medium Group-Complex Trenches<br>Subgroup-Alternative 5b: Caps/Covers (Clay/soil Cap); Vertical Barriers<br>(Slurry Walls) with Consolidation                                                         |
| Table B5.9-14   | Resized Alternative-Disposal Trenches Medium Group-Shell Trenches<br>Subgroup-Alternative 14: Incineration/Pyrolysis (Rotary Kiln); Landfill (On-<br>Post Landfill)                                                                         |
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|                 |                                                                                                                                                                                                                                                                             |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Table B5.11-3   | Resized Alternative-Sanitary Landfills Medium Group-Alternative 3: Landfill (On-Post Landfill)                                                                                                                                                                              |
| Table B5.12-6d  | Resized Alternative-Lime Basins Medium Group-Section 36 Lime Basins Subgroup-Alternative 6d: Caps/Covers (Clay/Soil Cap) with Modifications to Existing System                                                                                                              |
| Table B5.13-10  | Resized Alternative-Lime Basins Medium Group-Buries M-1 Pits Subgroup-Alternative 10: Direct Solidification/Stabilization (Cement-Based Solidification)                                                                                                                     |
| Table B5.14-6a  | Resized Alternative-South Plants Medium Group-South Plants Central Processing Area-Alternative 6a: Direct Thermal Desorption (Direct Heating) and Direct Solidification/Stabilization (Cement-Based Solidification) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap) |
| Table B5.15-6b  | Resized Alternative-South Plants Medium Group-South Plants Ditches Subgroup-Alternative 6b: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap) with Consolidation                                                           |
| Table B5.16-16a | Resized Alternative-South Plants Medium Group-South Plants Tank Farm Area Subgroup-Alternative 16a: In Situ Physical/Chemical Treatment (Vacuum Extraction)                                                                                                                 |
| Table B5.17-6b  | Resized Alternative-South Plants Medium Group-South Plants Balance of Area Subgroup-Alternative 6b: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap) with Consolidation                                                   |
| Table B5.18-6g  | Resized Alternative-Buried Sediment/Ditches Medium Group-Buried Sediment Subgroup-Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation                                                                                                                            |
| Table B5.19-6g  | Resized Alternative-Buried Sediment/Ditches Medium Group-Sand Creek Lateral Subgroup-Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation                                                                                                                         |
| Table B5.22-6g  | Resized Alternative-Undifferentiated Medium Group-Section 36 Balance of Area Subgroup-Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation                                                                                                                        |
| Table B5.22-3   | Resized Alternative-Undifferentiated Medium Group-Burial Trenches Subgroup-Alternative 3: Landfill (On-Post Landfill)                                                                                                                                                       |

## LIST OF ACRONYMS AND ABBREVIATIONS

|      |                                                           |
|------|-----------------------------------------------------------|
| A    | annual cost type (costs incurred over more than one year) |
| BCY  | bank cubic yard (i.e., volume of in-place soil)           |
| CY   | cubic yard                                                |
| EA   | each                                                      |
| GAL  | gallon                                                    |
| LCY  | loose cubic yards (i.e., volume of excavated soil)        |
| LF   | linear feet                                               |
| LS   | lump sum cost type (costs incurred in one year)           |
| RCRA | Resource Conservation and Recovery Act                    |
| SY   | square yards                                              |
| UXO  | unexploded ordnance                                       |
| YR   | year                                                      |

Prefixes for exceedance categories used at the beginning of every cost item description shown on the cost estimates:

|       |                                     |
|-------|-------------------------------------|
| A-    | agent                               |
| B-    | biota                               |
| H-    | human health                        |
| HA-   | human health and agent              |
| HAU-  | human health, agent, and UXO        |
| HB-   | human health and biota              |
| HBA-  | human health, biota, and agent      |
| HBAU- | human health, biota, agent, and UXO |
| U-    | UXO                                 |

## B.1.0 INTRODUCTION

This appendix contains the cost estimates for the Soils DAA (munitions, agent, biota and human health exceedance categories). A cost estimate was developed for every alternative considered in the Soils DAA report. The alternatives were developed in a manner consistent with EPA cost estimating guidelines and are estimated to be within +50 percent and -30 percent of the total alternative cost. In accordance with guidance, a present worth analysis was used to present all estimates in a consistent manner. The cost estimates provide a means to compare one alternative to another to determine if one is more cost effective, however, the present worth analysis is not consistent with Army budget requirements and the cost estimates developed in the DAA are not to be considered government budget estimates. Once the final alternatives are selected in the ROD, a detailed government estimate should be prepared for each alternative selected.

A total of 146 cost estimates were prepared for the Soils DAA (Tables B1.1-U1 through B4.23-13). The format for the cost estimates was developed to provide a realistic estimate of costs given the uncertainties still inherent at this stage of the Feasibility Study. Many forms of uncertainty exist in the estimates due to the development stage of some of the proposed technologies, the final design of the remedy, annual inflation rates, and availability of resources. Other forms of uncertainty are presented in the discussion of indirect costs below. The following sections explain the format of the cost estimate tables and the methodology for development of the unit rates and indirect cost factors that appear in the tables.

Following the 146 cost comparison estimates, an alternative was selected from each subgroup and a separate cost estimate is provided for the 27 preferred alternatives. During the development of the 146 estimates, certain assumptions were made on the sizing of equipment and the total treatment volumes to optimize the usage of equipment. Following the selection of alternatives, the volumes initially estimated for each process were revised based on the alternative selected. The unit costs were therefore revised, and the new cost tables for the 27 preferred alternatives are provided following the main section of tables (Tables B5.1-U4a through B5.23-3). These

alternative costs present a more realistic cost for the preferred alternatives than the comparison tables, developed solely to evaluate alternatives. The same uncertainties apply, however, the unit costs are more appropriate.

## B.2.0 FORMAT FOR COST ESTIMATE TABLES

The soils cost estimates presented in this appendix are divided into multiple sections based on the type of cost. These sections are divided into three main groups: Capital costs, O&M Operations costs, and O&M Long-Term Activities costs. These main groups are further divided into:

- Direct Capital Costs
- Indirect Capital Costs
- Direct Subcontract Capital Costs
- Indirect Subcontract Capital Costs
- Direct O&M Costs (Operations)
- Indirect O&M Costs (Operations)
- Direct Subcontract O&M Costs (Operations)
- Indirect Subcontract O&M Costs (Operations)
- Direct O&M Costs (Long-Term Activities)
- Indirect O&M Costs (Long-Term Activities)

Direct capital costs are those incurred to prepare for remediation of the contaminated soils, such as the construction of a landfill or water treatment facility. Direct O&M costs (Operations) are those costs incurred to actually remediate the contaminated soils, such as excavation of soils and placement in a landfill. Direct subcontract capital costs are costs incurred by specialty subcontractor for the construction of major treatment facilities such as an incineration facility. Direct subcontract O&M costs are operation's costs incurred by these specialty subcontractors during the treatment of contaminated soils.

O&M (Long-Term Activities) are those costs incurred for monitoring and/or routine maintenance after remediation is accomplished. An example of long-term O&M is monitoring and maintenance of a landfill.

Direct costs include costs for the accomplishment of the activity in the field. Indirect costs are explained in Section B4.0 include:

- Mobilization/Demobilization
- Indirects, Overhead, and Profits
- Engineering Design
- Resident Engineering
- Contingency

It should be noted, these estimates are structured solely to represent a comparative cost between site-wide alternatives and not as stand alone estimates. Caution should be exercised in comparing individual alternative costs such as engineering design; resident engineering; indirects, overhead, and profits since these cost represent only a comparative percentage of any individual alternative. Prior to implementation of the preferred alternatives developed in this document it will be necessary to re-evaluate the total estimated cost to provide a more detailed cost assessment.

The headings across the top of each cost estimate are explained as follows:

Cost Item: Each horizontal line represents a unit operation and its associated direct cost. The cost item begins with a prefix designating which exceedance category the unit rate is addressing (e.g., potential agent presence, biota exceedance, human health exceedance, and/or potential UXO presence).

Cost Type: There are two choices: 1) "LS" for lump sum for a unit operation which occurs in only one year, or 2) "A" for annual cost for a unit operation which occurs in more than one year.

Start Year: The starting year for the unit operation. Ordinal numbers are used to specify the calendar year with year 1 representing 1995.

End Year: The ending year for the unit operation. Note that no ending year is specified for the lump sum cost type. Ordinal numbers are used to specify the calendar year with year 1 representing 1995.

1992 (\$)

Unit Cost: The unit cost for the particular unit operation in 1992 dollars.

Units: The units associated with the 1992 (\$) Unit Cost.

Quantity: The quantity for which each unit operation will act upon.

Units: The units associated with the Quantity.

Volume

Factor: The volume factor accounts for any expansion or reduction of a volume quantity if appropriate. An example is the expansion of solidified soil since 1 BCY expands to 1.20 BCY. (The volume factor equals 1.000 for all other cost items which has no effect on the computed costs.)

Mileage

Factor: The mileage factor specifies the round trip mileage for each transportation cost item. (The mileage factor equals 1.000 for all non-transportation cost items which has no effect on the computed costs.)

Other

Factor: This factor is reserved for miscellaneous factors for which it would have been wasteful of presentation space to include a separate column for each. An example is odor control for which costs were increased by 20 percent (Other Factor = 1.2) to account for maintaining daily cover to minimize odor generation. (The other factor equals 1.000 for all other cost items which have no effect on the computed costs.)

Description: A description associated with the Other Factor.

1995 (\$)

Annual Cost: These annual costs are presented only for the O&M (Long-Term Activities) portion of the cost estimates. These values are for informational purposes only and they provide only an approximation of the annual cost of the O&M (Long-Term Activities) after remediation has finished. Note that each cost item

may have a different time of application thereby rendering the sum of the annual cost an approximate figure.

1995 (\$)

Total Cost: The Total Cost in 1995 dollars is calculated by multiplying the following:

- 1992 (\$) Unit Cost
- Quantity
- Volume Factor
- Mileage Factor
- Other Factor
- Single Payment Compound Amount Factor to convert the 1992 (\$) Unit Cost to a 1995 (\$) Unit Cost using a 4.5 percent escalation rate. This factor equals 1.141.

1995 (\$)

PW Cost: The Present Worth Cost in 1995 dollars is calculated by applying the appropriate fraction of the 1995 (\$) Total Cost to the specified years, then discounting the applied value at each year back to Year 1 (1995) using a 5 percent discount rate (OMB, 1992).

Explanations for calculations for all subtotals and all indirect costs are given on the cost estimate tables in the form of alphabetical references to computed values.

### B.3.0 UNIT RATE DEVELOPMENT

Each cost estimate contains a number of detailed line items. The resulting cost associated with each line item results from multiplying a quantity, a unit rate and volume, mileage, and other factors. The rationale for the development of unit rates used in the cost estimates are described in the following sections.

#### B.3.1 No Additional Action and Institutional Controls

A number of process options are evaluated for no action and institutional controls alternatives. The line items for no action do not involve any capital, operations, or long-term costs. These are used as place holders in the cost tables where no additional action is proposed for all or part of a site.



### Institutional Controls

Institutional controls can involve several different cost items depending on the site. The estimated operations cost for fencing is \$15.00/LF for installation of fences, gates, and signs. Annual maintenance cost for fences is estimated to be 5 percent of installation cost or \$0.75 LF/YR. Habitat modification includes the cost of mowing, herbiciding, plowing, discing, fertilizing, harrowing, and drill seeding areas to establish grasses that are unappealing to biota. Estimated operations cost for habitat modification is \$0.17/SY spread over three years. Annual long-term maintenance includes mowing and spot herbiciding at an estimated cost of \$0.0057 SY/YR. Public education includes the cost of exhibits, videos, brochures, visitor center, open houses, public meetings, etc. to emphasize the reasons for, and importance of, restricting access to areas where contaminants remain in place at concentrations above acceptable risk levels. Capital costs are estimated to be \$1500/site to establish the education program, with an annual operation cost of \$500/site.

Two cost items are specific to the Basin F Wastepile Medium Group. The cost of modifying the existing blocked sump in the wastepile by installing an adjacent 6-inch inside diameter extraction well is estimated to be \$9,440. The long-term cost for disposal of wastepile leachate is \$18/GAL based on drumming the estimated volume of 50,000 GAL/YR and transporting it to a RCRA incinerator for disposal.

Access restrictions for sewers involves plugging sewer lines and posting of warning signs. Sewer plugging is estimated to cost \$149/CY to mix and pump cement throughout the length of the sewer pipes and manholes. Installation of warning signs every 1000 LF along sewers is estimated to cost \$0.0861/LF with a long-term maintenance cost of 5 percent of installation cost or \$0.0043/LF.

Sites where exceedances of UXO, agent, biota, or human health criteria remain in place are required to have a site review every five years to reassess the contamination present. The review cost is estimated to be \$27,000 total or \$5,400/YR pro-rated over the five year period. Sites with

no action or institutional control alternatives that contain biota or human health exceedances will have long-term soil sampling to monitor natural attenuation/degradation of contaminants and potential contaminant migration. Costs for long-term monitoring are estimated at \$1,790 per sample with the number of samples varying, depending on the area and distribution of contamination in the medium group or subgroup being monitored. Annual soil monitoring costs range from \$7,600 to \$146,000.

### B.3.2 Excavation and Transportation

A number of unit rates have been developed for excavation and transportation. These are explained in detailed below.

#### Conventional Excavation

The unit rate for Excavation of Borrow Material includes the cost of labor and equipment to excavate and load soil from a clean on-post borrow area. The unit rate does not include transportation or dumping and grading the borrow material. The unit rate is estimated to be \$1.89/BCY.

The unit rates for Sewer Excavation (\$3.82/BCY), Ditch Excavation (3.82/BCY), Soil Excavation (\$3.91/BCY), Landfill Excavation (\$3.91/BCY), Excavation of Cover Overburden (\$1.72/BCY), Excavation of Wastepile Overburden (\$1.89/BCY), Excavation of Sewer Overburden (\$1.51/BCY) includes the cost of labor and equipment for excavation of contaminated materials for transport to a treatment unit. These unit rates do not include transportation of the soils. A loss of productivity due to Level C working conditions of between 20 to 25 percent is assumed for cost items which entail excavation of contaminated soils. These cost items also include sampling during excavation and loading the excavated materials into trucks.

The unit rates for excavating soils containing agent and UXO are higher than for the unit costs

for non-agent/UXO material based on lower productivity rates and higher costs for personal protective equipment. The unit costs for Excavation of Soil with Agent(\$4.55/BCY), Excavation of sewers with Agent (\$7.25/BCY), Excavation of UXO Debris from Surface Soil (\$3.91/BCY), assume between 20 to 50 percent loss of productivity compared to non-agent/UXO contaminated material.

#### Modified Excavation

The capital cost for Wastepile Excavation Including Vapor Controls indicates costs for the fabrication and installation of an air-supported structure to control noxious odors during excavation. This includes costs for fabrication and installation of a scrubber system. The estimated capital cost is \$34,523,250. The operating cost is for excavation of wastepile material, loading soil into a transport vehicle outside the air-supported structure, and operation and maintenance of the air-supported structure pressure fan and air scrubber systems. The operating cost of \$21.53/BCY is based upon an excavation duration of approximately 3 years. The excavation costs for Shell Trenches and Hex Pit Excavation include similar air supported structures (\$10,000,000 and \$500,000 respectively), and the operating costs for these two subgroups (\$88.42/BCY and \$100.07/BCY respectively) include similar operations.

The capital cost for Complex Trench Excavation including Vapor Controls includes purchase and utilization of 20 temporary structures to control volatile emissions during excavation, and also includes the cost of an air emissions control system. These structures can be moved with cranes. The estimated capital cost is \$12,396,000. The operating cost is for excavation and containerization of the contents of the disposal trenches for subsequent transportation and treatment/disposal. The estimated operating cost is \$107/BCY.

#### Backfill

The unit rate for Backfill of Cover Overburden and Backfill of Wastepile Overburden includes the cost of labor and equipment to spread and compact stockpiled overburden soil into

excavations following removal of contaminated soil. These costs do not include the cost of transporting and dumping of the soil. The estimated cost is \$1.72/BCY. The unit cost for the backfill of sewer overburden is \$1.56/BCY and includes the cost to spread and compact the overburden.

The unit rate for Backfill of Treated Soil (\$1.72/BCY), Backfill of Treated Soils for Sewers (\$1.56/BCY), Grade Filling Prior to Cap with Consolidation Soil (\$3.63/BCY), Grade Filling Prior to Capping with Excavated Soil from Slurry Wall (\$3.63/BCY) includes the cost of labor and equipment to spread and compact contaminated soil prior to capping. These costs do not include the cost of transportation of the contaminated soil. The estimated cost is \$1.70/BCY.

#### Transportation

The unit rate for Transportation of Contaminated Material includes the cost of labor and equipment to transport contaminated material for on-post treatment or disposal. It includes costs associated with dumping, wheel washing/decontamination, dust suppression, and reduced size loads to prevent spillage. The estimated cost of \$1.07/BCY-load mile is based upon a 2-mile one-way, loaded trip.

The unit rate for Transportation of Clean Material includes the cost of labor and equipment to transport clean material on-post for use as grading fill, soil cover, etc. It also includes costs associated with dumping. The estimated cost of \$0.86/BCY-load mile is based upon a 2-mile one-way, loaded trip.

#### Dredging

The capital cost for Dredging includes mobilization of the dredge and construction of settling ponds for dewatering of dredged material. The estimated capital cost is \$4,800,000. The operating cost is for labor and equipment to dredge sediments from the lakes and to pump the material to settling/dewatering ponds. The estimated cost is \$9.82/BCY.

### UXO Clearance

The cost for UXO Clearance performing field clearance of UXOs using geophysics is a capital cost and is performed in one of two ways. One method is to use only surface geophysics which results in a unit cost of \$0.24/SY. The second method is to perform geophysics and drilling augmented by field and analytical verifications which results in a unit cost of \$0.85/SY. The costs for UXO clearance activities are obtained from the Decontamination Assessment For Land and Facilities at RMA Draft Final Report (D'Appolonia 1984).

Once the area has been cleared and the UXOs have been identified, the UXOs must then be removed and transported to appropriate facilities. The operating cost for UXO removal includes the removal of the UXO and the surrounding one cubic yard of soil. The unit cost for this removal activity is \$70.57/BCY based on excavation costs for digging test pits partially by manual methods. The transportation costs address two different alternatives; On-Post Transportation (Alternative U3); and Off-Post Transportation (Alternative U4). The operating cost for on-post transportation includes the removal of agent-filled UXO from the excavated areas, the associated handling of the agent-filled UXO, the packaging of the agent-filled UXO for separation of the fuse from the agent-filled UXO, then transportation of the fuse for detonation and the agent contaminated agent-filled UXO to the on-post rotary kiln incinerator at a unit cost of \$1012/BCY (note that 1 UXO is assumed to be present within each 1 BCY of soil found to contain UXO). The capital cost for the transportation of the agent-filled UXO to an off-post facility includes the removal of the agent-filled UXO from the excavated areas, the associated handling of the agent-filled UXO, the packaging of the agent-filled UXO for transportation, and the transportation of the agent-filled UXO to an off-post Army facility for the demilitarization of UXO. The facility for the demilitarization of agent-filled UXO is assumed to be the Tooele Army Depot near Tooele, Utah at a unit rate of \$2,200/BCY (note that 1 UXO is assumed to be present within each 1 BCY of soil found to contain UXO). For both transportation costs, it has been assumed that the Army's Technical Escort Unit will handle this aspect of the work and that all of the agent-filled UXO discovered will be able to be packaged and transported to the appropriate facility. All the transportation costs for agent-filled UXO have

been obtained through discussions with the Army's Technical Escort Unit.

The costs for high-explosive (HE) UXO are estimated in a similar manner. The off-post demilitarization of HE-filled UXO is assumed to be conducted at Fort Carson Army Base, near Colorado Springs, Colorado. The transportation costs for HE-filled UXO are based on discussions with the Army's Explosive Ordnance Detail, and it has been assumed that Explosive Ordnance Detail personnel will handle HE-filled UXO.

### Dewatering

Dewatering systems will be required to lower groundwater levels prior to excavation in portions of Section 36 to provide a safe working environment during excavation activities. The areas requiring dewatering were determined by comparing excavation depths against both existing water levels and estimated future water levels from the Basin A/South Plants Subregional groundwater model. The estimated future water levels account for the removal of man-made recharge sources (i.e., leaking water lines) which eliminates the need for excavation dewatering in South Plants. The costs of dewatering systems are based on the capital costs for well and piping installation and the operating costs for pumping and water treatment at the CERCLA Wastewater Facility from the Water DAA. The capital costs vary from \$190,000 to \$340,000, and the operating costs vary from \$53,000/yr to \$740,000/yr for the following subgroups/medium groups:

- Basin A Medium Group
- Section 36 Lime Basins Subgroup
- Complex Trenches Subgroup
- Shell Trenches Subgroup
- Section 36 Balance of Areas Subgroup

In addition, dewatering costs will also be required for long-term hydraulic controls associated with slurry walls. The capital and long-term O&M costs are estimated in a similar manner as for excavation dewatering. The capital costs vary from \$160,000 to \$1,000,000, and the long-term O&M costs vary from \$50,000/yr to \$93,000/yr.

### B.3.3 Containment

A number of containment process options were considered. The unit rate development for each are described in detail below.

#### Slurry Walls

The installation of slurry cut-off walls to provide a vertical barrier to horizontal contaminant migration is combined with the installation of a clay/soil cap, which nearly eliminates the potential for infiltration of waters and completely interrupts exposure pathways. The slurry walls are to be keyed six feet into bedrock, and the subsequently placed clay/soil cap will be keyed into the top of the slurry wall. Because depth to bedrock varies from zero to 90 feet, several different types of equipment must be used to excavate the slurry wall trench, each with different capital and operating costs. A large backhoe may excavate up to 20 feet deep. An extended reach backhoe may excavate up to 75 feet deep. A clamshell excavator is needed to trench greater than 75 feet in depth.

Capital costs for this technology include equipment mobilization (Geo-Con 1992). Other components include rental of slurry mixing and pumping equipment, and construction of a slurry pond as discussed in Technology Description Volume. Excavation and installation includes trenching around the perimeter of the site into bedrock, costs of bentonite and clean soil, and placement of the soil/bentonite slurry into the excavated trench (shallow-\$33.41/SY, medium depth-\$47.22/SY, deep-\$99.56/SY). These unit costs, per square yard of one-sided wall face, are based on discussions with Geo-Con, Inc. personnel (Geo-Con 1992), and costs of clean fill are provided by the DAA Technology Description Document. The soils excavated for the slurry wall trenches will be placed within the cell to be capped, graded, and compacted. This unit cost is \$1.70/BCY and is compiled from Means Site Work and Landscape Cost Data (Means 1993).

#### Clay/Soil Cap

The installation of clay/soil cap to limit infiltration and to interrupt the exposure pathway for humans and biota. Subgrade preparation includes compaction by a sheepsfoot roller at a cost of

\$0.06/SY, taken from Means Site Work and Landscape Cost Data (Means 1993). Each site must be graded and/or crowned to provide positive drainage of rain water. The cost of acquiring and emplacing this fill (\$5.06/BCY) is taken from the Technology Description Volume. The standard clay/soil cap over the human health and biota exceedance areas consists of the following layers:

- A 2-ft thick low permeability soil layer from an on-post excavation;
- Burrow barrier of cobbles 1-ft thick from off post;
- Common fill layer 3-1/2 ft thick from on post; and
- Topsoil layer 6-in thick from off post.

The costs of this cap (\$23.30/SY) include excavation, hauling, grading and compaction of low-permeability and common borrow materials from on-post borrow areas (Technology Description Volume). The maintenance of this cap will include annual inspection and replacement of eroded materials at \$0.33/SY per year (Technology Description Volume).

Where an existing soil cover is in place, a modified clay/soil cap (\$22.80/SY) is used that is identical to the standard clay/soil cap except that the topsoil and 1-1/2 ft of the existing soil cover are stripped, stockpiled, and used in the clay/soil cap. The use of these materials eliminates the need to purchase topsoil off post and reduces the required common fill to 2 ft.

#### Soil Cover

A Soil Cover is used for potential UXO and agent presence areas that incorporates most of the features of the clay/soil cap. The differences are that the cap itself includes only the 3-1/2-ft-thick common fill and 6-inch-thick topsoil layers (\$9.14/SY).

#### Composite Cap

The Composite Cap for the Basin F Wastepile is of a design that generally conforms to EPA guidance under RCRA for landfill final cover systems. The new RCRA composite cap (\$36.04/SY) will consist of the following layers:

- a geosynthetic filter layer
- a low permeability soil layer 2-ft thick



- a 100 mil synthetic flexible membrane liner
- a drainage layer 1-ft thick of coarse material (sand)
- an additional geosynthetic filter layer
- a biota barrier 1-ft thick consisting of cobbles
- common fill 3-1/2-ft thick from an on-post excavation
- topsoil 1/2-ft thick provided from off-post.

Maintenance of the cap must be performed periodically to monitor for and prevent settlement, erosion, and deep-rooted vegetation or burrowing animals (\$1.23 SY\YR). The costs for all of these items are taken from the Technology Description Volume.

#### On-Post Landfill

The On-post Landfill costs were estimated based in part on the costs contained in the Task 27 Hazardous Waste Land Disposal Facility Assessment (EBASCO, 1988) hereafter referred to as the Task 27 Landfill Report). The Task 27 Landfill Report contains a detail design of the waste cell including the liner and the cover. The dimensions for the 1.5 million CY landfill cell in the Task 27 Report were found to be in error. Therefore, some modifications to the Task 27 Report were conducted to arrive at the waste cell dimensions for the on-post landfill.

The landfill will contain four waste cells each with a 1.5 million CY capacity. The cells have a length of 1,140 ft with a 4H:1V cover side slope and a 3H:1V liner side slope. The total depth of the waste cell is 35 ft. The liner bottom is square with a 1035 ft side dimension. The cover top is square with a 1000 ft side dimension. The cover of the hazardous waste landfill consists of: geosynthetic filter, geonet for vapor collection 2 ft low permeability soil layer, HDPE, 1 ft of sand, geosynthetic filter, 1 ft of biota barrier, geosynthetic filter, 3.5 ft of general fill, and 0.5 ft of topsoil. With a total cost for the cover of \$5,700,000. The hazardous waste landfill liner contains: geosynthetic filter, 1 ft of sand, geosynthetic filter, geonet, HDPE 3 ft thick low permeability soil layer, 1 ft of sand, HDPE and 3 ft thick low permeability soil layer. The total cost of the hazardous waste landfill liner is \$5,100,000. The lump sum facility construction costs for a four cell facility is \$14,000,000. The cell construction costs, including liner and cover, are \$10,800,000 per cell. The total construction costs for the four 1.5 million CY cell landfill is

\$57,000,000. The costs for construction of the hazardous waste landfill facility include:

|                       |              |
|-----------------------|--------------|
| Facility Construction | \$14,000,000 |
| Cell Construction     | 4 cells      |
| Liners                | \$20,000,000 |
| Covers                | \$23,000,000 |
| Total                 | \$57,000,000 |

The dimensions of the solid waste landfill cells are the same as those for the hazardous waste landfill cell. The solid waste landfill cover consists of: geosynthetic filter, geonet 2 ft low permeability soil layer, 1 ft of sand, geosynthetic 1 ft of biota barrier, 3.5 ft of general fill, and 0.5 ft of topsoil. The total cost for the solid waste landfill cover is \$5,600,000. The solid waste landfill liner contains: geosynthetic filter, 1 ft of sand, geosynthetic filter, HDPE and 3 ft of low permeability soil layer. The solid waste liner will cost \$2,700,000. The costs construction of the solid waste landfill facility include:

|                       |              |
|-----------------------|--------------|
| Facility Construction | \$14,000,000 |
| Cell Construction     | 4 cells      |
| Liners                | \$11,000,000 |
| Covers                | \$22,000,000 |
| Total                 | \$47,000,000 |

The operating costs for the hazardous and solid waste landfill facilities is \$4.07/BCY based on the costs for placing and compacting contaminated soils and for placing daily soil covers during operation. The landfill will require long-term operations and maintenance for the facility which includes post-closure monitoring and maintenance at a rate of \$0.13/BCY annual based on the total annual cost and a volume of 6.0 million BCY.

The costs of grubbing and clearing areas (\$0.17/SY) prior to excavation and of installing a 6 inch layer of topsoil (\$3.24/SY) are based on unit costs from means site work and landscape cost data (Means, 1993). A unit cost was developed to include the cost of placing and grading soils as fill prior to installing a cap to a design grade of between 1.5 and 3 percent. The cost of \$5.06/BCY accounts for the cost of excavating the fill soils, transporting the soils an average distance of 2.5

miles, and backfilling and grading the soils at the site. The unit cost for preparing a subgrade prior to installing a cap is based on compacting the ground surface with moderate compactive effort at a unit cost of \$0.06/SY from Means Heavy Equipment Guide (Means, 1991). Two unit costs were developed for screening sites to identify areas which contain agent. One unit cost accounts for screening soil samples in the field during excavation (\$4.89/CY), and the other cost includes the cost of drilling soil borings and screening the collected soil samples at a cost of \$0.10/SY.

#### B.3.4 Direct Treatment

A number of direct treatment process options are considered for the DAA. Each is described in detail below.

##### UXO Detonation

The capital costs for UXO detonation include the construction of an on-post rotary kiln incinerator for the incineration of the UXO casings and drained agent after the on-post demilitarization of the UXOs. The rotary kiln incinerator must be capable of accomplishing 5X decontamination which involves treating the demilitarized UXOs at a minimum of 1000°F for 15 minutes. The rotary kiln incinerator is assigned the same unit capital cost as developed for direct incineration. The capital cost is \$36.37/BCY. The operating cost for on-post incineration is the same as the operating cost for the rotary kiln. The operating cost is \$96.24/BCY plus the on-post detonation cost of \$120.56/BCY (D'Appolonia 1984) for a total of \$209.42/BCY.

##### U-UXO-DETONATION-HE

The on-post detonation of HE filled UXO involves the handling, packaging, transport, and detonation of the UXO by trained Explosive Ordnance Division (EOD) personnel. A three-person team will be used to perform this task. The UXO will be transported to an existing on-post site specifically designed for detonation of UXO. Detonation will take place at least once each working day. The operating costs are \$70.57/CY for UXO removal and \$46.75/CY for the handling, packaging, transportation, and detonation of the HE-filled UXO.

### Soil Washing

Capital costs are based on a 20 ton per hour soil washing unit. The total capital cost is \$2,927,000 and includes all soil washing equipment plus an additional \$3,838,000 for the CERCLA Wastewater Treatment Facility. Costs are based on Biotrol's Applications Analysis Report (EPA 1991). Operating time for treatment of the soil volume is estimated using a throughput efficiency of 70 percent for the soil washing equipment.

Annual soil washing costs are based on Biotrol's Applications Analysis Report (EPA 1991), specifically the following:

- Soil washing unit operation labor @ \$13.25/BCY
- Surfactants and flocculants @ \$17.29/BCY
- Residuals @ \$0.03/BCY
- Laboratory analysis @ \$1.83/BCY
- Effluent water treatment @ 2.91/BCY

The total operating cost is estimated at \$35.31/BCY.

### Agent Caustic Washing

The costs for caustic soil washing is broken down into both capital and operating costs. The capital costs are based on the total anticipated agent contaminated soil volume of 3,600 CY which represents 0.1 percent of the potential volume of all the medium groups anticipated to contain agent contaminated soils and using a 20 ton per hour caustic washing unit. The total capital cost is based upon a eight month rental of the required caustic washing equipment amortized over a 10 year period which is estimated to cost \$76.95/BCY and includes all caustic washing equipment. The operating costs for caustic washing are based on the following:

- Material handling/feeding @ \$0.31/BCY
- Soil washing unit operation labor @ \$13.71/BCY
- Surfactant and flocculants @ \$12.00/BCY
- Caustic (773 LB NaOH beads/CY soil) @ \$177.17/BCY
- Utilities @ \$3.83/BCY
- Maintenance and supplies @ \$1.46/BCY

- Facility modification, repair, and replacement @ \$2.09/BCY
- Laboratory analysis @ \$1.73/BCY

The total operating cost per cubic yard is estimated at \$212.30/BCY. The costs are based upon a 24 hour per day operation with the caustic washing being estimated to last approximately 8 months.

The costs for treatment of the caustic effluent by soil drying is broken into both capital and operating costs. The capital cost includes the construction and set up of the caustic effluent treatment system and is based on the anticipated total agent soil volume of 3,600 BCY which represents 0.1 percent of the potential volume of all the sites anticipated to contain agent contaminated soils and using the costs of a size 40 spray drying system obtained from Selch Process Systems (Selch, 1993). The total capital cost was obtained by multiplying the cost for a size 40 dryer by 40 percent to obtain a cost that represents a spray drying unit large enough to dry the total quantity of solution that will be generated by the caustic washing unit within approximately the same time frame as it is estimated the caustic washing system would take to wash the 3,600 BCY of soil (8 to 12 months) the estimated unit capital cost for the spray drying system is \$245.00/BCY. The operating costs for caustic effluent treatment are based upon the following:

- Material handling/feeding @ \$0.31/BCY
- Spray Drying unit operation labor @ \$8.31/BCY
- Utilities @ \$3.90/BCY
- Maintenance and supplies @ \$1.46/BCY
- Facilities modification, repair, and replacement @ \$2.09/BCY
- Laboratory analysis @ \$1.73/BCY

The total operating cost per cubic yard, based upon a 24 hour a day operation, is estimated at \$17.80/BCY which was also obtained from Selch Process Systems (Selch, 1993).

#### Direct Cement-Based Solidification

The capital cost of direct cement-based solidification is developed from costs reported in the

Hazcon Solidification Process Douglasville, PA, Applications Analysis Report (EPA, 1989). The treatment unit is transportable and consists of a pug mill mixer, and a cement batching plant capable of processing 46 BCY of soil in one eight-hour shift. The on stream factor for this equipment is 90 percent or approximately 260 days per year based on 5 days per week. The capital cost for soils handling, cement storage and handling, and materials mixing equipment is reported as \$180,000 in May, 1989, and escalated at 3 percent per year (ENR 1992) to yield a current capital cost of \$200,000. Assuming a five year service life before equipment replacement, the unit capital cost is developed as follows:

$$(\$200,000)(1 \text{ day}/46 \text{ BCY})(1 \text{ year}/260 \text{ days})(\text{replace}/5 \text{ years}) = \$3.35/\text{BCY}$$

The operating labor and utility costs for direct cement-based solidification are also taken from Hazcon Solidification Process Douglasville, PA, Applications Analysis Report (EPA, 1989), and are corrected for single shift operations. For handling purposes, it is assumed that the soil volume will expand by a factor of 1.15 after excavation. The transportable treatment unit will be located close to the excavation so that separate transportation costs are insignificant. Portland cement will be mixed with excavated soil at a ratio of 0.2 tons of cement per ton of soil. This formulation has proven effective in the screening tests conducted on RMA soils by the U.S. Army Corps of Engineers Waterways Experiment Station (WES 1992). At \$65 per ton for bulk delivered cement, the operating costs for direct solidification are as follows:

- Labor salaries and daily expenses @ \$23.46/ton
- Utilities @ \$1.11/ton
- Analytical @ \$5.65/ton
- Maintenance @ \$0.68/ton
- Consumable supplies @ \$2.25/ton
- Cement binder @ \$14.30/ton
- Water Truck & driver @ \$2.00/ton

The total operating cost is \$49.45/ton or \$70.10/BCY based on a density of 1.42 tons/BCY, and single shift operation with a five-day work week. As a result of the cement addition, the volume

of treated soil will expand by a factor of 1.20.

### Thermal Desorption

The capital cost for thermal desorption is based on the economics developed in the Draft Concept Engineering Study Report for Thermal Desorption System for Rocky Mountain Arsenal Soils (Weston 1992a). The base case economics assume a soil moisture content of 20 percent. Weston's conceptual design postulates the construction of a large central thermal desorption facility using a common soil processing building and parallel rotary dryers. The dryers are connected to parallel off gas treatment trains consisting of a secondary combustion chamber followed by a quench tower and an acid-gas scrubber. For transportation detailing, the location is assumed to be near the intersection of 7th Avenue and D Street.

Weston's central facility is sized to process 3,100,000 BCY of contaminated soil in a 10 year time frame. Correcting from Weston's soil density of 100 lbs/CF to a more typical value of 105 lb/CF for RMA soils, the volume processed in 10 years becomes 3,000,000 BCY. On stream time for the equipment was set by Weston at 65 percent or approximately 237 days per year. At an average soil moisture content of 20 percent (saturated soil), the two rotary dryers are capable of processing about 1,776 tons or 1,251 BCY of saturated soil per day based on a density of 1.42 tons/BCY. Without engineering costs, field indirect costs, and contingencies, the current capital, start-up, and demonstration cost of the Weston design is \$42,508,000. The unit capital cost is developed as follows:

$$(\$42,508,000)/(3,000,000 \text{ BCY}) = \$14.17/\text{BCY}$$

The operating costs for thermal desorption are taken from Weston's Concept Engineering Study Report for Thermal Desorption (Weston 1992a):

- Operating and maintenance labor @ \$5,585,000/year
- Utilities @ \$12,750,000/year
- Chemicals @ \$1,120,000/year
- Analytical expenses @ \$580,000/year
- Other expenses @ \$1,250,000/year

- Maintenance materials @ \$550,000/year

The total operating cost is \$21,835,000/year and the unit operating cost is developed as follows:

$$(\$21,835,000/\text{year})(1 \text{ year}/237 \text{ days})(1 \text{ day}/1,251 \text{ BCY}) = \$73.64/\text{BCY}$$

For a soil moisture content of 10 percent (dry soil), the processing capacity of the rotary dryers in Weston's central facility is increased substantially over the base design case of 20 percent moisture. If the equipment vapor velocities are held constant, Weston's central facility is capable of processing about 2,784 tons or 1,961 BCY of dry soil per day at a density of 1.42 tons/BCY or 3,000,000 BCY of contaminated soil in 7 years. Since the total volume of soil remains unchanged, the unit capital cost is still the same \$14.17/BCY as the 20 percent moisture case.

Except for chemical consumption and brine disposal costs, other yearly operating cost remain the same at a soil moisture level of 10 percent. A small correction is required for the fuel consumed in the 10 percent moisture case:

- Operating and maintenance labor @ \$5,585,000/year
- Utilities @ \$13,114,000/year =  $102.67/99.82 \times \$12,750,000$
- Chemicals @ \$1,755,000/year =  $2050/1308 \times \$1,120,000$
- Analytical expenses @ \$580,000/year
- Other expenses @ \$1,250,000/year
- Maintenance materials @ \$550,000/year

The total operating cost is \$22,834,000/year and the unit operating cost is developed as follows:

$$(\$22,834,000/\text{year})(1 \text{ year}/237 \text{ days})(1 \text{ day}/1,961 \text{ BCY}) = \$49.13/\text{BCY}$$

For a soil moisture content of 40 percent (wet soil), the processing capacity of the rotary dryers in Weston's central facility is substantially decreased over the base design case of 20 percent moisture. If the equipment velocities are held constant, Weston's central facility is capable of processing about 984 tons or 693 BCY of wet soil per day, based on a density of 1.42 tons per BCY or 3,000,000 BCY of contaminated soil in about 18 years. Since the volume of soil to be treated remains unchanged, the unit capital cost is still the same \$14.17/BCY for the 40 percent



moisture case.

Except for chemical consumption and brine disposal costs, other yearly operating cost remain the same at a soil moisture level of 40 percent. A small correction is required for the fuel consumed in the 40 percent case:

- Operating and maintenance labor @ \$5,585,000/year
- Utilities @ \$12,511,000/year =  $97.95/99.82 \times \$12,750,000$
- Chemicals @ \$621,000/year =  $725/1308 \times \$1,120,000$
- Analytical expenses @ \$580,000/year
- Other expenses @ \$1,250,000/year
- Maintenance materials @ \$550,000/year

The total operating cost is \$21,097,000/year and the unit operating cost is developed as follows:

$$(\$21,097,000/\text{year})(1 \text{ year}/237 \text{ days})(1 \text{ day}/693 \text{ BCY}) = \$128.48/\text{BCY}$$

### Incineration

The capital cost for incineration is adapted from the economics developed in the Draft Concept Engineering Study Report for Thermal Desorption System for Rocky Mountain Arsenal Soils (Weston 1992a). As with thermal desorption, the design base case assumes a soil moisture content of 20 percent; however, the volume of contaminated soils to be treated is only 600,000 BCY rather than the 3,100,000 BCY used in the Weston design. For calculating transportation costs, the facility is assumed to be located at the intersection of 7th Avenue and D Street.

The rotary kiln incinerator discharges soil at 1400 °F, whereas the rotary dryer discharges soil at 575 °F. If equipment velocities are held constant, the rotary kiln incinerator is almost 50 percent larger in diameter than the rotary dryer, but the rest of the soil handling and off gas treatment facilities are identical to the Weston thermal desorption facility. The larger kilns add an estimated \$1,140,000 to Weston's base case capital cost of \$42,508,000 to yield a cost of \$43,648,000 for a two-train facility. Because a single train incineration facility is more appropriate for a remediation volume of 600,000 BCY, half of the adjusted capital cost (\$21,824,00) is used as the basis for a single-train design. For a soil moisture content of 20

percent (saturated soil), a single-train central incineration facility, using the same soil pretreatment and off-gas treatment equipment as Weston's concept thermal desorber, will be capable of processing contaminated soil at a rate of 672 tons or 473 BCY per day at a density of 1.42 tons/BCY or 600,000 BCY of soil in a 5.3 year time frame. Without engineering costs, field indirect costs, and contingencies, the unit capital cost is developed as follows:

$$(\$21,824,000)/(600,000 \text{ BCY}) = \$36.37/\text{BCY}$$

The operating costs for incineration are based on appropriate adjustments to the utility and chemical costs for thermal desorption in Weston's Concept Engineering Study Report for Thermal Desorption (Weston 1992):

- Operating and maintenance labor @ \$2,793,000/year = \$5,585,000/2
- Utilities @ \$6,120,000/year = 67.6/70.5 x \$12,750,000/2
- Chemicals @ \$424,000/year = 989/1308 x \$1,120,000/2
- Analytical expenses @ \$290,000/year = \$580,000/2
- Other expenses @ \$625,000/year = \$1,250,000/2
- Maintenance materials @ \$550,000/year = 2 x \$550,000/2

The total operating cost is \$10,794,000/year and the unit operating cost is developed as follows:

$$(\$10,794,000/\text{year})(1 \text{ year}/237 \text{ days})(1 \text{ day}/473 \text{ BCY}) = \$96.24/\text{BCY}$$

### B.3.5 In Situ Treatment

A number of in situ treatment process options are considered for the DAA. Each is described in the following paragraphs.

#### Agricultural Practices

The cost estimate for land farming/agricultural practices consist of the operating and maintenance costs of the agricultural tilling and revegetation. The agricultural practice costs consist of ripping the soil to a depth of 6 to 8 inches to break up surface hard pan (\$0.01/SY). Plowing the soil

to a depth of 10 to 12 inches to facilitate further mixing (\$0.013/SY) and disking the soil with 3 passes to thoroughly mix the soil (\$0.031/SY) and added fertilizer (\$0.013/SY). The soil is then harrowed (\$0.005/SY) in preparation of revegetation.

Revegetation consists of drilling (\$0.008/SY) a native seed mixture at \$0.023/SY for a typical native seed mixture. Seed cost will be lower in areas seeded with species designed to discourage wildlife use and higher in areas seeded with exotic native species to improve wildlife areas. A surface mulch is then added (\$0.075/SY) to minimize wind dispersion and erosion while the seed takes hold. The applied is crimped mulch (\$0.006/SY) to secure it to the soil.

#### In Situ Biological Treatment (Aerobic Biodegradation)

This cost estimate for biodegradation consists of direct capital costs including equipment purchases and operation maintenance costs consisting of operation of the in situ bioremediation system. The primary direct capital cost is purchase of the in situ bioremediation equipment (\$1,440,000). Operations costs consist of operation of the in situ bioremediation equipment, including moving the equipment from one site to another, adding appropriate nutrients and agitating the sediments as necessary (\$34.70/BCY).

#### Soil Vapor Extraction

Unit costs are based on site specific features at the South Plants Tank Farm Area which include air permeability, well radius of influence, etc. Capital costs are based on the Technical Evaluation LNAPL Plume Soil Vapor Extraction Process Field Demonstration Treatability Study (Shell 1991a). Operating life of the system estimated at 10 years for greater than 90 percent removal. The capital costs are as follows:

|                           |                 |
|---------------------------|-----------------|
| Blowers                   | \$126,000       |
| Manifold line material    | \$450,000       |
| Well installation         | \$210,000       |
| Trenching and Bedding     | \$145,000       |
| Catalytic Oxidizer        | \$60,000        |
| Installation of equipment | <u>\$62,000</u> |
|                           | \$1,053,000     |

Annual operating costs are based on the exceedance soil volume, initial concentrations of 1,000 PPM and catalytic oxidation treatment. Costs are based on the following:

|                      |                |
|----------------------|----------------|
| Operating labor      | \$92,000       |
| Utilities            | \$116,600      |
| Replacement Costs    | \$5,000        |
| Confirmation samples | <u>\$3,300</u> |
|                      | \$217,000/yr   |

The annual unit cost on a square yardage basis is \$2.97 SY/yr. Operating costs will be incurred in years 1 through 10 to achieve approximately 90 percent removal.

#### RF/Microwave Heating

The capital cost for RF/Microwave Heating is \$7,066,000 based on the treatment of Basin F as developed in the Draft In Situ Radio Frequency Heating/Vapor Extraction Concept Engineering Report (Weston 1992b). There are four different operating costs for RF heating based on depth of contamination and moisture content of the soil. The operating costs have been classified as follows:

Deep - \$198.66/BCY for contamination detected down to depths of 10 feet in soil with a moisture content of approximately 10 percent;

Deep/Saturated - \$229.41/BCY for contamination detected down to depths of 10 feet in soil with a moisture content of approximately 20 percent;

Shallow - \$217.67/BCY for contamination detected down to depths of 5 feet in soil with a moisture content of approximately 10 percent; and

Shallow/Saturated - \$251.59/BCY for contamination detected down to depths of 5 feet in soil with a moisture content of approximately 20 percent.

The deep and shallow operating costs were developed based on calculations presented in Weston (1992b). These same calculations were then modified to account for a slower processing rate due to the increased moisture content (i.e., 20 percent) of some of the subgroups.

#### Surface Soil Heating

The capital cost for Surface Soil Heating is \$951,200 per unit which was based on the capital cost developed in the Enhanced Surface Soil Vacuum Extraction Process Pilot Scale Field Demonstration Report (Shell 1991b). The capital cost was modified due to the incorporation of contingency factors which are already included in the cost estimate. The operating costs are calculated on a per square yard basis. The operating cost developed by Shell (1991b) was reduced to \$27.30/SY due to the incorporation of costs for revegetation, capacity charge, and general facility which are also already included in the cost estimate as individual cost items or included as part of an existing cost item.

#### In Situ Vitrification

The unit costs for vitrification are based on the In Situ Vitrification Design Analysis and Cost Estimate for the M-1 Settling Basins at Rocky Mountain Arsenal (Woodward-Clyde Consultants 1992). The capital costs include the following:

|                               |           |
|-------------------------------|-----------|
| • Backfill and grade          | \$131,858 |
| • Safety fence                | 30,342    |
| • Stairs                      | 4,024     |
| • Tank and foundation         | 18,561    |
| • Mechanical Work             | 113,019   |
| • Electrical Work             | 40,563    |
| • Mobilization/Demobilization | 421,493   |
| • Removal of Support Items    | 31,722    |
| Total                         | \$791,582 |

The operating costs are converted to a BCY basis by prorating the total operating cost over the treatability study volume of 10,200 BCY. The operating costs are as follows:

|                         |                             |
|-------------------------|-----------------------------|
| • Sampling and Analysis | \$ 966,183                  |
| • Site Administration   | \$ 639,016                  |
| • Stack Sampling        | \$ 257,187                  |
| • Vitrification         | \$6,912,135                 |
| Total                   | \$8,774,521 or \$860.25/BCY |

#### In Situ Cement-Based Solidification

There are no capital costs for in situ cement-based solidification because the mixing/boring unit is proprietary equipment and is generally leased from a supplier or operator such as Millgard Environmental Corporation or Geo-Con, Inc. The transportable treatment unit is based on a track-mounted boring/mixing unit and a cement batching plant capable of processing about 600 BCY of soil per day. For a long-term operation (one year in the field) Millgard quotes a unit cost of \$25.00/BCY for operation of the MecTool processing and support equipment inclusive of operating labor, utilities, and maintenance.

Portland cement will be injected into the soil at a ratio of 0.2 tons of cement per ton of soil. This formulation has proven effective in the screening tests conducted on RMA soils by the U.S. Army Corps of Engineers Waterways Experiment Station (WES 1992). At \$65 per ton for bulk delivered cement, the binder cost of in situ solidification is \$23.03/BCY of soil, inclusive of a 25 percent excess for overlap and loss. Consumable safety supplies and analytical costs are taken from the Geo-Con In Situ Stabilization/Solidification Process Applications Analysis Report for Hialeah, FL (EPA 1990).

- Equipment lease includes labor, expenses, and utilities @ \$25.00/BCY
- Water trucks (2) & drivers @ \$0.96/BCY
- Analytical @ \$2.00/BCY
- Consumable supplies @ \$9.00/BCY
- Cement binder and water @ \$23.17/BCY

The total unit cost of in situ cement-based solidification is \$60.38/BCY. The volume expansion factor for the soil/cement mixture is assumed to be 1.20.

#### In Situ Soil Flushing

Capital costs are based on the soil volume requiring treatment at the Basin A Medium Group which includes 1,100,000 BCY over an area of 640,000 SY. The soil flushing distribution system would include earthen barriers, piping, sprinkler flushing distribution system, and an expansion of the Basin A Neck groundwater collection and treatment system. Costs are based on Basin A Neck groundwater extraction and treatment expansion estimates, Water DAA (Ebasco 1993).

- Soil flushing sprinkler distribution system @ \$220,000
- Basin A Neck extraction expansion and treatment system based on Water DAA Alternative AC-3 and treatment alternative AT-2 @ 7,890,000

The total capital cost is estimated at \$8,100,000

The in situ soil flushing operating costs were calculated based on 3 pore volumes of surfactant flush and 1 pore volume of fresh water flush, and a flushing system rate of 70 gallons per minute, requiring a flushing life of 18 years with continued groundwater treatment through year 10. Annual costs include surfactants, utilities, maintenance and supplies, soil and groundwater monitoring, and ground water treatment costs. These costs include:

- Surfactant usage based on 3 pore volumes @ \$66.62/BCY
- Maintenance and supplies @ \$0.02/BCY
- Treatment Costs @ \$5.82/BCY
- Labor (flushing) @ \$0.47/BCY

The annual costs are estimated at \$73.30/BCY.

#### B4.0 INDIRECT COSTS

Indirect costs are applied to the sum of the three main cost groups which include direct capital costs, direct O&M costs, and direct O&M long-term activities costs. To better evaluate and estimate the indirect costs, the capital and O&M operating costs were subdivided between direct costs and direct subcontract costs. The indirect costs include:

- Mobilization/Demobilization
- Indirects, Overhead, and Profit; or Contractor Markup
- Engineering Design
- Resident Engineering
- Contingency

The indirect costs vary due to the four consideration factors: medium group contamination; technologies selected; size of the project; and the duration. Based on the characteristics of each alternative as it is applied to the medium group, these factors assist in the development of indirect percentages as explained below. These indirect percentages are then applied to the direct costs to determine an overall total cost.

In order to provide a uniform basis of estimate, a cost markup matrix was developed based on the consideration factors to determine indirect costs percentages for direct capital and O&M costs. This matrix is presented as Table B.0-1. Percentages for these estimates have been modified to distinguish relative cost differences between on-post and off-post activities and subcontracts. In some instances these factors were individually adjusted to be more representative of the individual alternative's complexity. The following sections explain the indirect markup factors and the application rationale.

#### B.4.1 MOBILIZATION/DEMOBILIZATION

Mobilization activities include construction/setup of contractor's support facilities, mobilization of heavy equipment, and relocation of management/supervisory personnel. Demobilization consists of decontamination and removal of contractor's equipment and facilities from the site. Costs for these activities are applied as a percentage of direct cost. These percentages applied vary from 2-7 percent as shown in markup matrix. For subcontract costs these percentages have been adjusted on a case-by-case basis, based on vendor quotes, and past knowledge and experience with similar projects.

#### B.4.2 INDIRECTS, OVERHEAD, AND PROFIT; OR CONTRACTOR MARKUP

Indirect Costs are calculated as a percentage of the sum of direct and mobilization/demobilization costs. Indirect costs cover the cost of on-site management, administrative, technical, health and safety, and supervisory staff, utilities for site support facilities (excluding production facilities), engineering tests, QA/QC program, preparation of work plans, submittals and as-built drawings, bonding costs, support facilities, and vehicle maintenance and operation. The range of percentages applied vary between 34-44 percent.

Subcontract cost for Indirects, Overhead, and Profit is identified as a Contractor Markup in the estimates and includes on-site management, administrative, technical, health and safety, supervisory staff, and subcontract profit. The Contractor's Markup ranged from 6-12 percent.



#### B.4.3 ENGINEERING DESIGN

The engineering design costs are estimated as a percentage of the sum of direct costs; mobilization/demobilization costs; and indirects, overhead, and profits. In general, engineering percentages were developed based on past experience of engineering costs on similar projects. These percentages are dependent upon the degree of complexity associated with the particular alternative and the complexity of the treatment technology selected. Standard percentages ranging between 3-6 percent are applied to the estimates, however, certain alternatives required adjustments to reflect extenuating circumstances in the required design effort and were adjusted accordingly.

#### B.4.4 RESIDENT ENGINEERING

The resident engineering costs are estimated as a percentage of the sum of direct costs; mobilization/demobilization costs; and indirects, overhead, and profits. The alternative size, estimated project duration, and the remedial technology selected would determine the level of effort required for inspection and field engineering support to assure conformance and verification with the approved remedial design. Standard percentages ranging between 1-3 percent are applied to the estimates.

#### B.4.5 CONTINGENCY

Contingency is applied as a percentage of the sum of direct costs; mobilization/demobilization costs; indirects, overhead, and profits; and design and resident engineering costs. Contingency covers the specific provisions for unforeseeable elements of costs within the defined project scope; particularly important where previous experience relating estimates and actual costs has shown that unforeseeable events which will increase costs are likely to occur. To effectively compare the design alternatives contained in this document, contingency has been applied to each alternative estimate based on the complexity of the treatment technology, unforeseen and unpredictable conditions, and/or uncertainties within the scope of this project. Other considerations which may affect the selection of contingency are levels of contamination; environmental media and climatic conditions; scheduling; changes in federal, state, or local

regulations, and other issues unique to the project such as waste management permits and regulatory reviews.

Separate contingencies were developed for capital cost, operation and maintenance cost, and long-term activities which are illustrated in the markup matrix. A contingency range for this level of detail is typically 20-50 percent, which was for these estimates. The contingency to be provided for the current estimates was developed based on four cost parameters considered for each cost type, including levels of contamination, the complexity of the treatment technology, the size of the project, and the estimated duration of the activity. The amount of contingency applied to the estimates in this document ranged between 25-40 percent based on these consideration factors and on past experience and knowledge with similar remedial projects.

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TABLE B.0-1  
INDIRECT COST FACTORS MATRIX

13-Jul-93

CAPITAL COST

| CONSIDERATION<br>FACTORS | LEVEL  | EXAMPLES                                                                                                      | MOB/<br>DEMOB | INDIRECTS<br>O&P | DESIGN<br>ENGR | RESIDENT<br>ENGR | CNTNGCY |
|--------------------------|--------|---------------------------------------------------------------------------------------------------------------|---------------|------------------|----------------|------------------|---------|
| CONTAMINATION            | Low    | Level D or no protection<br>Up to 10% Level C<br>No Level A or B                                              | 2.00%         | 34.00%           |                | 1.00%            | 25.00%  |
|                          | Medium | From 10% to 25% Level C<br>No Level A or B                                                                    | 4.50%         | 39.00%           |                | 2.00%            | 30.00%  |
|                          | High   | 26% or greater Level C<br>Level A or B                                                                        | 7.00%         | 44.00%           |                | 3.00%            | 40.00%  |
| TECHNOLOGY               | Low    | Excavation, backfill, transportation,<br>normal civil/structural construction<br>Vapor Extraction, Landfill   | 2.00%         | 39.00%           | 3.00%          | 1.00%            | 25.00%  |
|                          | Medium | Demolition, Proven Decon Methods, Pump &<br>& Treat Facilities, Mech & Elect Const, UXO D&D<br>Solidification | 4.50%         | 39.00%           | 4.50%          | 2.00%            | 30.00%  |
|                          | High   | Incineration, Thermal Desorption<br>In-Situ Vitrification, Unproven Decon Methods                             | 7.00%         | 39.00%           | 6.50%          | 3.00%            | 40.00%  |
| JOB SIZE                 | Small  | Less than 20 Craft personnel                                                                                  | 4.50%         | 44.00%           |                | 2.00%            | 30.00%  |
|                          | Medium | 20 to 60 Craft personnel                                                                                      | 4.50%         | 39.00%           |                | 2.00%            | 30.00%  |
|                          | Large  | More than 60 Craft personnel                                                                                  | 4.50%         | 34.00%           |                | 2.00%            | 30.00%  |
| DURATION                 | Short  | < 3 Years                                                                                                     | 4.50%         | 39.00%           |                | 1.00%            | 25.00%  |
|                          | Medium | 3 to 7 Years                                                                                                  | 4.50%         | 39.00%           |                | 2.00%            | 30.00%  |
|                          | Long   | > 7 Years                                                                                                     | 4.50%         | 39.00%           |                | 3.00%            | 40.00%  |

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TABLE B.0-1  
INDIRECT COST FACTORS MATRIX

13-Jul-93

O&M COST

| CONSIDERATION<br>FACTORS | LEVEL  | EXAMPLES                                                                                                      | MOB/<br>DEMOB | INDIRECTS<br>O&P | DESIGN<br>ENGR | RESIDENT<br>ENGR | CONTNGCY |
|--------------------------|--------|---------------------------------------------------------------------------------------------------------------|---------------|------------------|----------------|------------------|----------|
| CONTAMINATION            | Low    | Level D or no protection<br>Up to 10% Level C<br>No Level A or B                                              | 2.00%         | 34.00%           |                | 1.00%            | 25.00%   |
|                          | Medium | From 10% to 25% Level C<br>No Level A or B                                                                    | 4.50%         | 39.00%           |                | 2.00%            | 30.00%   |
|                          | High   | 26% or greater Level C<br>Level A or B                                                                        | 7.00%         | 44.00%           |                | 3.00%            | 40.00%   |
| TECHNOLOGY               | Low    | Excavation, backfill, transportation,<br>normal civil/structural construction<br>Vapor Extraction, Landfill   | 2.00%         | 39.00%           | 0.00%          | 1.00%            | 25.00%   |
|                          | Medium | Demolition, Proven Decon Methods, Pump &<br>& Treat Facilities, Mech & Elect Const, UXO D&D<br>Solidification | 4.50%         | 39.00%           | 1.00%          | 2.00%            | 30.00%   |
|                          | High   | Incineration, Thermal Desorption<br>In-Situ Vitrification, Unproven Decon Methods                             | 7.00%         | 39.00%           | 2.00%          | 3.00%            | 40.00%   |
| JOB SIZE                 | Small  | Less than 20 Craft personnel                                                                                  | 4.50%         | 44.00%           |                | 2.00%            | 30.00%   |
|                          | Medium | 20 to 60 Craft personnel                                                                                      | 4.50%         | 39.00%           |                | 2.00%            | 30.00%   |
|                          | Large  | More than 60 Craft personnel                                                                                  | 4.50%         | 34.00%           |                | 2.00%            | 30.00%   |
| DURATION                 | Short  | < 3 Years                                                                                                     | 4.50%         | 39.00%           |                | 1.00%            | 25.00%   |
|                          | Medium | 3 to 7 Years                                                                                                  | 4.50%         | 39.00%           |                | 2.00%            | 30.00%   |
|                          | Long   | > 7 Years                                                                                                     | 4.50%         | 39.00%           |                | 3.00%            | 40.00%   |

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TABLE B.0-1  
INDIRECT COST FACTORS MATRIX

13-Jul-93

| LONG TERM COST        |        |                                                                              |               |          |
|-----------------------|--------|------------------------------------------------------------------------------|---------------|----------|
| CONSIDERATION FACTORS | LEVEL  | EXAMPLES                                                                     | INDIRECTS O&P | CNTNGNCY |
| CONTAMINATION         | Low    | Level D or no protection<br>Up to 10% Level C<br>No Level A or B             | 34.00%        | 25.00%   |
|                       | Medium | From 10% to 25% Level C<br>No Level A or B                                   | 39.00%        | 30.00%   |
|                       | High   | 26% or greater Level C<br>Level A or B                                       | 44.00%        | 40.00%   |
| TECHNOLOGY            | Low    | Fencing, Cap Repair, Erosion Control<br>Soil Monitoring, Leachate Collection | 39.00%        | 25.00%   |
|                       | Medium | None                                                                         | 39.00%        | 30.00%   |
|                       | High   | None                                                                         | 39.00%        | 40.00%   |
| JOB SIZE              | Small  | Less than 20 Craft personnel                                                 | 44.00%        | 30.00%   |
|                       | Medium | 20 to 60 Craft personnel                                                     | 39.00%        | 30.00%   |
|                       | Large  | More than 60 Craft personnel                                                 | 34.00%        | 30.00%   |
| DURATION              | Short  | < 3 Years                                                                    | 39.00%        | 25.00%   |
|                       | Medium | 3 to 7 Years                                                                 | 39.00%        | 30.00%   |
|                       | Long   | > 7 Years                                                                    | 39.00%        | 40.00%   |

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Table B1.1-U1 Cost Estimate - Munitions Testing Medium Group  
Alternative U1: No Additional Action (Provisions of FFA)

| Cost Item                            | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| U - No Action                        | LS        | 1          | --       | 0.00                   | /SY   | 270,000  | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (A)                         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 3.3% B = 0.033 * (A)                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 36.0% C = 0.360 * (A+B)              |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 3.0% D = 0.030 * (A+B+C)             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 1.5% E = 0.015 * (A+B+C)             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 26.3% F = 0.263 * (A+B+C+D+E)        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b> |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 0                                    |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

16-Jul-93

M-U1.W01  
SOILS DAA



Table B1.1-U1 Cost Estimate - Munitions Testing Medium Group  
Alternative U1: No Additional Action (Provisions of FFA)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| U - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 270,000  | SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                                                                     |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (T)                                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| COST CODE                                                                                                     |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| J = 0.033 * (T)                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| K = 0.380 * (T+J)                                                                                             |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| L = 0.005 * (T+J+K)                                                                                           |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| M = 0.013 * (T+J+K+L)                                                                                         |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| N = 0.283 * (T+J+K+L+M)                                                                                       |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Subtotal (O = J+K+L+M+N)                                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| U - Site Reviews                                                                                              | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 185,000                 | 98,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (P)                                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 8,000                   | 88,000               |
| COST CODE                                                                                                     |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Q = 0.390 * (P)                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 2,000                   | 36,000               |
| R = 0.283 * (P+Q)                                                                                             |           |            |          |                        |        |          |       |               |                |              |             |                          | 2,000                   | 36,000               |
| Subtotal (S)                                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 5,000                   | 74,000               |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 11,000                  | 324,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 324,000                 | 172,000              |
| M-U1 WOI                                                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| SOILS DAA                                                                                                     |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |

16-Jan-93

| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost             | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>   |           |            |          |                        |       |          |       |               |                |              |             |                                      |                         |                      |
| U - No Action                 | LS        | 1          | --       | 0.00                   | /SY   | 270,000  | SY    | 1.000         | 1.000          | 1.000        |             | 0                                    | 0                       | 0                    |
|                               |           |            |          |                        |       |          |       |               |                |              |             | Subtotal (A)                         | 0                       | 0                    |
| <b>INDIRECT CAPITAL COSTS</b> |           |            |          |                        |       |          |       |               |                |              |             |                                      |                         |                      |
| Mod/Demab                     |           |            |          |                        |       |          |       |               |                |              |             |                                      | 0                       | 0                    |
| Indirects, Overhead & Profit  |           |            |          |                        |       |          |       |               |                |              |             |                                      | 0                       | 0                    |
| Engineering Design            |           |            |          |                        |       |          |       |               |                |              |             |                                      | 0                       | 0                    |
| Resident Engineering          |           |            |          |                        |       |          |       |               |                |              |             |                                      | 0                       | 0                    |
| Contingency                   |           |            |          |                        |       |          |       |               |                |              |             |                                      | 0                       | 0                    |
|                               |           |            |          |                        |       |          |       |               |                |              |             | Subtotal (G = B+C+D+E+F)             | 0                       | 0                    |
|                               |           |            |          |                        |       |          |       |               |                |              |             | <b>TOTAL CAPITAL COSTS (H = A+G)</b> | 0                       | 0                    |

**M-U2.WQ1  
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16-Jul-93

Table B1.1-U2 Cost Estimate - Munitions Testing Medium Group  
Alternative U2: Caps/Covers (Clay/Soil Cap)

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |           |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-----------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|-----------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |           |
| U - UXO Clearance In Surface Soil by Geophysics                                                | LS        | 1          | --       | 0.24                   | /SY       | 270,000  | SY    | 1.000         | 1.000          | 1.000        |             |                          | 74,000                  | 74,000               |           |
| U - Excavation of Borrow Material                                                              | LS        | 1          | --       | 1.89                   | /BCY      | 2,600    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 6,000                   | 6,000                |           |
| U - Transportation of Borrow Material to Backfill Area                                         | LS        | 1          | --       | 0.86                   | /BCY-MILE | 2,600    | BCY   | 1.000         | 1.500          | 1.000        |             |                          | 4,000                   | 4,000                |           |
| U - Backfill with Borrow Material                                                              | LS        | 1          | --       | 1.72                   | /BCY      | 2,600    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 5,000                   | 5,000                |           |
| U - Soil Cover for Potential UXO Areas                                                         | LS        | 1          | --       | 9.36                   | /SY       | 270,000  | SY    | 1.000         | 1.000          | 1.000        |             |                          | 2,884,000               | 2,884,000            |           |
| U - Revegetation of Disturbed Areas                                                            | LS        | 1          | --       | 0.18                   | /SY       | 270,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance |                          | 61,000                  | 61,000               |           |
|                                                                                                |           |            |          |                        |           |          |       |               |                |              |             |                          | 3,033,000               | 3,033,000            |           |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |           |
| Subtotal (I)                                                                                   |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |           |
| COST CODE                                                                                      | MMMS      |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |           |
| J = 0.045 * (I)                                                                                | 4.5%      |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |           |
| K = 0.380 * (I+J)                                                                              | 38.0%     |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |           |
| L = 0.015 * (I+J+K)                                                                            | 1.5%      |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |           |
| M = 0.018 * (I+J+K)                                                                            | 1.8%      |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |           |
| N = 0.288 * (I+J+K+L+M)                                                                        | 28.6%     |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |           |
| Subtotal (O = J+K+L+M+N)                                                                       |           |            |          |                        |           |          |       |               |                |              |             |                          | 2,824,000               | 2,824,000            |           |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |           |
| U - Soil Cover for Potential UXO Areas                                                         | A         | 2          | 30       | 0.32                   | /SY-YR    | 270,000  | SY    | 1.000         | 1.000          | 1.000        |             | 98,000                   | 2,859,000               | 1,493,000            |           |
| U - Site Reviews                                                                               | A         | 2          | 30       | 3,400.00               | /EA-YR    | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 179,000                 | 93,000               |           |
|                                                                                                |           |            |          |                        |           |          |       |               |                |              |             |                          | 105,000                 | 3,038,000            | 1,598,000 |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |           |
| Subtotal (P)                                                                                   |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |           |
| COST CODE                                                                                      | LLSL      |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |           |
| Q = 0.390 * (P)                                                                                | 39.0%     |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |           |
| R = 0.300 * (P+Q)                                                                              | 30.0%     |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |           |
| Subtotal (S)                                                                                   |           |            |          |                        |           |          |       |               |                |              |             |                          | 85,000                  | 2,452,000            | 1,280,000 |
|                                                                                                |           |            |          |                        |           |          |       |               |                |              |             |                          | 189,000                 | 11,347,000           | 8,724,000 |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |                        |           |          |       |               |                |              |             |                          | 11,300,000              |                      |           |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |                        |           |          |       |               |                |              |             |                          | 8,730,000               |                      |           |
| M-U2-W01                                                                                       |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |           |
| SOILS DAA                                                                                      |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |           |
| 16-Jul-93                                                                                      |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |           |

Table B1.1-U3a Cost Estimate - Munitions Testing Medium Group  
Alternative U3a: Detonation (On-Post Detonation)

| Cost Item                                                                         | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                                                       |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| U - On-Post Solid Waste Landfill, Construction and Operation (Debris and Isolate) | LS        | 2          | -        | 4.32                   | /BCY  | 90,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 444,000                  | 444,000                 | 423,000              |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities             | LS        | 4          | -        | 3.70                   | /BCY  | 90,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 360,000                  | 360,000                 | 328,000              |
| <b>Subtotal (A)</b>                                                               |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT CAPITAL COSTS</b>                                                     |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                                         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                      |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                              |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                       |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (B)</b>                                                               |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (G) = B+C+D+E+F</b>                                                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                                           |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                                         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                                         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                                                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                              |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                       |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (H) = B1+C1+D1+E1+F1</b>                                              |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (I) = A+G+H+I</b>                                                     |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS (I) = A+G+H+I</b>                                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

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Table B1.1-U3a Cost Estimate - Munitions Testing Medium Group  
Alternative U3a: Detonation (On-Post Detonation)

| Cost Item                                                                   | Cost Type | Start Year                   | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------------|-----------|------------------------------|----------|------------------------|-----------|----------|-------|---------------|----------------|--------------|--------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                    |           |                              |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| U - UXO Clearance by Geophysics                                             | LS        | 3                            | --       | 0.85                   | /SY       | 270,000  | SY    | 1.000         | 1.000          | 1.000        |              | 262,000                  |                         | 226,000              |
| U - Removal of Soil with UXO                                                | LS        | 3                            | --       | 70.57                  | /BCY      | 450      | BCY   | 1.000         | 1.000          | 1.000        |              | 36,000                   |                         | 33,000               |
| U - Excavation of Debris from Surface Soil                                  | LS        | 4                            | --       | 3.91                   | /BCY      | 90,000   | BCY   | 1.000         | 1.000          | 1.300        | Productivity | 522,000                  |                         | 451,000              |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill | LS        | 4                            | --       | 0.71                   | /BCY-MILE | 90,000   | BCY   | 1.000         | 3.000          | 1.300        | Productivity | 284,000                  |                         | 246,000              |
| U - On-Post Solid Waste Landfill                                            | LS        | 4                            | --       | 4.07                   | /BCY      | 90,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 418,000                  |                         | 381,000              |
| U - Installation of 6 Inches of Topsoil                                     | LS        | 4                            | --       | 3.24                   | /SY       | 270,000  | SY    | 1.000         | 1.000          | 1.000        |              | 998,000                  |                         | 862,000              |
| U - Revegetation of Disturbed Areas                                         | LS        | 4                            | --       | 0.18                   | /SY       | 270,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance  | 61,000                   |                         | 53,000               |
| <b>Subtotal (I)</b>                                                         |           |                              |          |                        |           |          |       |               |                |              |              | 2,582,000                |                         | 2,243,000            |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |                              |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Mod/Demob                                                                   | 4.5%      | J = 0.045 * (I)              |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Indirects, Overhead & Profit                                                | 39.0%     | K = 0.390 * (I+J)            |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Engineering Design                                                          | 1.5%      | L = 0.015 * (I+J+K)          |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Resident Engineering                                                        | 1.8%      | M = 0.018 * (I+J+K)          |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Contingency                                                                 | 28.8%     | N = 0.288 * (I+J+K+L+M)      |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| <b>Subtotal (O) = J+K+L+M+N</b>                                             |           |                              |          |                        |           |          |       |               |                |              |              | 2,404,000                |                         | 2,089,000            |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                        |           |                              |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| U - On-Post Detonation of HE Filled UXO                                     | A         | 3                            | 4        | 46.75                  | /BCY      | 450      | BCY   | 1.000         | 1.000          | 1.000        |              | 24,000                   |                         | 21,000               |
| <b>Subtotal (H)</b>                                                         |           |                              |          |                        |           |          |       |               |                |              |              | 24,000                   |                         | 21,000               |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |                              |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Mod/Demob                                                                   | 0.0%      | J1 = 0.000 * (H)             |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Contractor Markup                                                           | 0.0%      | K1 = 0.000 * (H+J1)          |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Engineering Design                                                          | 0.0%      | L1 = 0.000 * (H+J1+K1)       |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Resident Engineering                                                        | 0.0%      | M1 = 0.000 * (H+J1+K1)       |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Contingency                                                                 | 30.0%     | N1 = 0.300 * (H+J1+K1+L1+M1) |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| <b>Subtotal (O1) = J1+K1+L1+M1+N1</b>                                       |           |                              |          |                        |           |          |       |               |                |              |              | 7,000                    |                         | 6,000                |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO) = I+O+H+O1</b>                     |           |                              |          |                        |           |          |       |               |                |              |              | 5,017,000                |                         | 4,359,000            |

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Table B1.1-U3a Cost Estimate - Munitions Testing Medium Group  
Alternative U3a: Detonation (On-Post Detonation)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                                   | A         | 4          | 30       | 0.13                   | /BCY-YR | 90,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 13,000                   | 360,000                 | 177,000              |
| Subtotal (P)                                                                                            |           |            |          |                        |         |          |       |               |                |              |             |                          | 360,000                 | 177,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                            |           |            |          |                        |         |          |       |               |                |              |             | 5,000                    | 141,000                 | 68,000               |
| Contingency                                                                                             |           |            |          |                        |         |          |       |               |                |              |             | 6,000                    | 150,000                 | 74,000               |
| Subtotal (S = Q+R)                                                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          | 291,000                 | 143,000              |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |               |                |              |             |                          | 651,000                 | 320,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          | 7,220,000               | 6,100,000            |

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Table B1.1-U4a Cost Estimate - Munitions Testing Medium Group  
Alternative U4a: Detonation (Off-Post Army Facility)

| Cost Item                                                             | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                                           |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| U - On-Post Solid Waste Landfill                                      | LS        | 1          | --       | 4.32                   | /BCY  | 90,000   | BCY   | 1,000         | 1,000          | 1,000        |             | 444,000                  | 444,000                 | 444,000              |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS        | 2          | --       | 3.70                   | /BCY  | 90,000   | BCY   | 1,000         | 1,000          | 1,000        |             | 360,000                  | 360,000                 | 362,000              |
| <b>Subtotal (A)</b>                                                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT CAPITAL COSTS</b>                                         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                    |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                           |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (B)</b>                                                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                                     |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                    |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                           |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (C)</b>                                                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                               |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (D)</b>                                                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS (H = A+B+C+D+E+F)</b>                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                                                       |           |            |          |                        |       |          |       |               |                |              |             |                          | 1,556,000               | 1,592,000            |

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Table B1.1-U4a Cost Estimate - Munitions Testing Medium Group  
Alternative U4a: Detonation (Off-Post Army Facility)

| Cost Item                                                                   | Cost Type | Start Year                    | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1993 (\$) | 1995 (\$) | 1995 (\$) |
|-----------------------------------------------------------------------------|-----------|-------------------------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|--------------|-----------|-----------|-----------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                    |           |                               |          |           |           |          |       |               |                |              |              |           |           |           |
| U - UXO Clearance by Geophysics                                             | LS        | 2                             | --       | 0.85      | /SY       | 270,000  | SY    | 1.000         | 1.000          | 1.000        |              | 282,000   | 249,000   |           |
| U - Removal of Soil with UXO                                                | LS        | 2                             | --       | 70.57     | /BCY      | 450      | BCY   | 1.000         | 1.000          | 1.000        |              | 36,000    | 36,000    |           |
| U - Excavation of Debris from Surface Soil                                  | LS        | 2                             | --       | 3.91      | /BCY      | 90,000   | BCY   | 1.000         | 1.000          | 1.300        | Productivity | 522,000   | 487,000   |           |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill | LS        | 2                             | --       | 0.71      | /BCY-MILE | 90,000   | BCY   | 1.000         | 3.000          | 1.300        | Productivity | 284,000   | 271,000   |           |
| U - On-Post Solid Waste Landfill                                            | LS        | 2                             | --       | 4.07      | /BCY      | 90,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 418,000   | 398,000   |           |
| U - Installation of 6 Inches of Topsoil                                     | LS        | 2                             | --       | 3.24      | /SY       | 270,000  | SY    | 1.000         | 1.000          | 1.000        |              | 998,000   | 961,000   |           |
| U - Revegetation of Disturbed Areas                                         | LS        | 2                             | --       | 0.18      | /SY       | 270,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance  | 61,000    | 58,000    |           |
| Subtotal (I)                                                                |           |                               |          |           |           |          |       |               |                |              |              | 2,582,000 | 2,459,000 |           |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |                               |          |           |           |          |       |               |                |              |              |           |           |           |
| COST CODE: MMMS                                                             |           |                               |          |           |           |          |       |               |                |              |              |           |           |           |
| Mob/Demob                                                                   | 4.5%      | J = 0.045 * (I)               |          |           |           |          |       |               |                |              |              |           |           |           |
| Indirects, Overhead & Profit                                                | 38.0%     | K = 0.380 * (I+J)             |          |           |           |          |       |               |                |              |              |           |           |           |
| Engineering Design                                                          | 1.5%      | L = 0.015 * (I+J+K)           |          |           |           |          |       |               |                |              |              |           |           |           |
| Resident Engineering                                                        | 1.8%      | M = 0.018 * (I+J+K)           |          |           |           |          |       |               |                |              |              |           |           |           |
| Contingency                                                                 | 28.6%     | N = 0.286 * (I+J+K+L+M)       |          |           |           |          |       |               |                |              |              |           |           |           |
| Subtotal (O = J+K+L+M+N)                                                    |           |                               |          |           |           |          |       |               |                |              |              | 2,404,000 | 2,289,000 |           |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                        |           |                               |          |           |           |          |       |               |                |              |              |           |           |           |
| U - Packaging and Transportation of HE Filled UXO to Army Off-Post Facility | LS        | 2                             | --       | 59.50     | /BCY      | 450      | BCY   | 1.000         | 1.000          | 1.000        |              | 31,000    | 29,000    |           |
| Subtotal (I1)                                                               |           |                               |          |           |           |          |       |               |                |              |              | 31,000    | 29,000    |           |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |                               |          |           |           |          |       |               |                |              |              |           |           |           |
| COST CODE: E                                                                |           |                               |          |           |           |          |       |               |                |              |              |           |           |           |
| Mob/Demob                                                                   | 0.0%      | J1 = 0.000 * (I1)             |          |           |           |          |       |               |                |              |              |           |           |           |
| Contractor Markup                                                           | 0.0%      | K1 = 0.000 * (I1+J1)          |          |           |           |          |       |               |                |              |              |           |           |           |
| Engineering Design                                                          | 0.0%      | L1 = 0.000 * (I1+J1+K1)       |          |           |           |          |       |               |                |              |              |           |           |           |
| Resident Engineering                                                        | 0.0%      | M1 = 0.000 * (I1+J1+K1)       |          |           |           |          |       |               |                |              |              |           |           |           |
| Contingency                                                                 | 30.0%     | N1 = 0.300 * (I1+J1+K1+L1+M1) |          |           |           |          |       |               |                |              |              |           |           |           |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                              |           |                               |          |           |           |          |       |               |                |              |              | 9,000     | 9,000     |           |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+I1+O1)</b>                    |           |                               |          |           |           |          |       |               |                |              |              | 5,025,000 | 4,786,000 |           |

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Table B1.1-U4a Cost Estimate - Munitions Testing Medium Group  
Alternative U4a: Detonation (Off-Post Army Facility)

| Cost Item                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                   | A         | 2          | 30       | 0.13                   | /BCY-YR | 90,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 13,000                   | 387,000                 | 202,000              |
| Subtotal (P)                                                                            |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                               |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: ULSL                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                            |           |            |          |                        |         |          |       |               |                |              |             | 5,000                    | 151,000                 | 79,000               |
| Contingency                                                                             |           |            |          |                        |         |          |       |               |                |              |             | 6,000                    | 181,000                 | 94,000               |
| Subtotal (S = Q+R)                                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                        |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (OPERATIONS & LONG-TERM ACTIVITIES) (U = H+O+T) |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 7,280,000               | 6,670,000            |

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**Table B2.1-A1**  
**Cost Estimate - Agent Storage Medium Group - North Plants Subgroup**  
**Alternative A1: No Additional Action (Provisions of FFA)**

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |         |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|---------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |         |
| A - No Action                                                                                  | LS        | 1          | --       | 0.00                   | 28,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |         |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |         |
| Mobile/Demob                                                                                   |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |         |
| Indirects, Overhead & Profit                                                                   |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |         |
| Engineering Design                                                                             |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |         |
| Resident Engineering                                                                           |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |         |
| Contingency                                                                                    |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |         |
| Subtotal (I) = J+K+L+M+N                                                                       |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |         |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |         |
| A - Site Reviews                                                                               | A         | 1          | 30       | \$,400.00              | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 186,000                 | 98,000               |         |
| Subtotal (P) = Q+R+S                                                                           |           |            |          |                        |          |       |               |                |              |             |                          | 6,000                   | 186,000              | 98,000  |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |         |
| Indirects, Overhead & Profit                                                                   |           |            |          |                        |          |       |               |                |              |             | 2,000                    | 72,000                  | 36,000               |         |
| Contingency                                                                                    |           |            |          |                        |          |       |               |                |              |             | 3,000                    | 77,000                  | 41,000               |         |
| Subtotal (S)                                                                                   |           |            |          |                        |          |       |               |                |              |             |                          | 5,000                   | 149,000              | 79,000  |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |                        |          |       |               |                |              |             |                          | 11,000                  | 334,000              | 177,000 |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |                        |          |       |               |                |              |             |                          |                         | 334,000              | 177,000 |

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Table B2.1-A2 Cost Estimate - Agent Storage Medium Group - North Plants Subgroup  
Alternative A2: Caps/Covers (Clay/Soil Cap)

| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------|-----------|------------|----------|------------------------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS          |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| A - No Action                 | LS        | 1          | --       | 0.00                   | 28,000   | SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| Subtotal (A)                  |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |
| INDIRECT CAPITAL COSTS        |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                     |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit  |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design            |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering          |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Contingency                   |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G =B+C+D+E+F)       |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |
| TOTAL CAPITAL COSTS (H = A+G) |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |

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Table B2.1-A2 Cost Estimate - Agent Storage Medium Group - North Plants Subgroup  
Alternative A2: Caps/Covers (Clay/Soil Cap)

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-----------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| A - Subgrade Preparation Prior to Installing Cover                                             | LS        | 1          | --       | 0.06                   | /SY       | 28,000   | SY    | 1,000            | 1,000             | 1,000           |             |                          | 2,000                   | 2,000                |
| A - Soil Cover for Potential Agent Areas                                                       | LS        | 1          | --       | 9.50                   | /SY       | 28,000   | SY    | 1,000            | 1,000             | 1,000           |             |                          | 304,000                 | 304,000              |
| A - Excavation of Borrow Material                                                              | LS        | 1          | --       | 1.89                   | /BCY      | 4,600    | BCY   | 1,000            | 1,000             | 1,000           |             |                          | 10,000                  | 10,000               |
| A - Transportation of Borrow Material to Backfill Area                                         | LS        | 1          | --       | 0.86                   | /BCY-MILE | 4,600    | BCY   | 1,000            | 1,500             | 1,000           |             |                          | 7,000                   | 7,000                |
| A - Backfill with Borrow Material                                                              | LS        | 1          | --       | 1.72                   | /BCY      | 4,600    | BCY   | 1,000            | 1,000             | 1,000           |             |                          | 9,000                   | 9,000                |
| A - Revegetation of Disturbed Areas                                                            | LS        | 1          | --       | 0.18                   | /SY       | 28,000   | SY    | 1,000            | 1,000             | 1,100           | Disturbance |                          | 6,000                   | 6,000                |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (I)                                                                                   |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| COST CODE                                                                                      |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| J = 0.033 * (I)                                                                                |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| 3.3%                                                                                           |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| K = 0.390 * (I+J)                                                                              |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| 39.0%                                                                                          |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| L = 0.005 * (I+J+K)                                                                            |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| 0.5%                                                                                           |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| M = 0.013 * (I+J+K)                                                                            |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| 1.3%                                                                                           |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| N = 0.263 * (I+J+K+L+M)                                                                        |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| 26.3%                                                                                          |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (O = J+K+L+M+N)                                                                       |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| 285,000                                                                                        |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| A - Soil Cover for Potential Agent Areas                                                       | A         | 1          | 30       | 0.32                   | /SY-YR    | 28,000   | SY    | 1,000            | 1,000             | 1,000           |             | 10,000                   | 307,000                 | 163,000              |
| A - Site Reviews                                                                               | A         | 1          | 30       | 5,400.00               | /EA-YR    | 1        | EA    | 1,000            | 1,000             | 1,000           |             | 6,000                    | 165,000                 | 98,000               |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (P)                                                                                   |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| COST CODE                                                                                      |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| Q = 0.390 * (P)                                                                                |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| 39.0%                                                                                          |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| R = 0.300 * (P+Q)                                                                              |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| 30.0%                                                                                          |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (S)                                                                                   |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| 13,000                                                                                         |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| 30,000                                                                                         |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| 1,510,000                                                                                      |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| 1,090,000                                                                                      |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |

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Table B2.1-A3

Cost Estimate - Agent Storage Medium Group - North Plants Subgroup  
Alternative A3: Soil Washing (Solution Washing); Landfill (On-Post Landfill)

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| Cost Item                                                                           | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1993 (\$)<br>Total Cost | 1993 (\$)<br>PW Cost |
|-------------------------------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                                                |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| A - On-Post Hazardous Waste Landfill (Salts, Treated Soils, Isolated Exceedances)   | LS        | 1                             | --       | 5.72                   | /BCY  | 1,770    | BCY   | 1.000         | 1.000          | 1.000        |             | 12,000                   | 12,000                  | 12,000               |
| A - On-Post Hazardous Waste Landfill Closure (Salts, Treated Soils, Isolated Excess | LS        | 2                             | --       | 3.80                   | /BCY  | 1,770    | BCY   | 1.000         | 1.000          | 1.000        |             | 8,000                    | 8,000                   | 7,000                |
| Subtotal (A)                                                                        |           |                               |          |                        |       |          |       |               |                |              |             |                          | 19,000                  | 19,000               |
| INDIRECT CAPITAL COSTS                                                              |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSS                                                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                                           | 3.3%      | B = 0.033 * (A)               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                        | 38.0%     | C = 0.380 * (A+B)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                                  | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                                | 1.3%      | E = 0.013 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                         | 28.3%     | F = 0.283 * (A+B+C+D+E)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                                            |           |                               |          |                        |       |          |       |               |                |              |             |                          | 17,000                  | 17,000               |
| DIRECT SUBCONTRACT CAPITAL COSTS                                                    |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| A - Caustic Washing of Agent Soil                                                   | LS        | 1                             | --       | 76.95                  | /BCY  | 63       |       | 1.000         | 1.000          | 1.000        |             | 6,000                    | 6,000                   | 6,000                |
| A - Treatment of Effluent from Caustic Washing                                      | LS        | 1                             | --       | 245.00                 | /BCY  | 63       |       | 1.000         | 1.000          | 1.000        |             | 18,000                   | 18,000                  | 18,000               |
| Subtotal (A1)                                                                       |           |                               |          |                        |       |          |       |               |                |              |             |                          | 23,000                  | 23,000               |
| INDIRECT SUBCONTRACT CAPITAL COSTS                                                  |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: F                                                                        |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                                           | 5.0%      | B1 = 0.050 * (A1)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                                                   | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                                  | 4.5%      | D1 = 0.045 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                                | 2.0%      | E1 = 0.020 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                         | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                                      |           |                               |          |                        |       |          |       |               |                |              |             |                          | 14,000                  | 14,000               |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                                                 |           |                               |          |                        |       |          |       |               |                |              |             |                          | 73,000                  | 73,000               |

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Table B2.1-A3 Cost Estimate - Agent Storage Medium Group - North Plants Subgroup  
Alternative A3: Soil Washing (Solution Washing): Landfill (On-Post Landfill)

| Cost Item                                                                         | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)      | 1995 (\$)      | 1995 (\$) |
|-----------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|----------------|----------------|-----------|
|                                                                                   |           |            |          | Unit Cost |           |          |       |               |                |              |             | Total Cost     | PW Cost        |           |
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                          |           |            |          |           |           |          |       |               |                |              |             |                |                |           |
| A - Drilling and Agent Screening Prior to Excavation                              | LS        | 1          | --       | 4.89      | /SY       | 28,000   | SY    | 1,000         | 1,000          | 1,000        |             | 158,000        | 158,000        |           |
| A - Excavation of Soil with Agent and Isolated Exceedances                        | LS        | 2          | --       | 4.55      | /BCY      | 670      | BCY   | 1,000         | 1,000          | 1,000        |             | 3,000          | 3,000          |           |
| A - Transportation of Contaminated Soil to Soil Washing Unit                      | LS        | 2          | --       | 1.07      | /BCY-MILE | 63       |       | 1,000         | 2,000          | 1,000        |             | 200            | 100            |           |
| A - Load Treated Soil for Transport to Hazardous Landfill                         | LS        | 2          | --       | 1.55      | /BCY      | 1,770    | BCY   | 1,000         | 1,000          | 1,000        |             | 3,000          | 3,000          |           |
| A - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill       | LS        | 2          | --       | 1.07      | /BCY-MILE | 1,770    | BCY   | 1,000         | 1,000          | 1,000        |             | 2,000          | 2,000          |           |
| A - On-Post Hazardous Waste Landfill (Salts, Treated Soils, Isolated Exceedances) | LS        | 2          | --       | 4.07      | /BCY      | 1,770    | BCY   | 1,000         | 1,000          | 1,000        |             | 8,000          | 8,000          |           |
| A - Excavation of Borrow Material                                                 | LS        | 2          | --       | 1.89      | /BCY      | 670      | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000          | 1,000          |           |
| A - Transportation of Borrow Material to Backfill Area                            | LS        | 2          | --       | 0.86      | /BCY-MILE | 670      | BCY   | 1,000         | 1,500          | 1,000        |             | 1,000          | 1,000          |           |
| A - Backfill with Borrow Material                                                 | LS        | 2          | --       | 1.72      | /BCY      | 670      | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000          | 1,000          |           |
| A - Installation of 6 inches of Topsoil                                           | LS        | 2          | --       | 3.24      | /SY       | 1,950    | SY    | 1,000         | 1,000          | 1,000        |             | 7,000          | 7,000          |           |
| A - Revegetation of Disturbed Areas                                               | LS        | 2          | --       | 0.18      | /SY       | 1,950    | SY    | 1,000         | 1,000          | 1,100        | Disturbance | 400            | 400            |           |
| <b>Subtotal (I)</b>                                                               |           |            |          |           |           |          |       |               |                |              |             | <b>185,000</b> | <b>183,000</b> |           |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                        |           |            |          |           |           |          |       |               |                |              |             |                |                |           |
| Mob/Demob                                                                         |           |            |          |           |           |          |       |               |                |              |             |                |                |           |
| Indirects Overhead & Profit                                                       |           |            |          | 4.5%      |           |          |       |               |                |              |             | 8,000          | 8,000          |           |
| Engineering Design                                                                |           |            |          | 41.5%     |           |          |       |               |                |              |             | 80,000         | 80,000         |           |
| Resident Engineering                                                              |           |            |          | 0.5%      |           |          |       |               |                |              |             | 1,000          | 1,000          |           |
| Contingency                                                                       |           |            |          | 1.8%      |           |          |       |               |                |              |             | 5,000          | 5,000          |           |
|                                                                                   |           |            |          | 30.0%     |           |          |       |               |                |              |             | 84,000         | 83,000         |           |
| <b>Subtotal (O = J+K+L+M+N)</b>                                                   |           |            |          |           |           |          |       |               |                |              |             | <b>178,000</b> | <b>177,000</b> |           |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                              |           |            |          |           |           |          |       |               |                |              |             |                |                |           |
| A - Caustic Washing of Agent Soil                                                 | LS        | 2          | --       | 212.30    | /BCY      | 63       | BCY   | 1,000         | 1,000          | 1,000        |             | 15,000         | 15,000         |           |
| A - Treatment of Effluent from Caustic Washing                                    | LS        | 2          | --       | 17.80     | /BCY      | 63       | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000          | 1,000          |           |
| <b>Subtotal (I1)</b>                                                              |           |            |          |           |           |          |       |               |                |              |             | <b>17,000</b>  | <b>16,000</b>  |           |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                            |           |            |          |           |           |          |       |               |                |              |             |                |                |           |
| Mob/Demob                                                                         |           |            |          |           |           |          |       |               |                |              |             |                |                |           |
| Contractor Markup                                                                 |           |            |          | 5.0%      |           |          |       |               |                |              |             | 1,000          | 1,000          |           |
| Engineering Design                                                                |           |            |          | 10.0%     |           |          |       |               |                |              |             | 2,000          | 2,000          |           |
| Resident Engineering                                                              |           |            |          | 0.0%      |           |          |       |               |                |              |             | 0              | 0              |           |
| Contingency                                                                       |           |            |          | 2.0%      |           |          |       |               |                |              |             | 400            | 400            |           |
|                                                                                   |           |            |          | 30.0%     |           |          |       |               |                |              |             | 6,000          | 6,000          |           |
| <b>Subtotal (O1 = J1+K1+L1+M1+N1)</b>                                             |           |            |          |           |           |          |       |               |                |              |             | <b>9,000</b>   | <b>8,000</b>   |           |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+I1+O1)</b>                          |           |            |          |           |           |          |       |               |                |              |             | <b>388,000</b> | <b>385,000</b> |           |

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| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$) | Quantity | Units   | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|----------|---------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|---------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |           |          |         |               |                |              |             |           |           |           |         |
| <b>A - On-Post Hazardous Waste Landfill Closure (Salts, Treated Solids, Isolated Excess)</b>            |           |            |          |           |          |         |               |                |              |             |           |           |           |         |
|                                                                                                         | A         | 2          | 30       | 0.13      | 1,770    | /BCY-YR | 1.000         | 1.000          | 1.000        |             | 300       | 8,000     | 4,000     |         |
| <b>Subtotal (\$)</b>                                                                                    |           |            |          |           |          |         |               |                |              |             | 300       | 8,000     | 4,000     |         |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |           |          |         |               |                |              |             |           |           |           |         |
| <b>COST CODE: LLSL</b>                                                                                  |           |            |          |           |          |         |               |                |              |             |           |           |           |         |
| Indirects, Overhead & Profit                                                                            |           |            |          |           |          |         |               |                |              |             | 100       | 3,000     | 2,000     |         |
| Contingency                                                                                             |           |            |          |           |          |         |               |                |              |             | 100       | 3,000     | 2,000     |         |
| <b>Subtotal (\$ = Q+R)</b>                                                                              |           |            |          |           |          |         |               |                |              |             | 200       | 6,000     | 3,000     |         |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |           |          |         |               |                |              |             | 500       | 14,000    | 7,000     |         |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OQ+T)</b> |           |            |          |           |          |         |               |                |              |             |           |           |           |         |
|                                                                                                         |           |            |          |           |          |         |               |                |              |             |           | 476,000   | 464,000   |         |

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Table B2.1-A4 Cost Estimate - Agent Storage Medium Group - North Plants Subgroup  
Alternative A4: Incineration/Pyrolysis (Rotary Kiln) Page 1 of 3

| Cost Item                                                                 | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                                               |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| A - On-Post Hazardous Waste Landfill (Isolated Excesses and Particulates) | LS        | 2          | --       | 5.72                   | /BCY  | 610      | BCY   | 1.000            | 1.000             | 1.000           | 1.000       | 4,000                    | 4,000                   | 4,000                |
| A - On-Post Hazardous Waste Landfill Closure                              | LS        | 3          | --       | 3.80                   | /BCY  | 610      | BCY   | 1.000            | 1.000             | 1.000           | 1.000       | 3,000                    | 3,000                   | 2,000                |
| Subtotal (A)                                                              |           |            |          |                        |       |          |       |                  |                   |                 |             | 7,000                    |                         | 6,000                |
| <b>INDIRECT CAPITAL COSTS</b>                                             |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| COST CODE: LISS                                                           |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mob/Demob                                                                 | 3.3%      |            |          |                        |       |          |       |                  |                   |                 |             |                          | 200                     | 200                  |
| Indirects, Overhead & Profit                                              | 36.0%     |            |          |                        |       |          |       |                  |                   |                 |             |                          | 3,000                   | 2,000                |
| Engineering Design                                                        | 3.0%      |            |          |                        |       |          |       |                  |                   |                 |             |                          | 300                     | 300                  |
| Resident Engineering                                                      | 1.3%      |            |          |                        |       |          |       |                  |                   |                 |             |                          | 100                     | 100                  |
| Contingency                                                               | 26.3%     |            |          |                        |       |          |       |                  |                   |                 |             |                          | 3,000                   | 2,000                |
| Subtotal (G = B+C+D+E+F)                                                  |           |            |          |                        |       |          |       |                  |                   |                 |             | 6,000                    |                         | 6,000                |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                                   |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| A - Incineration                                                          | A         | 1          | 2        | 36.37                  | /BCY  | 63       | BCY   | 1.000            | 1.000             | 1.000           |             | 3,000                    | 3,000                   | 3,000                |
| Subtotal (A1)                                                             |           |            |          |                        |       |          |       |                  |                   |                 |             | 3,000                    |                         | 3,000                |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                                 |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| COST CODE: C                                                              |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mob/Demob                                                                 | 2.0%      |            |          |                        |       |          |       |                  |                   |                 |             |                          | 100                     | 100                  |
| Contractor Markup                                                         | 10.0%     |            |          |                        |       |          |       |                  |                   |                 |             |                          | 300                     | 300                  |
| Engineering Design                                                        | 9.0%      |            |          |                        |       |          |       |                  |                   |                 |             |                          | 300                     | 300                  |
| Resident Engineering                                                      | 3.0%      |            |          |                        |       |          |       |                  |                   |                 |             |                          | 100                     | 100                  |
| Contingency                                                               | 30.0%     |            |          |                        |       |          |       |                  |                   |                 |             |                          | 1,000                   | 1,000                |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                            |           |            |          |                        |       |          |       |                  |                   |                 |             | 2,000                    |                         | 2,000                |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>                                |           |            |          |                        |       |          |       |                  |                   |                 |             | 17,000                   |                         | 16,000               |

Table B2.1-A4 Cost Estimate - Agent Storage Medium Group - North Plants Subgroup  
Alternative A4: Incineration/Pyrolysis (Rotary Kiln)

| Cost Item                                                                    | Cost Type | Start Year | End Year | 1992 (\$) | Units                         | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$) |
|------------------------------------------------------------------------------|-----------|------------|----------|-----------|-------------------------------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|-----------|
|                                                                              |           |            |          | Unit Cost |                               |          |       |               |                |              |             | Annual Cost | Total Cost | PW Cost   |
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                     |           |            |          |           |                               |          |       |               |                |              |             |             |            |           |
| A - Drilling and Agent Screening Prior to Excavation                         | LS        | 2          | --       | 4.89      | /SY                           | 28,000   | SV    | 1,000         | 1,000          | 1,000        |             | 158,000     |            | 148,000   |
| A - Excavation of Soil with Agent and Isolated Exceedances                   | LS        | 3          | --       | 4.55      | /BCY                          | 670      | BCY   | 1,000         | 1,000          | 1,000        |             | 3,000       |            | 3,000     |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility     | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 63       | BCY   | 1,000         | 2,000          | 1,000        |             | 200         |            | 100       |
| A - Load Treated Soil for Transport to Hazardous Landfill                    | LS        | 3          | --       | 1.55      | /BCY                          | 610      | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000       |            | 1,000     |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill       | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 610      | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000       |            | 1,000     |
| A - On-Post Hazardous Waste Landfill (Isolated Exceedances and Particulates) | LS        | 3          | --       | 4.07      | /BCY                          | 610      | BCY   | 1,000         | 1,000          | 1,000        |             | 3,000       |            | 3,000     |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill               | LS        | 3          | --       | 1.28      | /BCY                          | 610      | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000       |            | 1,000     |
| A - Transportation of Treated Soil to Backfill Excavation                    | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 63       | BCY   | 1,000         | 2,000          | 1,000        |             | 100         |            | 100       |
| A - Backfill with Treated Soil                                               | LS        | 3          | --       | 1.72      | /BCY                          | 63       | BCY   | 1,000         | 1,000          | 1,000        |             | 100         |            | 100       |
| A - Excavation of Borrow Material                                            | LS        | 3          | --       | 1.89      | /BCY                          | 610      | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000       |            | 1,000     |
| A - Transportation of Borrow Material to Backfill Area                       | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 610      | BCY   | 1,000         | 1,500          | 1,000        |             | 1,000       |            | 1,000     |
| A - Backfill with Borrow Material                                            | LS        | 3          | --       | 1.72      | /BCY                          | 610      | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000       |            | 1,000     |
| A - Installation of 6 Inches of Topsoil                                      | LS        | 3          | --       | 3.24      | /SY                           | 1,960    | SY    | 1,000         | 1,000          | 1,000        |             | 7,000       |            | 7,000     |
| A - Revegetation of Disturbed Areas                                          | LS        | 3          | --       | 0.18      | /SY                           | 1,960    | SY    | 1,000         | 1,000          | 1,100        | Disturbance | 400         |            | 400       |
| <b>Subtotal (f)</b>                                                          |           |            |          |           |                               |          |       |               |                |              |             | 177,000     |            | 167,000   |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                   |           |            |          |           |                               |          |       |               |                |              |             |             |            |           |
| Mod/Demob                                                                    |           |            |          | 4.5%      | J = 0.045 * (f)               |          |       |               |                |              |             |             | 8,000      | 8,000     |
| Indirects, Overhead & Profit                                                 |           |            |          | 41.5%     | K = 0.415 * (f+J)             |          |       |               |                |              |             |             | 77,000     | 73,000    |
| Engineering Design                                                           |           |            |          | 0.5%      | L = 0.005 * (f+J+K)           |          |       |               |                |              |             |             | 1,000      | 1,000     |
| Resident Engineering                                                         |           |            |          | 1.8%      | M = 0.018 * (f+J+K)           |          |       |               |                |              |             |             | 5,000      | 4,000     |
| Contingency                                                                  |           |            |          | 30.0%     | N = 0.300 * (f+J+K+L+M)       |          |       |               |                |              |             |             | 60,000     | 76,000    |
| <b>Subtotal (O = J+K+L+M+N)</b>                                              |           |            |          |           |                               |          |       |               |                |              |             | 171,000     |            | 162,000   |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                         |           |            |          |           |                               |          |       |               |                |              |             |             |            |           |
| A - Incineration                                                             | LS        | 3          | --       | 96.24     | /BCY                          | 63       | BCY   | 1,000         | 1,000          | 1,000        |             | 7,000       |            | 6,000     |
| <b>Subtotal (f)</b>                                                          |           |            |          |           |                               |          |       |               |                |              |             | 7,000       |            | 6,000     |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                       |           |            |          |           |                               |          |       |               |                |              |             |             |            |           |
| Mod/Demob                                                                    |           |            |          | 0.0%      | J1 = 0.000 * (f1)             |          |       |               |                |              |             |             | 0          | 0         |
| Contractor Markup                                                            |           |            |          | 10.0%     | K1 = 0.100 * (f1+J1)          |          |       |               |                |              |             |             | 1,000      | 1,000     |
| Engineering Design                                                           |           |            |          | 0.0%      | L1 = 0.000 * (f1+J1+K1)       |          |       |               |                |              |             |             | 0          | 0         |
| Resident Engineering                                                         |           |            |          | 2.0%      | M1 = 0.020 * (f1+J1+K1)       |          |       |               |                |              |             |             | 200        | 100       |
| Contingency                                                                  |           |            |          | 40.0%     | N1 = 0.400 * (f1+J1+K1+L1+M1) |          |       |               |                |              |             |             | 3,000      | 3,000     |
| <b>Subtotal (O1 = J1+K1+L1+M1+N1)</b>                                        |           |            |          |           |                               |          |       |               |                |              |             | 4,000       |            | 4,000     |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = f+O+O1)</b>                        |           |            |          |           |                               |          |       |               |                |              |             | 358,000     |            | 339,000   |

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| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$) | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|-----------|---------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| A - On-Post Hazardous Waste Landfill Closure (Isolated Exceedances and Particul                        | A         | 3          | 30       | 0.13      | 610      | BCY   | 1.000         | 1.000          | 1.000        |             | 100       | 3,000     | 3,000     | 1,000     | 1,000   |
| Subtotal (P)                                                                                           |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                              |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| COST CODE: LLSL                                                                                        |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| Indirects, Overhead & Profit 39.0%                                                                     |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| Contingency 30.0%                                                                                      |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| Q = 0.390 * (P)                                                                                        |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| R = 0.300 * (P+Q)                                                                                      |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| Subtotal (S = Q+R)                                                                                     |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
|                                                                                                        |           |            |          |           |          |       |               |                |              |             |           | 380,000   | 357,000   |           |         |

Table B2.1-A5 Cost Estimate - Agent Storage Medium Group - North Plants Subgroup  
Alternative A5: Soil Washing (Solvent Washing); Landfill (On-Post Landfill)

| Cost Item                                                                            | Cost Type | Start Year | End Year | 1992 (\$) | Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |
|--------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|---------|
| <b>DIRECT CAPITAL COSTS</b>                                                          |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| A - On-Post Hazardous Waste Landfill (Salts, Treated Soils, Isolated Excesses)       | LS        | 1          | --       |           | 5.72      | /BCY  | 670      | BCY   | 1.000         | 1.000          | 1.000        |             | 4,000     |           |           | 4,000   |
| A - On-Post Hazardous Waste Landfill Closure (Salts, Treated Soils, Isolated Excess) | LS        | 2          | --       |           | 3.80      | /BCY  | 670      | BCY   | 1.000         | 1.000          | 1.000        |             | 3,000     |           |           | 3,000   |
| <b>Subtotal (A)</b>                                                                  |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>INDIRECT CAPITAL COSTS</b>                                                        |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>MOB/DEMOLITION</b>                                                                |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>INDIRECTS, OVERHEAD &amp; PROFIT</b>                                              |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>ENGINEERING DESIGN</b>                                                            |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>RESIDENT ENGINEERING</b>                                                          |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>CONTINGENCY</b>                                                                   |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>Subtotal (B)</b>                                                                  |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                                              |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| A - Solvent/Caustic Washing of Agent Soil                                            | LS        | 1          | --       |           | 32.55     | /BCY  | 670      | BCY   | 1.000         | 1.000          | 1.000        |             | 25,000    |           |           | 25,000  |
| <b>Subtotal (C)</b>                                                                  |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                                            |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>MOB/DEMOLITION</b>                                                                |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>CONTRACTOR MARKUP</b>                                                             |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>ENGINEERING DESIGN</b>                                                            |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>RESIDENT ENGINEERING</b>                                                          |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>CONTINGENCY</b>                                                                   |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>Subtotal (D)</b>                                                                  |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>TOTAL CAPITAL COSTS (H = A+C+D+E+F)</b>                                           |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>ANP-A5-W01</b>                                                                    |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>SOILS DAA</b>                                                                     |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>Subtotal (H)</b>                                                                  |           |            |          |           |           |       |          |       |               |                |              |             |           |           |           |         |

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Table B2.1-A5 Cost Estimate - Agent Storage Medium Group - North Plants Subgroup  
Alternative A5: Soil Washing (Solvent Washing); Landfill (On-Post Landfill)

| Cost Item                                                                       | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-----------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                        |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| A - Drilling and Agent Screening Prior to Excavation                            | LS        | 1          | --       | 4.89                   | /SY       | 28,000   | SY    | 1,000         | 1,000          | 1,000        |             | 158,000                  | 158,000                 | 158,000              |
| A - Excavation of Soil with Agent and Isolated Exceedences                      | LS        | 2          | --       | 4.55                   | /BCY      | 670      | BCY   | 1,000         | 1,000          | 1,000        |             | 3,000                    | 3,000                   | 3,000                |
| A - Transportation of Contaminated Soil to Soil Washing Unit                    | LS        | 2          | --       | 1.07                   | /BCY-MILE | 63       | BCY   | 1,000         | 2,000          | 1,000        |             | 200                      | 200                     | 100                  |
| A - Load Treated Soil for Transport to Hazardous Landfill                       | LS        | 2          | --       | 1.55                   | /BCY      | 670      | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000                    | 1,000                   | 1,000                |
| A - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill     | LS        | 2          | --       | 1.07                   | /BCY-MILE | 670      | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000                    | 1,000                   | 1,000                |
| A - On-Post Hazardous Waste Landfill (Salts Treated Soils Isolated Exceedences) | LS        | 2          | --       | 4.07                   | /BCY      | 670      | BCY   | 1,000         | 1,000          | 1,000        |             | 3,000                    | 3,000                   | 3,000                |
| A - Excavation of Borrow Material                                               | LS        | 2          | --       | 1.89                   | /BCY      | 670      | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000                    | 1,000                   | 1,000                |
| A - Transportation of Borrow Material to Backfill Area                          | LS        | 2          | --       | 0.86                   | /BCY-MILE | 670      | BCY   | 1,000         | 1,500          | 1,000        |             | 1,000                    | 1,000                   | 1,000                |
| A - Backfill with Borrow Material                                               | LS        | 2          | --       | 1.72                   | /BCY      | 670      | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000                    | 1,000                   | 1,000                |
| A - Installation of 6 Inches of Topsoil                                         | LS        | 2          | --       | 3.24                   | /SY       | 1,950    | SY    | 1,000         | 1,000          | 1,000        |             | 7,000                    | 7,000                   | 7,000                |
| A - Revegetation of Disturbed Areas                                             | LS        | 2          | --       | 0.18                   | /SY       | 1,950    | SY    | 1,000         | 1,000          | 1,100        | Disturbance | 400                      | 400                     | 400                  |
| Subtotal (I)                                                                    |           |            |          |                        |           |          |       |               |                |              |             | 178,000                  | 178,000                 | 178,000              |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                      |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                                       |           |            |          | 4.5%                   |           |          |       |               |                |              |             |                          | 8,000                   | 8,000                |
| Indirects, Overhead & Profit                                                    |           |            |          | 41.5%                  |           |          |       |               |                |              |             |                          | 78,000                  | 78,000               |
| Engineering Design                                                              |           |            |          | 0.5%                   |           |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
| Resident Engineering                                                            |           |            |          | 1.8%                   |           |          |       |               |                |              |             |                          | 5,000                   | 5,000                |
| Contingency                                                                     |           |            |          | 30.0%                  |           |          |       |               |                |              |             |                          | 80,000                  | 80,000               |
| Subtotal (O = J+K+L+M+N)                                                        |           |            |          |                        |           |          |       |               |                |              |             | 170,000                  | 170,000                 | 188,000              |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                            |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| A - Solvent/Caustic Washing of Agent Soil                                       | LS        | 2          | --       | 248.53                 | /BCY      | 63       | BCY   | 1,000         | 1,000          | 1,000        |             | 18,000                   | 18,000                  | 17,000               |
| Subtotal (I1)                                                                   |           |            |          |                        |           |          |       |               |                |              |             | 18,000                   | 18,000                  | 17,000               |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                          |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                                       |           |            |          | 5.0%                   |           |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
| Contractor Markup                                                               |           |            |          | 10.0%                  |           |          |       |               |                |              |             |                          | 2,000                   | 2,000                |
| Engineering Design                                                              |           |            |          | 0.0%                   |           |          |       |               |                |              |             |                          | 0                       | 0                    |
| Resident Engineering                                                            |           |            |          | 2.0%                   |           |          |       |               |                |              |             |                          | 400                     | 400                  |
| Contingency                                                                     |           |            |          | 30.0%                  |           |          |       |               |                |              |             |                          | 6,000                   | 6,000                |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                                  |           |            |          |                        |           |          |       |               |                |              |             | 9,000                    | 9,000                   | 8,000                |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+I1+O1)</b>                        |           |            |          |                        |           |          |       |               |                |              |             | 374,000                  | 374,000                 | 371,000              |

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Table B2.1-A5 Cost Estimate - Agent Storage Medium Group - North Plants Subgroup  
Alternative A5: Soil Washing (Solvent Washing); Landfill (On-Post Landfill)

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| A - On-Post Hazardous Waste Landfill Closure (Salts, Treated Solids, Isolated Excess)                  | A         | 2          | 30       | 0.13                   | /BCY-YR | 670      | BCY   | 1.000            | 1.000             | 1.000           |             | 100                      | 3,000                   | 2,000                |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |                  |                   |                 |             | 100                      | 3,000                   | 2,000                |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                           |           |            |          |                        |         |          |       |                  |                   |                 |             | 40                       | 1,000                   | 1,000                |
| Contingency                                                                                            |           |            |          |                        |         |          |       |                  |                   |                 |             | 40                       | 1,000                   | 1,000                |
| <b>Subtotal (S = Q+R)</b>                                                                              |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |                  |                   |                 |             | 100                      | 2,000                   | 1,000                |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |                  |                   |                 |             | 200                      | 5,000                   | 3,000                |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |                  |                   |                 |             |                          | 433,000                 | 427,000              |

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| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$) |  | Units | Quantity | Units | Volume Mileage |       | Other Factor |  | 1995 (\$)   |            | 1995 (\$) |   |
|-------------------------------|-----------|------------|----------|-----------|--|-------|----------|-------|----------------|-------|--------------|--|-------------|------------|-----------|---|
|                               |           |            |          | Unit Cost |  |       |          |       | Factor         |       | Factor       |  | Annual Cost | Total Cost | PW Cost   |   |
| DIRECT CAPITAL COSTS          |           |            |          |           |  |       |          |       |                |       |              |  |             |            |           |   |
| A - No Action                 | LS        | 1          | --       | 0.00      |  | /SY   | 270,000  | SY    | 1.000          | 1.000 | 1.000        |  | 0           | 0          | 0         | 0 |
| Subtotal (A)                  |           |            |          |           |  |       |          |       |                |       |              |  |             |            |           |   |
| INDIRECT CAPITAL COSTS        |           |            |          |           |  |       |          |       |                |       |              |  |             |            |           |   |
| Mod/Demob                     |           |            |          |           |  |       |          |       |                |       |              |  |             |            |           |   |
| Indirects: Overhead & Profit  |           |            |          |           |  |       |          |       |                |       |              |  |             |            |           |   |
| Engineering Design            |           |            |          |           |  |       |          |       |                |       |              |  |             |            |           |   |
| Resident Engineering          |           |            |          |           |  |       |          |       |                |       |              |  |             |            |           |   |
| Contingency                   |           |            |          |           |  |       |          |       |                |       |              |  |             |            |           |   |
| Subtotal (B+B+C+D+E+F)        |           |            |          |           |  |       |          |       |                |       |              |  |             |            |           |   |
| TOTAL CAPITAL COSTS (H) = A+G |           |            |          |           |  |       |          |       |                |       |              |  |             |            |           |   |

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| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$) | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|--------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|---------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| A - No Action                                                                                  | LS        | 1          | --       | 0.00      | SY     | 270,000  | SV    | 1.000         | 1.000          | 1.000        |             | 0         | 0         | 0         | 0       |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| Subtotal (I)                                                                                   |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| COST CODE LLSS                                                                                 |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| J = 0.033 * (I)                                                                                |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| K = 0.390 * (I+J)                                                                              |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| L = 0.005 * (I+J+K)                                                                            |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| M = 0.013 * (I+J+K)                                                                            |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| N = 0.263 * (I+J+K+L+M)                                                                        |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| Subtotal (O = J+K+L+M+N)                                                                       |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| A - Site Reviews                                                                               | A         | 1          | 30       | 5,400.00  | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000     | 185,000   | 98,000    | 98,000  |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| Subtotal (P)                                                                                   |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| COST CODE LLSL                                                                                 |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| Q = 0.390 * (P)                                                                                |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| R = 0.300 * (P+Q)                                                                              |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| Subtotal (S)                                                                                   |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| Subtotal (T)                                                                                   |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |
| Subtotal (U)                                                                                   |           |            |          |           |        |          |       |               |                |              |             |           |           |           |         |



**Table B2.2-A2**  
**Cost Estimate - Agent Storage Medium Group - Toxic Storage Yards Subgroup**  
**Alternative A2: Caps/Covers (Clay/Soil Cap)**

| Cost Item                                                                                                                                | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                                                                                                              |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| A - No Action                                                                                                                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                                                          | LS        | 1          | --       | 0.00                   | /SY   | 270,000  | SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| Subtotal (A)                                                                                                                             |           |            |          |                        |       |          |       |               |                |              |             | 0                        | 0                       | 0                    |
| <b>INDIRECT CAPITAL COSTS</b>                                                                                                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                                                                                                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                                                                                       |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                                                                                     |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                                                              |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 3.3% B = 0.033 * (A)<br>39.0% C = 0.390 * (A+B)<br>3.0% D = 0.030 * (A+B+C)<br>1.3% E = 0.013 * (A+B+C)<br>26.3% F = 0.263 * (A+B+C+D+E) |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                                                                                                 |           |            |          |                        |       |          |       |               |                |              |             | 0                        | 0                       | 0                    |
| Subtotal (H = A+G)                                                                                                                       |           |            |          |                        |       |          |       |               |                |              |             | 0                        | 0                       | 0                    |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b>                                                                                                     |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

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Table B2.2-A2 Cost Estimate - Agent Storage Medium Group - Toxic Storage Yards Subgroup  
Alternative A2: Caps/Covers (Clay/Soil Cap)

| Cost Item                                                                                      | Cost Type                | Start Year | End Year | 1992(\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$) | 1995 (\$) | 1995 (\$) |
|------------------------------------------------------------------------------------------------|--------------------------|------------|----------|----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |                          |            |          |          |           |          |       |               |                |              |             |           |           |           |
| A - Subgrade Preparation Prior to Installing Cover                                             | LS                       | 1          | --       | 0.06     | /SY       | 270,000  | SY    | 1.000         | 1.000          | 1.000        |             | 18,000    | 18,000    | 18,000    |
| A - Soil Cover for Potential Agent Areas                                                       | LS                       | 1          | --       | 9.50     | /SY       | 270,000  | SY    | 1.000         | 1.000          | 1.000        |             | 2,527,000 | 2,527,000 | 2,527,000 |
| A - Excavation of Borrow Material                                                              | LS                       | 1          | --       | 1.89     | /BCY      | 66,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 142,000   | 142,000   | 142,000   |
| A - Transportation of Borrow Material to Backfill Area                                         | LS                       | 1          | --       | 0.86     | /BCY-MILE | 66,000   | BCY   | 1.000         | 1.500          | 1.000        |             | 97,000    | 97,000    | 97,000    |
| A - Backfill with Borrow Material                                                              | LS                       | 1          | --       | 1.72     | /BCY      | 66,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 130,000   | 130,000   | 130,000   |
| A - Revegetation of Disturbed Areas                                                            | LS                       | 1          | --       | 0.18     | /SY       | 270,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance | 61,000    | 61,000    | 61,000    |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |                          |            |          |          |           |          |       |               |                |              |             |           |           |           |
| Mod/Demob                                                                                      | Subtotal (I)             |            |          |          |           |          |       |               |                |              |             |           |           |           |
| Indirects, Overhead & Profit                                                                   | COST CODE LLSS           |            |          |          |           |          |       |               |                |              |             |           |           |           |
| Engineering Design                                                                             | J = 0.033 * (I)          |            |          |          |           |          |       |               |                |              |             |           |           |           |
| Resident Engineering                                                                           | K = 0.380 * (I+J)        |            |          |          |           |          |       |               |                |              |             |           |           |           |
| Contingency                                                                                    | L = 0.005 * (I+J+K)      |            |          |          |           |          |       |               |                |              |             |           |           |           |
|                                                                                                | M = 0.013 * (I+J+K)      |            |          |          |           |          |       |               |                |              |             |           |           |           |
|                                                                                                | N = 0.283 * (I+J+K+L+M)  |            |          |          |           |          |       |               |                |              |             |           |           |           |
|                                                                                                | Subtotal (O = J+K+L+M+N) |            |          |          |           |          |       |               |                |              |             |           |           |           |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |                          |            |          |          |           |          |       |               |                |              |             |           |           |           |
| A - Soil Cover for Potential Agent Areas                                                       | A                        | 2          | 30       | 0.32     | /SY-YR    | 270,000  | SY    | 1.000         | 1.000          | 1.000        |             | 99,000    | 2,859,000 | 1,493,000 |
| A - Site Reviews                                                                               | A                        | 2          | 30       | 5,400.00 | /EA-YR    | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000     | 179,000   | 93,000    |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |                          |            |          |          |           |          |       |               |                |              |             |           |           |           |
| Indirects, Overhead & Profit                                                                   | Subtotal (P)             |            |          |          |           |          |       |               |                |              |             |           |           |           |
| Contingency                                                                                    | COST CODE LLSL           |            |          |          |           |          |       |               |                |              |             |           |           |           |
|                                                                                                | Q = 0.390 * (P)          |            |          |          |           |          |       |               |                |              |             |           |           |           |
|                                                                                                | R = 0.300 * (P+Q)        |            |          |          |           |          |       |               |                |              |             |           |           |           |
|                                                                                                | Subtotal (S)             |            |          |          |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |                          |            |          |          |           |          |       |               |                |              |             |           |           |           |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |                          |            |          |          |           |          |       |               |                |              |             |           |           |           |
| ATSY-A2.W01                                                                                    |                          |            |          |          |           |          |       |               |                |              |             |           |           |           |
| SOILS DAA                                                                                      |                          |            |          |          |           |          |       |               |                |              |             |           |           |           |
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| Cost Item                                                                         | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-----------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                          |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| A - Drilling and Agent Screening Prior to Excavation                              | LS        | 1          | --       | 4.89                   | /SY       | 270,000  | SY    | 1,000         | 1,000          | 1,000        |             | 1,507,000                | 1,507,000               | 1,507,000            |
| A - Excavation of Soil with Agent and Isolated Exceedances                        | LS        | 2          | --       | 4.55                   | /BCY      | 660      | BCY   | 1,000         | 1,000          | 1,000        |             | 3,000                    | 3,000                   | 3,000                |
| A - Transportation of Contaminated Soil to Soil Washing Unit                      | LS        | 2          | --       | 1.07                   | /BCY-MILE | 450      | BCY   | 1,000         | 2,500          | 1,000        |             | 1,000                    | 1,000                   | 1,000                |
| A - Load Treated Soil for Transport to Hazardous Landfill                         | LS        | 2          | --       | 1.55                   | /BCY      | 8,550    | BCY   | 1,000         | 1,000          | 1,000        |             | 15,000                   | 15,000                  | 14,000               |
| A - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill       | LS        | 2          | --       | 1.07                   | /BCY-MILE | 8,550    | BCY   | 1,000         | 2,000          | 1,000        |             | 21,000                   | 21,000                  | 20,000               |
| A - On-Post Hazardous Waste Landfill (Salts, Treated Soils, Isolated Exceedances) | LS        | 2          | --       | 4.07                   | /BCY      | 8,550    | BCY   | 1,000         | 1,000          | 1,000        |             | 40,000                   | 40,000                  | 38,000               |
| A - Excavation of Borrow Material                                                 | LS        | 2          | --       | 1.89                   | /BCY      | 660      | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000                    | 1,000                   | 1,000                |
| A - Transportation of Borrow Material to Backfill Area                            | LS        | 2          | --       | 0.86                   | /BCY-MILE | 660      | BCY   | 1,000         | 1,500          | 1,000        |             | 1,000                    | 1,000                   | 1,000                |
| A - Backfill with Borrow Material                                                 | LS        | 2          | --       | 1.72                   | /BCY      | 660      | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000                    | 1,000                   | 1,000                |
| A - Installation of 6 Inches of Topsoil                                           | LS        | 2          | --       | 3.24                   | /SY       | 550      | SY    | 1,000         | 1,000          | 1,000        |             | 2,000                    | 2,000                   | 2,000                |
| A - Revegetation of Disturbed Areas                                               | LS        | 2          | --       | 0.18                   | /SY       | 550      | SY    | 1,000         | 1,000          | 1,100        | Disturbance | 100                      | 100                     | 100                  |
| Subtotal (I)                                                                      |           |            |          |                        |           |          |       |               |                |              |             | 1,593,000                | 1,593,000               | 1,593,000            |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                        |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                                         |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                      | 4.5%      |            |          |                        |           |          |       |               |                |              |             |                          | 72,000                  | 72,000               |
| Engineering Design                                                                | 41.5%     |            |          |                        |           |          |       |               |                |              |             |                          | 681,000                 | 689,000              |
| Resident Engineering                                                              | 0.5%      |            |          |                        |           |          |       |               |                |              |             |                          | 12,000                  | 12,000               |
| Contingency                                                                       | 1.8%      |            |          |                        |           |          |       |               |                |              |             |                          | 41,000                  | 41,000               |
|                                                                                   | 30.0%     |            |          |                        |           |          |       |               |                |              |             |                          | 723,000                 | 721,000              |
| Subtotal (O = J+K+L+M+N)                                                          |           |            |          |                        |           |          |       |               |                |              |             | 1,538,000                | 1,538,000               | 1,534,000            |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                              |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| A - Caustic Washing of Agent Soil                                                 | LS        | 2          | --       | 212.30                 | /BCY      | 450      | BCY   | 1,000         | 1,000          | 1,000        |             | 109,000                  | 109,000                 | 104,000              |
| A - Treatment of Effluent from Caustic Washing                                    | LS        | 2          | --       | 17.80                  | /BCY      | 450      | BCY   | 1,000         | 1,000          | 1,000        |             | 9,000                    | 9,000                   | 9,000                |
| Subtotal (I1)                                                                     |           |            |          |                        |           |          |       |               |                |              |             | 118,000                  | 118,000                 | 113,000              |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                            |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                                         |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                                                 | 5.0%      |            |          |                        |           |          |       |               |                |              |             |                          | 6,000                   | 6,000                |
| Engineering Design                                                                | 10.0%     |            |          |                        |           |          |       |               |                |              |             |                          | 12,000                  | 12,000               |
| Resident Engineering                                                              | 0.0%      |            |          |                        |           |          |       |               |                |              |             |                          | 0                       | 0                    |
| Contingency                                                                       | 2.0%      |            |          |                        |           |          |       |               |                |              |             |                          | 3,000                   | 3,000                |
|                                                                                   | 30.0%     |            |          |                        |           |          |       |               |                |              |             |                          | 42,000                  | 40,000               |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                                    |           |            |          |                        |           |          |       |               |                |              |             | 63,000                   | 63,000                  | 60,000               |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O+I1+O1)                                     |           |            |          |                        |           |          |       |               |                |              |             | 3,312,000                | 3,312,000               | 3,295,000            |

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| A - On-Post Hazardous Waste Landfill Closure (Salts, Treated Soils, Isolated Excess)                    | A         | 2          | 30       | 0.13                   | /BCY-YR | 8,550    | BCY   | 1.000         | 1.000          | 1.000        |             | 1,000                    | 37,000                  | 19,000               |
| <b>Subtotal (P)</b>                                                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                            |           |            |          |                        |         |          |       |               |                |              |             | 500                      | 14,000                  | 7,000                |
| Contingency                                                                                             |           |            |          |                        |         |          |       |               |                |              |             | 1,000                    | 15,000                  | 8,000                |
| <b>Subtotal (S = Q+R)</b>                                                                               |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |

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Table B2.2-A4 Cost Estimate - Agent Storage Medium Group - Toxic Storage Yards Subgroup  
Alternative A4: Incineration/Pyrolysis (Rotary Kiln)

| Cost Item                                                                    | Cost Type | Start Year | End Year | 1992 (\$) | Units                           | Quantity | Units | Volume | Mileage | Other  | Description | 1995 (\$)  | 1995 (\$) | 1995 (\$) |
|------------------------------------------------------------------------------|-----------|------------|----------|-----------|---------------------------------|----------|-------|--------|---------|--------|-------------|------------|-----------|-----------|
|                                                                              |           |            |          | Unit Cost |                                 |          |       | Factor |         | Factor |             | Total Cost | PW Cost   |           |
| DIRECT O&M COSTS (OPERATIONS)                                                |           |            |          |           |                                 |          |       |        |         |        |             |            |           |           |
| A - Drilling and Agent Screening Prior to Excavation                         | LS        | 2          | --       | 4.89      | /SY                             | 270,000  | SY    | 1,000  | 1,000   | 1,000  |             | 1,507,000  | 1,436,000 |           |
| A - Excavation of Soil with Agent and Isolated Exceedances                   | LS        | 3          | --       | 4.55      | /BCY                            | 660      | BCY   | 1,000  | 1,000   | 1,000  |             | 3,000      | 3,000     |           |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility     | LS        | 3          | --       | 1.07      | /BCY-MILE                       | 450      | BCY   | 1,000  | 2,500   | 1,000  |             | 1,000      | 1,000     |           |
| A - Load Treated Soil for Transport to Hazardous Landfill                    | LS        | 3          | --       | 1.35      | /BCY                            | 450      | BCY   | 1,000  | 1,000   | 1,000  |             | 1,000      | 1,000     |           |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill       | LS        | 3          | --       | 1.07      | /BCY-MILE                       | 220      | BCY   | 1,000  | 1,000   | 1,000  |             | 300        | 200       |           |
| A - On-Post Hazardous Waste Landfill (Isolated Exceedances and Particulates) | LS        | 3          | --       | 4.07      | /BCY                            | 220      | BCY   | 1,000  | 1,000   | 1,000  |             | 1,000      | 1,000     |           |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill               | LS        | 3          | --       | 1.28      | /BCY                            | 220      | BCY   | 1,000  | 1,000   | 1,000  |             | 300        | 300       |           |
| A - Nonhazardous Treated Soil to Backfill for Backfill                       | LS        | 3          | --       | 0.86      | /BCY-MILE                       | 450      | BCY   | 1,000  | 2,500   | 1,000  |             | 1,000      | 1,000     |           |
| A - Backfill with Treated Soil                                               | LS        | 3          | --       | 1.72      | /BCY                            | 450      | BCY   | 1,000  | 1,000   | 1,000  |             | 1,000      | 1,000     |           |
| A - Excavation of Borrow Material                                            | LS        | 3          | --       | 1.89      | /BCY                            | 220      | BCY   | 1,000  | 1,000   | 1,000  |             | 500        | 400       |           |
| A - Transportation of Borrow Material to Backfill Area                       | LS        | 3          | --       | 0.86      | /BCY-MILE                       | 220      | BCY   | 1,000  | 1,500   | 1,000  |             | 300        | 300       |           |
| A - Backfill with Borrow Material                                            | LS        | 3          | --       | 1.72      | /BCY                            | 220      | BCY   | 1,000  | 1,000   | 1,000  |             | 400        | 400       |           |
| A - Installation of 6 Inches of Topsoil                                      | LS        | 3          | --       | 3.24      | /SY                             | 520      | SY    | 1,000  | 1,000   | 1,000  |             | 2,000      | 2,000     |           |
| A - Revegetation of Disturbed Areas                                          | LS        | 3          | --       | 0.18      | /SY                             | 520      | SY    | 1,000  | 1,000   | 1,100  | Disturbance | 100        | 100       |           |
| Subtotal (f)                                                                 |           |            |          |           |                                 |          |       |        |         |        |             | 1,519,000  | 1,448,000 |           |
| INDIRECT O&M COSTS (OPERATIONS)                                              |           |            |          |           |                                 |          |       |        |         |        |             |            |           |           |
| Mob/Demob                                                                    |           |            |          | 4.5%      | $J = 0.045 * (f)$               |          |       |        |         |        |             | 68,000     | 65,000    |           |
| Indirects, Overhead & Profit                                                 |           |            |          | 41.5%     | $K = 0.415 * (f+J)$             |          |       |        |         |        |             | 659,000    | 627,000   |           |
| Engineering Design                                                           |           |            |          | 0.5%      | $L = 0.005 * (f+J+K)$           |          |       |        |         |        |             | 11,000     | 11,000    |           |
| Resident Engineering                                                         |           |            |          | 1.8%      | $M = 0.018 * (f+J+K)$           |          |       |        |         |        |             | 39,000     | 37,000    |           |
| Contingency                                                                  |           |            |          | 30.0%     | $N = 0.300 * (f+J+K+L+M)$       |          |       |        |         |        |             | 689,000    | 656,000   |           |
| Subtotal (O = J+K+L+M+N)                                                     |           |            |          |           |                                 |          |       |        |         |        |             | 1,467,000  | 1,396,000 |           |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                    |           |            |          |           |                                 |          |       |        |         |        |             |            |           |           |
| A - Incineration                                                             | LS        | 3          | --       | 96.24     | /BCY                            | 450      | BCY   | 1,000  | 1,000   | 1,000  |             | 49,000     | 45,000    |           |
| Subtotal (f1)                                                                |           |            |          |           |                                 |          |       |        |         |        |             | 49,000     | 45,000    |           |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                  |           |            |          |           |                                 |          |       |        |         |        |             |            |           |           |
| Mob/Demob                                                                    |           |            |          | 0.0%      | $J1 = 0.000 * (f1)$             |          |       |        |         |        |             | 0          | 0         |           |
| Contractor Markup                                                            |           |            |          | 10.0%     | $K1 = 0.100 * (f1+J1)$          |          |       |        |         |        |             | 5,000      | 4,000     |           |
| Engineering Design                                                           |           |            |          | 0.0%      | $L1 = 0.000 * (f1+J1+K1)$       |          |       |        |         |        |             | 0          | 0         |           |
| Resident Engineering                                                         |           |            |          | 2.0%      | $M1 = 0.020 * (f1+J1+K1)$       |          |       |        |         |        |             | 1,000      | 1,000     |           |
| Contingency                                                                  |           |            |          | 40.0%     | $N1 = 0.400 * (f1+J1+K1+L1+M1)$ |          |       |        |         |        |             | 22,000     | 20,000    |           |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                               |           |            |          |           |                                 |          |       |        |         |        |             | 28,000     | 28,000    |           |
| TOTAL O&M COSTS (OPERATIONS) (OO = f+O+O1+O1)                                |           |            |          |           |                                 |          |       |        |         |        |             | 3,064,000  | 2,913,000 |           |

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**Table B2.2-A4**  
**Cost Estimate - Agent Storage Medium Group - Toxic Storage Yards Subgroup**  
**Alternative A4: Incineration/Pyrolysis (Rotary Kiln)**

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| A - On-Post Hazardous Waste Landfill Closure (Isolated Exceedences and Partial                          |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                         | A         | 3          | 30       | 0.13                   | /BCY-YR | 220      | BCY   | 1.000            | 1.000             | 1.000           |             | 30                       | 1,000                   | 500                  |
| Subtotal (P)                                                                                            |           |            |          |                        |         |          |       |                  |                   |                 |             | 30                       | 1,000                   | 500                  |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| COST CODE: LLSL                                                                                         |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit 38.0% Q = 0.390 * (P)                                                      |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency 30.0% R = 0.300 * (P+Q)                                                                     |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (S = Q+R)                                                                                      |           |            |          |                        |         |          |       |                  |                   |                 |             | 30                       | 1,000                   | 400                  |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |                  |                   |                 |             | 100                      | 2,000                   | 1,000                |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |                  |                   |                 |             |                          | 3,100,000               | 2,950,000            |

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Table B2.2-A5 Cost Estimate - Agent Storage Medium Group - Toxic Storage Yards Subgroup  
Alternative A5: Soil Washing (Solvent Washing); Landfill (On-Post Landfill)

| Cost Item                                                                            | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Milage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|-------|----------|-------|------------------|------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                                                          |           |                               |          |                        |       |          |       |                  |                  |                 |             |                          |                         |                      |
| A - On-Post Hazardous Waste Landfill (Salts, Treated Soils, Isolated Exceedances)    | LS        | 1                             | --       | 5.72                   | /BCY  | 660      | BCY   | 1,000            | 1,000            | 1,000           | 1,000       | 4,000                    | 4,000                   | 4,000                |
| A - On-Post Hazardous Waste Landfill Closure (Salts, Treated Soils, Isolated Excess) | LS        | 2                             | --       | 3.80                   | /BCY  | 660      | BCY   | 1,000            | 1,000            | 1,000           | 1,000       | 3,000                    | 3,000                   | 3,000                |
| <b>Subtotal (A)</b>                                                                  |           |                               |          |                        |       |          |       |                  |                  |                 |             |                          |                         |                      |
| <b>INDIRECT CAPITAL COSTS</b>                                                        |           |                               |          |                        |       |          |       |                  |                  |                 |             |                          |                         |                      |
| <b>MOB/Demob</b>                                                                     |           |                               |          |                        |       |          |       |                  |                  |                 |             |                          |                         |                      |
| <b>Cost Code: LLSS</b>                                                               |           |                               |          |                        |       |          |       |                  |                  |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                         | 3.3%      | B = 0.033 * (A)               |          |                        |       |          |       |                  |                  |                 |             | 200                      | 200                     | 200                  |
| Engineering Design                                                                   | 38.0%     | C = 0.380 * (A+B)             |          |                        |       |          |       |                  |                  |                 |             | 3,000                    | 3,000                   | 3,000                |
| Resident Engineering                                                                 | 1.3%      | D = 0.030 * (A+B+C)           |          |                        |       |          |       |                  |                  |                 |             | 300                      | 300                     | 300                  |
| Contingency                                                                          | 28.3%     | E = 0.013 * (A+B+C)           |          |                        |       |          |       |                  |                  |                 |             | 100                      | 100                     | 100                  |
|                                                                                      |           | F = 0.283 * (A+B+C+D+E)       |          |                        |       |          |       |                  |                  |                 |             | 3,000                    | 3,000                   | 3,000                |
| <b>Subtotal (G = B+C+D+E+F)</b>                                                      |           |                               |          |                        |       |          |       |                  |                  |                 |             |                          |                         |                      |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                                              |           |                               |          |                        |       |          |       |                  |                  |                 |             |                          |                         |                      |
| A - Solvent/Caustic Washing of Agent Soil                                            | A         | 1                             | 2        | 32.55                  | /BCY  | 450      | BCY   | 1,000            | 1,000            | 1,000           | 1,000       | 17,000                   | 17,000                  | 16,000               |
| <b>Subtotal (A1)</b>                                                                 |           |                               |          |                        |       |          |       |                  |                  |                 |             |                          |                         |                      |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                                            |           |                               |          |                        |       |          |       |                  |                  |                 |             |                          |                         |                      |
| <b>Cost Code: F</b>                                                                  |           |                               |          |                        |       |          |       |                  |                  |                 |             |                          |                         |                      |
| Mob/Demob                                                                            | 5.0%      | B1 = 0.050 * (A1)             |          |                        |       |          |       |                  |                  |                 |             | 1,000                    | 1,000                   | 1,000                |
| Contractor Markup                                                                    | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |                  |                  |                 |             | 2,000                    | 2,000                   | 2,000                |
| Engineering Design                                                                   | 4.5%      | D1 = 0.045 * (A1+B1+C1)       |          |                        |       |          |       |                  |                  |                 |             | 1,000                    | 1,000                   | 1,000                |
| Resident Engineering                                                                 | 2.0%      | E1 = 0.020 * (A1+B1+C1)       |          |                        |       |          |       |                  |                  |                 |             | 400                      | 400                     | 400                  |
| Contingency                                                                          | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |                  |                  |                 |             | 6,000                    | 6,000                   | 6,000                |
| <b>Subtotal (G1 = B1+C1+D1+E1+F1)</b>                                                |           |                               |          |                        |       |          |       |                  |                  |                 |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS IH = A+G+A1+G1</b>                                            |           |                               |          |                        |       |          |       |                  |                  |                 |             |                          |                         |                      |
|                                                                                      |           |                               |          |                        |       |          |       |                  |                  |                 |             |                          | 40,000                  | 39,000               |

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Table B2.2.A5 Cost Estimate - Agent Storage Medium Group - Toxic Storage Yards Subgroup  
Alternative A5: Soil Washing (Solvent Washing); Landfill (On-Post Landfill)

| Cost Item                                                                          | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) |
|------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|
| DIRECT O&M COSTS (OPERATIONS)                                                      |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| A - Drilling and Agent Screening Prior to Excavation                               | LS        | 1          | --       | 4.89      | /SY       | 270,000  | SY    | 1,000         | 1,000          | 1,000        |             | 1,507,000 |           | 1,507,000 |
| A - Excavation of Soil with Agent and Isolated Exceedances                         | LS        | 2          | --       | 4.55      | /BCY      | 660      | BCY   | 1,000         | 1,000          | 1,000        |             | 3,000     |           | 3,000     |
| A - Transportation of Contaminated Soil to Soil Washing Unit                       | LS        | 2          | --       | 1.07      | /BCY-MILE | 450      | BCY   | 1,000         | 2,500          | 1,000        |             | 1,000     |           | 1,000     |
| A - Load Treated Soil for Transport to Hazardous Landfill                          | LS        | 2          | --       | 1.55      | /BCY      | 450      | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000     |           | 1,000     |
| A - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill        | LS        | 2          | --       | 1.07      | /BCY-MILE | 660      | BCY   | 1,000         | 2,000          | 1,000        |             | 2,000     |           | 2,000     |
| A - On-Post Hazardous Waste Landfill (Salts, Treated Solids, Isolated Exceedances) | LS        | 2          | --       | 4.07      | /BCY      | 660      | BCY   | 1,000         | 1,000          | 1,000        |             | 3,000     |           | 3,000     |
| A - Excavation of Borrow Material                                                  | LS        | 2          | --       | 1.89      | /BCY      | 660      | BCY   | 1,000         | 1,500          | 1,000        |             | 1,000     |           | 1,000     |
| A - Transportation of Borrow Material to Backfill Area                             | LS        | 2          | --       | 0.86      | /BCY-MILE | 660      | BCY   | 1,000         | 1,500          | 1,000        |             | 1,000     |           | 1,000     |
| A - Backfill with Borrow Material                                                  | LS        | 2          | --       | 1.72      | /BCY      | 660      | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000     |           | 1,000     |
| A - Installation of 6 Inches of Topsoil                                            | LS        | 2          | --       | 3.24      | /SY       | 520      | SY    | 1,000         | 1,000          | 1,000        |             | 2,000     |           | 2,000     |
| A - Revegetation of Disturbed Areas                                                | LS        | 2          | --       | 0.18      | /SY       | 520      | SY    | 1,000         | 1,000          | 1,100        | Disturbance | 100       |           | 100       |
| Subtotal (I)                                                                       |           |            |          |           |           |          |       |               |                |              |             | 1,523,000 |           | 1,523,000 |
| INDIRECT O&M COSTS (OPERATIONS)                                                    |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| Mob/Demob                                                                          |           |            |          | 4.5%      |           |          |       |               |                |              |             |           |           |           |
| Indirects, Overhead & Profit                                                       |           |            |          | 41.5%     |           |          |       |               |                |              |             | 68,000    |           | 68,000    |
| Engineering Design                                                                 |           |            |          | 0.5%      |           |          |       |               |                |              |             | 11,000    |           | 11,000    |
| Resident Engineering                                                               |           |            |          | 1.8%      |           |          |       |               |                |              |             | 38,000    |           | 38,000    |
| Contingency                                                                        |           |            |          | 30.0%     |           |          |       |               |                |              |             | 681,000   |           | 681,000   |
| Subtotal (O = J+K+L+M+N)                                                           |           |            |          |           |           |          |       |               |                |              |             | 1,470,000 |           | 1,470,000 |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                          |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| A - Solvent/Cautic Washing of Agent Soil                                           | LS        | 2          | --       | 248.53    | /BCY      | 450      | BCY   | 1,000         | 1,000          | 1,000        |             | 128,000   |           | 128,000   |
| Subtotal (II)                                                                      |           |            |          |           |           |          |       |               |                |              |             | 128,000   |           | 128,000   |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                        |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| Mob/Demob                                                                          |           |            |          | 5.0%      |           |          |       |               |                |              |             | 6,000     |           | 6,000     |
| Contractor Markup                                                                  |           |            |          | 10.0%     |           |          |       |               |                |              |             | 13,000    |           | 13,000    |
| Engineering Design                                                                 |           |            |          | 0.0%      |           |          |       |               |                |              |             | 0         |           | 0         |
| Resident Engineering                                                               |           |            |          | 2.0%      |           |          |       |               |                |              |             | 3,000     |           | 3,000     |
| Contingency                                                                        |           |            |          | 30.0%     |           |          |       |               |                |              |             | 45,000    |           | 45,000    |
| Subtotal (OI = JI+KI+LI+MI+NI)                                                     |           |            |          |           |           |          |       |               |                |              |             | 68,000    |           | 68,000    |
| TOTAL O&M COSTS (OPERATIONS) (OO = IO+II+OI)                                       |           |            |          |           |           |          |       |               |                |              |             | 3,188,000 |           | 3,178,000 |

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Table B2.2-A5

Cost Estimate - Agent Storage Medium Group - Toxic Storage Yards Subgroup  
Alternative A5: Soil Washing (Solvent Washing); Landfill (On-Post Landfill)

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| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| A - On-Post Hazardous Waste Landfill Closure (Salts, Treated Soils, Isolated Excess)                    | A         | 2          | 30       | 0.13                   | /BCY-YR | 660      | BCY   | 1.000         | 1.000          | 1.000        |             | 100                      | 3,000                   | 1,000                |
| Subtotal (P)                                                                                            |           |            |          |                        |         |          |       |               |                |              |             | 100                      | 3,000                   | 1,000                |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                            |           |            |          |                        |         |          |       |               |                |              |             | 40                       | 1,000                   | 1,000                |
| Contingency                                                                                             |           |            |          |                        |         |          |       |               |                |              |             | 40                       | 1,000                   | 1,000                |
| Subtotal (S = Q+R)                                                                                      |           |            |          |                        |         |          |       |               |                |              |             | 100                      | 2,000                   | 1,000                |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |               |                |              |             | 200                      | 5,000                   | 3,000                |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          | 3,230,000               | 3,220,000            |

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| Cost Item                            | Cost Type | Start Year | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |
|--------------------------------------|-----------|------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|---------|
| <b>DIRECT CAPITAL COSTS</b>          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| B - No Action                        | LS        | 1          | --       | 0.00      | /SY   | 340,000  | SY    | 1.000         | 1.000          | 1.000        |             | 0         | 0         | 0         | 0       |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>Subtotal (A)</b>                  |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Mod/Demob                            | LS        |            |          |           |       |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
| Indirects, Overhead & Profit         |           |            |          |           |       |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
| Engineering Design                   |           |            |          |           |       |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
| Resident Engineering                 |           |            |          |           |       |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
| Contingency                          |           |            |          |           |       |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
| <b>Subtotal (G = B+C+D+E+F)</b>      |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b> |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>Subtotal (H = A+G)</b>            |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b> |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |

Table B3.1-B1

Cost Estimate - Lake Sediments Medium Group  
Alternative B1: No Additional Action (Provisions of FFA)

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| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| B - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 340,000  | SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                                                                     |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| B - Long Term Soil Monitoring, Lake Sediments                                                                 | A         | 1          | 30       | 62,000.00              | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 71,000                   | 2,123,000               | 1,125,000            |
| B - Site Reviews                                                                                              | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 165,000                 | 98,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             | 77,000                   | 2,307,000               | 1,223,000            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             | 139,000                  | 4,170,000               | 2,210,000            |

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**Table B3.1-B1a**  
**Cost Estimate - Lake Sediments Medium Group**  
**Alternative B1a: Caps/Covers (Clay/Soil Cap) with Consolidation; No Additional Action (Provisions of FTA)**

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1992 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |           |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-----------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|-----------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |           |
| B - Grubbing & Clearing                                                                        | LS        | 1          | --       | 0.17                   | /SY       | 40,000   | SY    | 1.000            | 1.000             | 1.000           |             |                          | 8,000                   | 8,000                |           |
| B - Temporary Cutoff Wall                                                                      | LS        | 1          | --       | 44.00                  | /LF       | 2,500    | LF    | 1.000            | 1.000             | 1.000           |             |                          | 128,000                 | 128,000              |           |
| B - Soil Excavation                                                                            | LS        | 1          | --       | 3.91                   | /BCY      | 51,000   | BCY   | 1.000            | 1.000             | 1.000           |             |                          | 228,000                 | 228,000              |           |
| B - Transportation of Contaminated Soil to Consolidation Area                                  | LS        | 1          | --       | 1.07                   | /BCY-MILE | 51,000   | BCY   | 1.000            | 1.500             | 1.000           |             |                          | 83,000                  | 83,000               |           |
| B - Grade Filling w/Consolidated Soil Prior to Capping                                         | LS        | 1          | --       | 3.63                   | /BCY      | 51,000   | BCY   | 1.000            | 1.000             | 1.000           |             |                          | 211,000                 | 211,000              |           |
| B - Backfill of Topsoil With Humic                                                             | LS        | 1          | --       | 19.44                  | /BCY      | 51,000   | BCY   | 1.000            | 1.000             | 1.000           |             |                          | 1,131,000               | 1,131,000            |           |
| B - Wetlands Restoration                                                                       | LS        | 1          | --       | 1.55                   | /SY       | 40,000   | SY    | 1.000            | 1.000             | 1.000           |             |                          | 71,000                  | 71,000               |           |
| Subtotal (I)                                                                                   |           |            |          |                        |           |          |       |                  |                   |                 |             |                          | 1,888,000               | 1,888,000            |           |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |           |
| Mob/Demob                                                                                      |           |            |          | 3.3%                   |           |          |       |                  |                   |                 |             |                          | 61,000                  | 61,000               |           |
| Indirects, Overhead & Profit                                                                   |           |            |          | 37.8%                  |           |          |       |                  |                   |                 |             |                          | 728,000                 | 728,000              |           |
| Engineering Design                                                                             |           |            |          | 0.5%                   |           |          |       |                  |                   |                 |             |                          | 13,000                  | 13,000               |           |
| Resident Engineering                                                                           |           |            |          | 1.8%                   |           |          |       |                  |                   |                 |             |                          | 48,000                  | 48,000               |           |
| Contingency                                                                                    |           |            |          | 30.0%                  |           |          |       |                  |                   |                 |             |                          | 815,000                 | 815,000              |           |
| Subtotal (Q = J+K+L+M+N)                                                                       |           |            |          |                        |           |          |       |                  |                   |                 |             |                          | 1,663,000               | 1,663,000            |           |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |           |
| B - Long Term Soil Monitoring, Lake Sediments                                                  | A         | 1          | 30       | 62,000.00              | /EA-YR    | 1        | EA    | 1.000            | 1.000             | 1.000           |             | 71,000                   | 2,123,000               | 1,125,000            |           |
| B - Site Reviews                                                                               | A         | 1          | 30       | 5,400.00               | /EA-YR    | 1        | EA    | 1.000            | 1.000             | 1.000           |             | 6,000                    | 185,000                 | 98,000               |           |
| Subtotal (P)                                                                                   |           |            |          |                        |           |          |       |                  |                   |                 |             |                          | 77,000                  | 2,307,000            | 1,223,000 |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |           |
| Indirects, Overhead & Profit                                                                   |           |            |          | 39.0%                  |           |          |       |                  |                   |                 |             | 30,000                   | 900,000                 | 477,000              |           |
| Contingency                                                                                    |           |            |          | 30.0%                  |           |          |       |                  |                   |                 |             | 32,000                   | 962,000                 | 510,000              |           |
| Subtotal (S)                                                                                   |           |            |          |                        |           |          |       |                  |                   |                 |             |                          | 62,000                  | 1,862,000            | 987,000   |
| TOTAL O&M COSTS (T = I+Q+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |                        |           |          |       |                  |                   |                 |             |                          | 139,000                 | 7,700,000            | 5,741,000 |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         | 7,700,000            | 5,740,000 |

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Table B3.1-B3 Cost Estimate - Lake Sediments Medium Group  
Alternative B3: Landfill (On-Post Landfill)

| Cost Item                                    | Cost Type | Start Year | End Year | 1992 (\$)  | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) |
|----------------------------------------------|-----------|------------|----------|------------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|
| DIRECT CAPITAL COSTS                         |           |            |          |            |       |          |       |               |                |              |             |           |           |           |
| B - Dredging                                 | LS        | 1          | --       | 794,497.00 | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 807,000   | 807,000   | 807,000   |
| B - On-Post Hazardous Waste Landfill         | LS        | 1          | --       | 5.72       | /BCY  | 370,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 2,415,000 | 2,415,000 | 2,415,000 |
| B - On-Post Hazardous Waste Landfill Closure | LS        | 6          | --       | 3.80       | /BCY  | 370,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 1,604,000 | 1,604,000 | 1,257,000 |
| Subtotal (A)                                 |           |            |          |            |       |          |       |               |                |              |             |           | 4,926,000 | 4,579,000 |
| INDIRECT CAPITAL COSTS                       |           |            |          |            |       |          |       |               |                |              |             |           |           |           |
| Mod/Demob                                    |           |            |          |            |       |          |       |               |                |              |             |           | 160,000   | 148,000   |
| Indirects, Overhead & Profit                 |           |            |          |            |       |          |       |               |                |              |             |           | 1,920,000 | 1,795,000 |
| Engineering Design                           |           |            |          |            |       |          |       |               |                |              |             |           | 210,000   | 195,000   |
| Resident Engineering                         |           |            |          |            |       |          |       |               |                |              |             |           | 88,000    | 81,000    |
| Contingency                                  |           |            |          |            |       |          |       |               |                |              |             |           | 1,917,000 | 1,782,000 |
| Subtotal (G =B+C+D+E+F)                      |           |            |          |            |       |          |       |               |                |              |             |           | 4,295,000 | 3,993,000 |
| TOTAL CAPITAL COSTS (H = A+G)                |           |            |          |            |       |          |       |               |                |              |             |           | 9,222,000 | 8,571,000 |

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Table B3.1-B3 Cost Estimate - Lake Sediments Medium Group  
Alternative B3: Landfill (On-Post Landfill)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Exp/Red Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$)  | 1995 (\$) | PW Cost    |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|----------------|----------------|--------------|-------------|-----------|------------|-----------|------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |           |           |          |       |                |                |              |             |           |            |           |            |
| B - Grubbing & Clearing                                                                                       | LS        | 2          | --       | 0.17      | /SY       | 40,000   | SY    | 1.000          | 1.000          | 1.000        |             |           | 8,000      |           | 7,000      |
| B - Temporary Cutoff Wall                                                                                     | LS        | 2          | --       | 44.00     | /LF       | 2,500    | LF    | 1.000          | 1.000          | 1.000        |             |           | 128,000    |           | 120,000    |
| B - Soil Excavation                                                                                           | LS        | 2          | --       | 3.91      | /BCY      | 51,000   | BCY   | 1.000          | 1.000          | 1.000        |             |           | 228,000    |           | 217,000    |
| B - Dredging                                                                                                  | A         | 2          | 5        | 9.82      | /BCY      | 310,000  | BCY   | 1.000          | 1.000          | 1.000        |             |           | 3,474,000  |           | 3,080,000  |
| B - Load Treated Soil for Transport to Hazardous Landfill                                                     | A         | 3          | 6        | 1.55      | /BCY      | 370,000  | BCY   | 1.000          | 1.000          | 1.000        |             |           | 654,000    |           | 553,000    |
| B - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill                                   | A         | 3          | 6        | 1.07      | /BCY-MILE | 370,000  | BCY   | 1.000          | 2.000          | 1.000        |             |           | 904,000    |           | 783,000    |
| B - On-Post Hazardous Waste Landfill                                                                          | A         | 3          | 6        | 4.07      | /BCY      | 370,000  | BCY   | 1.000          | 1.000          | 1.000        |             |           | 1,718,000  |           | 1,451,000  |
| B - Backfill of Topsoil With Hemic                                                                            | LS        | 2          | --       | 19.44     | /BCY      | 51,000   | BCY   | 1.000          | 1.000          | 1.000        |             |           | 1,131,000  |           | 1,078,000  |
| B - Wetlands Restoration                                                                                      | LS        | 2          | --       | 1.55      | /SY       | 40,000   | SY    | 1.000          | 1.000          | 1.000        |             |           | 71,000     |           | 67,000     |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |           |           |          |       |                |                |              |             |           |            |           |            |
| Subtotal (I)                                                                                                  |           |            |          |           |           |          |       |                |                |              |             |           | 8,313,000  |           | 7,334,000  |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |           |           |          |       |                |                |              |             |           |            |           |            |
| Mobile/Demob                                                                                                  |           |            |          | 3.9%      |           |          |       |                |                |              |             |           | 322,000    |           | 284,000    |
| Indirects, Overhead & Profit                                                                                  |           |            |          | 39.0%     |           |          |       |                |                |              |             |           | 3,368,000  |           | 2,971,000  |
| Engineering Design                                                                                            |           |            |          | 0.5%      |           |          |       |                |                |              |             |           | 60,000     |           | 53,000     |
| Resident Engineering                                                                                          |           |            |          | 1.8%      |           |          |       |                |                |              |             |           | 210,000    |           | 185,000    |
| Contingency                                                                                                   |           |            |          | 28.8%     |           |          |       |                |                |              |             |           | 3,529,000  |           | 3,113,000  |
| Subtotal (O = J+K+L+M+N)                                                                                      |           |            |          |           |           |          |       |                |                |              |             |           | 7,489,000  |           | 6,607,000  |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                                       |           |            |          |           |           |          |       |                |                |              |             |           |            |           |            |
| B - On-Post Hazardous Waste Landfill Closure                                                                  | A         | 6          | 30       | 0.13      | /BCY-YR   | 370,000  | BCY   | 1.000          | 1.000          | 1.000        |             | 55,000    | 1,372,000  |           | 636,000    |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |           |           |          |       |                |                |              |             |           |            |           |            |
| Indirects, Overhead & Profit                                                                                  |           |            |          | 39.0%     |           |          |       |                |                |              |             |           | 21,000     |           | 248,000    |
| Contingency                                                                                                   |           |            |          | 30.0%     |           |          |       |                |                |              |             |           | 23,000     |           | 265,000    |
| Subtotal (S)                                                                                                  |           |            |          |           |           |          |       |                |                |              |             |           | 44,000     |           | 514,000    |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |           |           |          |       |                |                |              |             |           |            |           |            |
|                                                                                                               |           |            |          |           |           |          |       |                |                |              |             |           | 99,000     |           | 15,891,000 |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = II+T)</b>                                                 |           |            |          |           |           |          |       |                |                |              |             |           |            |           |            |
|                                                                                                               |           |            |          |           |           |          |       |                |                |              |             |           | 27,500,000 |           | 23,700,000 |

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Table B3.1-B6 Cost Estimate - Lake Sediments Medium Group  
Alternative B6: Direct Thermal Desorption (Direct Heating)

| Cost Item                                    | Cost Type | Start Year | End Year | 1992 (\$)  | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$)  | 1995 (\$)  | PW Cost   |
|----------------------------------------------|-----------|------------|----------|------------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|------------|------------|-----------|
| <b>DIRECT CAPITAL COSTS</b>                  |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| B - Dredging                                 | A         | 2          | 5        | 794,497.00 | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        | 1.000       | 807,000   | 807,000    |            | 804,000   |
| B - On-Post Hazardous Waste Landfill         | A         | 1          | 2        | 5.72       | /BCY  | 370,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 2,415,000 | 2,415,000  |            | 2,358,000 |
| B - On-Post Hazardous Waste Landfill Closure | A         | 1          | 7        | 3.80       | /BCY  | 370,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 1,804,000 | 1,804,000  |            | 1,393,000 |
| <b>Subtotal (A)</b>                          |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| <b>INDIRECT CAPITAL COSTS</b>                |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| <b>COST CODE: LMMS</b>                       |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| Mod/Demob                                    |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| Indirects, Overhead & Profit                 |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| Engineering Design                           |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| Resident Engineering                         |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| Contingency                                  |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| <b>Subtotal (G = B+C+D+E+F)</b>              |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>      |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| B - Thermal Desorption (Saturated Soil)      | A         | 1          | 2        | 14.17      | /BCY  | 370,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 5,983,000 | 5,983,000  |            | 5,841,000 |
| <b>Subtotal (A1)</b>                         |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>    |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| <b>COST CODE: C</b>                          |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| Mod/Demob                                    |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| Contractor Markup                            |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| Engineering Design                           |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| Resident Engineering                         |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| Contingency                                  |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| <b>Subtotal (G1 = B1+C1+D1+E1+F1)</b>        |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>   |           |            |          |            |       |          |       |               |                |              |             |           |            |            |           |
|                                              |           |            |          |            |       |          |       |               |                |              |             |           | 19,301,000 | 18,348,000 |           |

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Table B3.1-B6 Cost Estimate - Lake Sediments Medium Group  
Alternative B6: Direct Thermal Desorption (Direct Heating)

| Cost Item                                                                   | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume | Mileage | Other | Factor | Factor | Description | 1995 (\$)  | 1995 (\$) | 1995 (\$) | PW Cost    |
|-----------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|--------|---------|-------|--------|--------|-------------|------------|-----------|-----------|------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                    |           |            |          |           |           |          |       |        |         |       |        |        |             |            |           |           |            |
| B - Grubbing & Cleaning                                                     | LS        | 2          | --       | 0.17      | /SY       | 40,000   | SY    | 1,000  | 1,000   | 1,000 | 1,000  | 1,000  | 1,000       | 8,000      |           |           | 7,000      |
| B - Temporary Outfall Wall                                                  | LS        | 2          | --       | 44.00     | /LF       | 2,500    | LF    | 1,000  | 1,000   | 1,000 | 1,000  | 1,000  | 1,000       | 126,000    |           |           | 120,000    |
| B - Soil Excavation                                                         | A         | 2          | 5        | 3.91      | /BCY      | 51,000   | BCY   | 1,000  | 1,000   | 1,000 | 1,000  | 1,000  | 1,000       | 228,000    |           |           | 202,000    |
| B - Dredging                                                                | A         | 2          | 5        | 9.82      | /BCY      | 310,000  | BCY   | 1,000  | 1,000   | 1,000 | 1,000  | 1,000  | 1,000       | 3,474,000  |           |           | 3,080,000  |
| B - Load Treated Soil for Transport to Hazardous Landfill                   | A         | 3          | 6        | 1.55      | /BCY      | 370,000  | BCY   | 1,000  | 1,000   | 1,000 | 1,000  | 1,000  | 1,000       | 654,000    |           |           | 553,000    |
| B - Transportation of Contaminated Soil to Thermal Desorption Facility      | A         | 3          | 6        | 1.07      | /BCY-MILE | 370,000  | BCY   | 1,000  | 1,500   | 1,000 | 1,000  | 1,000  | 1,000       | 678,000    |           |           | 572,000    |
| B - Load Treated Soil for Transport to Hazardous Landfill                   | A         | 3          | 6        | 1.55      | /BCY      | 370,000  | BCY   | 1,000  | 1,000   | 1,000 | 1,000  | 1,000  | 1,000       | 654,000    |           |           | 553,000    |
| B - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill | A         | 3          | 6        | 1.07      | /BCY-MILE | 370,000  | BCY   | 1,000  | 1,000   | 1,000 | 1,000  | 1,000  | 1,000       | 452,000    |           |           | 381,000    |
| B - On-Post Hazardous Waste Landfill                                        | A         | 3          | 6        | 4.07      | /BCY      | 370,000  | BCY   | 1,000  | 1,000   | 1,000 | 1,000  | 1,000  | 1,000       | 1,716,000  |           |           | 1,451,000  |
| B - Backfill of Topsoil With Humic                                          | A         | 3          | 6        | 19.44     | /BCY      | 51,000   | BCY   | 1,000  | 1,000   | 1,000 | 1,000  | 1,000  | 1,000       | 1,131,000  |           |           | 955,000    |
| B - Wetlands Restoration                                                    | A         | 3          | 6        | 1.55      | /SY       | 40,000   | SY    | 1,000  | 1,000   | 1,000 | 1,000  | 1,000  | 1,000       | 71,000     |           |           | 60,000     |
| Subtotal (I)                                                                |           |            |          |           |           |          |       |        |         |       |        |        |             | 9,184,000  |           |           | 7,933,000  |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |            |          |           |           |          |       |        |         |       |        |        |             |            |           |           |            |
| Mod/Demob                                                                   |           |            |          |           |           |          |       |        |         |       |        |        |             |            |           |           |            |
| Indirects, Overhead & Profit                                                |           |            |          | 4.5%      |           |          |       |        |         |       |        |        |             | 414,000    |           |           | 357,000    |
| Engineering Design                                                          |           |            |          | 38.0%     |           |          |       |        |         |       |        |        |             | 3,747,000  |           |           | 3,233,000  |
| Resident Engineering                                                        |           |            |          | 1.5%      |           |          |       |        |         |       |        |        |             | 200,000    |           |           | 173,000    |
| Contingency                                                                 |           |            |          | 2.0%      |           |          |       |        |         |       |        |        |             | 267,000    |           |           | 230,000    |
|                                                                             |           |            |          | 30.0%     |           |          |       |        |         |       |        |        |             | 4,147,000  |           |           | 3,578,000  |
| Subtotal (O) = J+K+L+M+N                                                    |           |            |          |           |           |          |       |        |         |       |        |        |             | 8,775,000  |           |           | 7,571,000  |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                        |           |            |          |           |           |          |       |        |         |       |        |        |             |            |           |           |            |
| B - Thermal Desorption (Saturated Soil)                                     | A         | 3          | 6        | 73.64     | /BCY      | 370,000  | BCY   | 1,000  | 1,000   | 1,000 | 1,000  | 1,000  | 1,000       | 31,093,000 |           |           | 28,251,000 |
| Subtotal (I1)                                                               |           |            |          |           |           |          |       |        |         |       |        |        |             | 31,093,000 |           |           | 28,251,000 |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |            |          |           |           |          |       |        |         |       |        |        |             |            |           |           |            |
| Mod/Demob                                                                   |           |            |          |           |           |          |       |        |         |       |        |        |             |            |           |           |            |
| Contractor Markup                                                           |           |            |          | 0.0%      |           |          |       |        |         |       |        |        |             | 0          |           |           | 0          |
| Engineering Design                                                          |           |            |          | 10.0%     |           |          |       |        |         |       |        |        |             | 3,109,000  |           |           | 2,625,000  |
| Resident Engineering                                                        |           |            |          | 0.0%      |           |          |       |        |         |       |        |        |             | 0          |           |           | 0          |
| Contingency                                                                 |           |            |          | 2.0%      |           |          |       |        |         |       |        |        |             | 684,000    |           |           | 578,000    |
|                                                                             |           |            |          | 40.0%     |           |          |       |        |         |       |        |        |             | 13,855,000 |           |           | 11,782,000 |
| Subtotal (O1) = J1+K1+L1+M1+N1                                              |           |            |          |           |           |          |       |        |         |       |        |        |             | 17,749,000 |           |           | 14,984,000 |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O1+I1+O1)                              |           |            |          |           |           |          |       |        |         |       |        |        |             | 66,810,000 |           |           | 56,739,000 |

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**Table B3.1-B6**      **Cost Estimate - Lake Sediments Medium Group**  
**Alternative B6: Direct Thermal Desorption (Direct Heating)**

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$) Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) Annual Cost | 1995 (\$) Total Cost | 1995 (\$) PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|---------------------|---------|----------|-------|---------------|----------------|--------------|-------------|-----------------------|----------------------|-------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                     |         |          |       |               |                |              |             |                       |                      |                   |
| B - On-Post Hazardous Waste Landfill Closure                                                           |           |            |          |                     |         |          |       |               |                |              |             |                       |                      |                   |
|                                                                                                        | A         | 7          | 30       | 0.13                | /BCY-YR | 370,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 55,000                | 1,317,000            | 593,000           |
| Subtotal (P)                                                                                           |           |            |          |                     |         |          |       |               |                |              |             | 55,000                | 1,317,000            | 593,000           |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |                     |         |          |       |               |                |              |             |                       |                      |                   |
| COST CODE: ILSL                                                                                        |           |            |          |                     |         |          |       |               |                |              |             |                       |                      |                   |
| Indirects, Overhead & Profit 30.0% $Q = 0.390 * (P)$                                                   |           |            |          |                     |         |          |       |               |                |              |             |                       |                      |                   |
| Contingency 30.0% $R = 0.300 * (P+Q)$                                                                  |           |            |          |                     |         |          |       |               |                |              |             |                       |                      |                   |
| Subtotal (S = Q+R)                                                                                     |           |            |          |                     |         |          |       |               |                |              |             | 44,000                | 1,063,000            | 479,000           |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |                     |         |          |       |               |                |              |             | 99,000                | 2,380,000            | 1,072,000         |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                     |         |          |       |               |                |              |             |                       |                      |                   |
|                                                                                                        |           |            |          |                     |         |          |       |               |                |              |             | 86,500,000            |                      | 76,200,000        |

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Table B3.1-B10 Cost Estimate - Lake Sediments Medium Group  
Alternative B10: Caps/Covers (Clay/Soil Cap) with Consolidation; In Situ Biological Treatment (Aerobic Biodegradation)

| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |
|-------------------------------|-----------|------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|---------|
| DIRECT CAPITAL COSTS          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| INDIRECT CAPITAL COSTS        |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal (A)                  |           |            |          |           |       |          |       |               |                |              |             |           | 0         |           | 0       |
| COST CODE                     |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| B = 0.000 * (A)               |           |            |          |           |       |          |       |               |                |              |             |           | 0         |           | 0       |
| C = 0.000 * (A+B)             |           |            |          |           |       |          |       |               |                |              |             |           | 0         |           | 0       |
| D = 0.000 * (A+B+C)           |           |            |          |           |       |          |       |               |                |              |             |           | 0         |           | 0       |
| E = 0.000 * (A+B+C)           |           |            |          |           |       |          |       |               |                |              |             |           | 0         |           | 0       |
| F = 0.000 * (A+B+C+D+E)       |           |            |          |           |       |          |       |               |                |              |             |           | 0         |           | 0       |
| Subtotal (G = B+C+D+E+F)      |           |            |          |           |       |          |       |               |                |              |             |           | 0         |           | 0       |
| TOTAL CAPITAL COSTS (H = A+G) |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
|                               |           |            |          |           |       |          |       |               |                |              |             |           | 0         |           | 0       |

Table B3.1-B10 Cost Estimate - Lake Sediments Medium Group  
Alternative B10: Caps/Covers (Clay/Soil Cap) with Consolidation; In Situ Biological Treatment (Aerobic Biodegradation)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$)  |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|------------|
|                                                                                                               |           |            |          | Unit Cost |           |          |       |               |                |              |             | Annual Cost | Total Cost | PW Cost    |
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| B - Grubbing & Clearing                                                                                       | LS        | 1          | --       | 0.17      | /SY       | 40,000   | SY    | 1.000         | 1.000          | 1.000        |             | 8,000       | 8,000      | 8,000      |
| B - Temporary Cutoff Wall                                                                                     | LS        | 1          | --       | 44.00     | /LF       | 2,500    | LF    | 1.000         | 1.000          | 1.000        |             | 126,000     | 126,000    | 126,000    |
| B - In Situ Bioremediation                                                                                    | A         | 1          | 30       | 34.70     | /BCY      | 310,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 12,276,000  | 6,505,000  | 6,505,000  |
| B - Soil Excavation                                                                                           | LS        | 1          | --       | 3.91      | /BCY      | 51,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 228,000     | 228,000    | 228,000    |
| B - Transportation of Contaminated Soil to Consolidation Area                                                 | LS        | 1          | --       | 1.07      | /BCY-MILE | 51,000   | BCY   | 1.000         | 1.500          | 1.000        |             | 80,000      | 80,000     | 80,000     |
| B - Grade Filling w/Consolidated Soil Prior to Capping                                                        | LS        | 1          | --       | 3.63      | /BCY      | 51,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 211,000     | 211,000    | 211,000    |
| B - Backfill of Topsoil With Humic                                                                            | LS        | 1          | --       | 19.44     | /BCY      | 51,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 1,131,000   | 1,131,000  | 1,131,000  |
| B - Wetlands Restoration                                                                                      | LS        | 1          | --       | 1.55      | /SY       | 40,000   | SY    | 1.000         | 1.000          | 1.000        |             | 71,000      | 71,000     | 71,000     |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| Mob/Demob                                                                                                     |           |            |          |           |           |          |       |               |                |              |             |             | 14,143,000 | 8,373,000  |
| Indirects, Overhead & Profit                                                                                  |           |            |          |           |           |          |       |               |                |              |             |             | 283,000    | 167,000    |
| Engineering Design                                                                                            |           |            |          |           |           |          |       |               |                |              |             |             | 5,828,000  | 3,331,000  |
| Resident Engineering                                                                                          |           |            |          |           |           |          |       |               |                |              |             |             | 802,000    | 358,000    |
| Contingency                                                                                                   |           |            |          |           |           |          |       |               |                |              |             |             | 820,000    | 367,000    |
|                                                                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 8,454,000  | 3,821,000  |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| B - No Action                                                                                                 | A         | 1          | 30       | 0.00      | /SY       | 340,000  | SY    | 1.000         | 1.000          | 1.000        |             | 0           | 0          | 0          |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| Indirects, Overhead & Profit                                                                                  |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0          |
| Contingency                                                                                                   |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0          |
|                                                                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0          |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
|                                                                                                               |           |            |          |           |           |          |       |               |                |              |             | 0           | 27,728,000 | 16,415,000 |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = I+T)</b>                                                  |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
|                                                                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 27,700,000 | 16,400,000 |

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**Table B3.2-B1**  
**Cost Estimate - Surficial Soils Medium Group**  
**Alternative B1: No Additional Action (Provisions of FFA)**

Table B3.2-B1 Cost Estimate - Surficial Soils Medium Group  
Alternative B1: No Additional Action (Provisions of FTA)

| Cost Item                                                                               | Crest Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity  | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------------------------|------------|------------|----------|------------------------|--------|-----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT O&M COSTS (OPERATIONS)                                                           |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| B - No Action                                                                           | LS         | 1          | --       | 0.00                   | /SY    | 5,500,000 | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| INDIRECT O&M COSTS (OPERATIONS)                                                         |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| Subtotal (I)                                                                            |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| COST CODE                                                                               |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| J = 0.003 * (I)                                                                         |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| K = 0.390 * (I+J)                                                                       |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| L = 0.005 * (I+J+K)                                                                     |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| M = 0.013 * (I+J+K)                                                                     |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| N = 0.263 * (I+J+K+L+M)                                                                 |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| Subtotal (O = J+K+L+M+N)                                                                |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                 |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| B - Long Term Soil Monitoring, Surficial Soils                                          | A          | 1          | 30       | 19,000.00              | /EA-YR | 1         | EA    | 1.000         | 1.000          | 1.000        |             | 22,000                   | 650,000                 | 345,000              |
| B - Site Reviews                                                                        | A          | 1          | 30       | 5,400.00               | /EA-YR | 1         | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 185,000                 | 98,000               |
| Subtotal (P)                                                                            |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| COST CODE                                                                               |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| Q = 0.390 * (P)                                                                         |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| R = 0.300 * (P+Q)                                                                       |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                            |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                               |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                            |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                             |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| Subtotal (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| TOTAL O&M COSTS AND TOTAL O&M COSTS (U = I+T)                                           |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| BSS-B01.W01                                                                             |            |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
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| Cost Item                                    | Cost Type | Start Year | End Year | 1992 (\$) |      | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |  |
|----------------------------------------------|-----------|------------|----------|-----------|------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|--|
| DIRECT CAPITAL COSTS                         |           |            |          |           |      |         |          |       |               |                |              |             |                          |                         |                      |  |
| B - On-Post Hazardous Waste Landfill         | LS        | 1          | --       | 5.72      | /BCY | 810,000 | 810,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 5,287,000                | 5,287,000               | 5,287,000            |  |
| B - On-Post Hazardous Waste Landfill Closure | LS        | 3          | --       | 3.80      | /BCY | 810,000 | 810,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 3,513,000                | 3,513,000               | 3,186,000            |  |
| Subtotal (A)                                 |           |            |          |           |      |         |          |       |               |                |              |             |                          | 8,800,000               | 8,473,000            |  |
| INDIRECT CAPITAL COSTS                       |           |            |          |           |      |         |          |       |               |                |              |             |                          |                         |                      |  |
| Mob/Demob                                    |           |            |          |           |      |         |          |       |               |                |              |             |                          | 286,000                 | 275,000              |  |
| Indirects, Overhead & Profit                 |           |            |          |           |      |         |          |       |               |                |              |             |                          | 3,430,000               | 3,303,000            |  |
| Engineering Design                           |           |            |          |           |      |         |          |       |               |                |              |             |                          | 375,000                 | 362,000              |  |
| Resident Engineering                         |           |            |          |           |      |         |          |       |               |                |              |             |                          | 161,000                 | 155,000              |  |
| Contingency                                  |           |            |          |           |      |         |          |       |               |                |              |             |                          | 3,384,000               | 3,258,000            |  |
| Subtotal (G = B+C+D+E+F)                     |           |            |          |           |      |         |          |       |               |                |              |             |                          | 7,636,000               | 7,353,000            |  |
| TOTAL CAPITAL COSTS (H = A+G)                |           |            |          |           |      |         |          |       |               |                |              |             |                          | 16,436,000              | 15,826,000           |  |
| BSS-R03.W01 16-Jul-93                        |           |            |          |           |      |         |          |       |               |                |              |             |                          |                         |                      |  |

Table B3.2-B3 Cost Estimate - Surficial Soils Medium Group  
Alternative B3: Landfill (On-Post Landfill)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity  | Units | Exp/Rcd Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-----------|-----------|-------|----------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |           |           |       |                |                |              |             |                          |                         |                      |
| B - Soil Excavation                                                                                           | LS        | 2          | --       | 3.91                   | /BCY      | 810,000   | BCY   | 1.000          | 1.000          | 1.000        |             |                          | 3,614,000               | 3,442,000            |
| B - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill                                   | LS        | 2          | --       | 1.07                   | /BCY-MILE | 810,000   | BCY   | 1.000          | 2.500          | 1.000        |             |                          | 2,473,000               | 2,355,000            |
| B - On-Post Hazardous Waste Landfill                                                                          | LS        | 2          | --       | 4.07                   | /BCY      | 810,000   | BCY   | 1.000          | 1.000          | 1.000        |             |                          | 3,762,000               | 3,593,000            |
| B - Installation of 6 Inches of Topsoil                                                                       | LS        | 2          | --       | 3.24                   | /SY       | 5,500,000 | SY    | 1.000          | 1.000          | 1.000        |             |                          | 20,336,000              | 19,367,000           |
| B - Revegetation of Disturbed Areas                                                                           | LS        | 2          | --       | 0.18                   | /SY       | 5,500,000 | SY    | 1.000          | 1.000          | 1.100        | Disturbance |                          | 1,243,000               | 1,184,000            |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |           |           |       |                |                |              |             |                          |                         |                      |
| Mod/Demob                                                                                                     |           |            |          |                        |           |           |       |                |                |              |             |                          | 31,427,000              | 29,831,000           |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |           |           |       |                |                |              |             |                          | 1,218,000               | 1,180,000            |
| Engineering Design                                                                                            |           |            |          |                        |           |           |       |                |                |              |             |                          | 12,732,000              | 12,125,000           |
| Resident Engineering                                                                                          |           |            |          |                        |           |           |       |                |                |              |             |                          | 227,000                 | 216,000              |
| Contingency                                                                                                   |           |            |          |                        |           |           |       |                |                |              |             |                          | 684,000                 | 651,000              |
|                                                                                                               |           |            |          |                        |           |           |       |                |                |              |             |                          | 12,541,000              | 11,844,000           |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |           |           |       |                |                |              |             |                          |                         |                      |
| B - On-Post Hazardous Waste Landfill Closure                                                                  | A         | 3          | 30       | 0.13                   | /BCY-YR   | 810,000   | BCY   | 1.000          | 1.000          | 1.000        |             | 120,000                  | 3,365,000               | 1,705,000            |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |           |           |       |                |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |           |           |       |                |                |              |             |                          | 47,000                  | 665,000              |
| Contingency                                                                                                   |           |            |          |                        |           |           |       |                |                |              |             |                          | 50,000                  | 711,000              |
|                                                                                                               |           |            |          |                        |           |           |       |                |                |              |             |                          | 97,000                  | 1,376,000            |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |           |           |       |                |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |           |           |       |                |                |              |             | 217,000                  | 64,908,000              | 59,108,000           |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |           |           |       |                |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |           |           |       |                |                |              |             |                          | 81,300,000              | 74,900,000           |

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| Cost Item                                                                                                                                                            | Cost Type | Start Year | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | Annual Cost | 1995 (\$) | Total Cost | 1995 (\$) | PW Cost |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-------------|-----------|------------|-----------|---------|
| <b>DIRECT CAPITAL COSTS</b>                                                                                                                                          |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <div style="display: flex; justify-content: space-between;"> <div> <p>Subtotal (A)</p> <p>0</p> </div> <div> <p>0</p> </div> <div> <p>0</p> </div> </div>            |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>INDIRECT CAPITAL COSTS</b>                                                                                                                                        |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Mod/Demob                                                                                                                                                            |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Indirects, Overhead & Profit                                                                                                                                         |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Engineering Design                                                                                                                                                   |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Resident Engineering                                                                                                                                                 |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Contingency                                                                                                                                                          |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <div style="display: flex; justify-content: space-between;"> <div> <p>Subtotal (G =B+C+D+E+F)</p> <p>0</p> </div> <div> <p>0</p> </div> <div> <p>0</p> </div> </div> |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b>                                                                                                                                 |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <div style="display: flex; justify-content: space-between;"> <div> <p>0</p> </div> <div> <p>0</p> </div> <div> <p>0</p> </div> </div>                                |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |

**Table B3.3-B9**  
**Cost Estimate - Ditches/Drainage Areas Medium Group**  
**Alternative B9: In Situ Biological Treatment (Landfarm/Agricultural Practice)**

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$) | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$) |         |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|--------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|-----------|---------|
|                                                                                                |           |            |          | Unit Cost |        |          |       |               |                |              |             | Annual Cost | Total Cost | PW Cost   |         |
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |           |        |          |       |               |                |              |             |             |            |           |         |
| B - Agricultural Practices                                                                     | LS        | 1          | --       | 0.20      | /SY    | 25,000   | SY    | 1.000         | 1.000          | 1.000        |             |             | 6,000      | 6,000     |         |
| B - Habitat Modification                                                                       | A         | 1          | 3        | 0.17      | /SY    | 25,000   | SY    | 1.000         | 1.000          | 1.000        |             |             | 5,000      | 5,000     |         |
|                                                                                                |           |            |          |           |        |          |       |               |                |              |             |             | 11,000     | 10,000    |         |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |           |        |          |       |               |                |              |             |             |            |           |         |
| Mod/Demob                                                                                      |           |            |          |           |        |          |       |               |                |              |             |             |            |           |         |
| Indirects, Overhead & Profit                                                                   |           |            |          |           |        |          |       |               |                |              |             |             | 300        | 300       |         |
| Engineering Design                                                                             |           |            |          |           |        |          |       |               |                |              |             |             | 4,000      | 4,000     |         |
| Resident Engineering                                                                           |           |            |          |           |        |          |       |               |                |              |             |             | 100        | 100       |         |
| Contingency                                                                                    |           |            |          |           |        |          |       |               |                |              |             |             | 200        | 200       |         |
|                                                                                                |           |            |          |           |        |          |       |               |                |              |             |             | 4,000      | 4,000     |         |
|                                                                                                |           |            |          |           |        |          |       |               |                |              |             |             | 8,000      | 9,000     |         |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |           |        |          |       |               |                |              |             |             |            |           |         |
| B - Long Term Soil Monitoring, Ditches and Drainage Areas                                      | A         | 4          | 30       | 16,000.00 | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 18,000      | 493,000    | 243,000   |         |
| B - Site Reviews                                                                               | A         | 4          | 30       | 5,400.00  | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000       | 166,000    | 82,000    |         |
| B - Habitat Modification                                                                       | A         | 4          | 30       | 0.01      | /SY-YR | 25,000   | SY    | 1.000         | 1.000          | 1.000        |             | 200         | 4,000      | 2,000     |         |
|                                                                                                |           |            |          |           |        |          |       |               |                |              |             |             |            |           |         |
|                                                                                                |           |            |          |           |        |          |       |               |                |              |             |             | 25,000     | 664,000   | 327,000 |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |           |        |          |       |               |                |              |             |             |            |           |         |
| Indirects, Overhead & Profit                                                                   |           |            |          |           |        |          |       |               |                |              |             |             | 258,000    | 127,000   |         |
| Contingency                                                                                    |           |            |          |           |        |          |       |               |                |              |             |             | 277,000    | 136,000   |         |
|                                                                                                |           |            |          |           |        |          |       |               |                |              |             |             | 20,000     | 536,000   | 263,000 |
|                                                                                                |           |            |          |           |        |          |       |               |                |              |             |             | 44,000     | 1,219,000 | 609,000 |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |           |        |          |       |               |                |              |             |             |            |           |         |
|                                                                                                |           |            |          |           |        |          |       |               |                |              |             |             |            | 1,220,000 | 609,000 |

[illegible]

Table B3.2-B9 Cost Estimate - Surficial Soils Medium Group  
Alternative B9: In Situ Biological Treatment (Landfarm/Agricultural Practice)

| Cost Item                                                    | Cost Type | Start Year | End Year | 1992 (\$) | Units  | Quantity  | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost   |
|--------------------------------------------------------------|-----------|------------|----------|-----------|--------|-----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|-----------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                     |           |            |          |           |        |           |       |               |                |              |             |           |           |           |           |
| B - Agricultural Practices                                   | A         | 1          | 4        | 0.20      | /SY    | 5,500,000 | SV    | 1.000         | 1.000          | 1.000        |             | 1,255,000 | 1,255,000 |           | 1,198,000 |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |           |        |           |       |               |                |              |             |           |           |           |           |
| Mod/Demob                                                    |           |            |          |           |        |           |       |               |                |              |             |           |           |           |           |
| Indirects, Overhead & Profit                                 |           |            |          |           |        |           |       |               |                |              |             |           |           |           |           |
| Engineering Design                                           |           |            |          |           |        |           |       |               |                |              |             |           |           |           |           |
| Resident Engineering                                         |           |            |          |           |        |           |       |               |                |              |             |           |           |           |           |
| Contingency                                                  |           |            |          |           |        |           |       |               |                |              |             |           |           |           |           |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>           |           |            |          |           |        |           |       |               |                |              |             |           |           |           |           |
| B - Long Term Soil Monitoring, Surficial Soils               | A         | 4          | 30       | 19,000.00 | /EA-YR | 1         | EA    | 1.000         | 1.000          | 1.000        |             | 22,000    | 22,000    |           | 288,000   |
| B - Site Reviews                                             | A         | 4          | 30       | 5,000.00  | /EA-YR | 1         | EA    | 1.000         | 1.000          | 1.000        |             | 6,000     | 6,000     |           | 82,000    |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>         |           |            |          |           |        |           |       |               |                |              |             |           |           |           |           |
| Indirects, Overhead & Profit                                 |           |            |          |           |        |           |       |               |                |              |             |           |           |           |           |
| Contingency                                                  |           |            |          |           |        |           |       |               |                |              |             |           |           |           |           |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S)</b>                     |           |            |          |           |        |           |       |               |                |              |             |           |           |           |           |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = I+T)</b> |           |            |          |           |        |           |       |               |                |              |             |           |           |           |           |

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**Table B3.2-B11** **Cost Estimate - Surficial Soils Medium Group**  
**Alternative B11: In Situ Thermal Treatment (Surface Soil Heating)**

Table B3.2-B11 Cost Estimate - Surficial Soils Medium Group  
Alternative B11: In Situ Thermal Treatment (Surface Soil Heating)

| Cost Item                                                | Cost Type | Start Year | End Year | 1992 (\$) | Units | Quantity  | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$) | 1995 (\$) | PW Cost     |
|----------------------------------------------------------|-----------|------------|----------|-----------|-------|-----------|-------|---------------|----------------|--------------|-------------|-------------|-----------|-----------|-------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                 |           |            |          |           |       |           |       |               |                |              |             |             |           |           |             |
| B - Installation of 6 inches of Topsoil                  | A         | 1          | 27       | 3.24      | /SY   | 5,500,000 | SY    | 1.000         | 1.000          | 1.000        |             | 20,338,000  |           |           | 11,590,000  |
| B - Revegetation of Disturbed Areas                      | A         | 1          | 27       | 0.18      | /SY   | 5,500,000 | SY    | 1.000         | 1.000          | 1.000        | Disturbance | 1,243,000   |           |           | 708,000     |
| <b>Subtotal (f)</b>                                      |           |            |          |           |       |           |       |               |                |              |             |             |           |           |             |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>               |           |            |          |           |       |           |       |               |                |              |             |             |           |           |             |
| COST CODE: LLSL                                          |           |            |          |           |       |           |       |               |                |              |             |             |           |           |             |
| Mob/Demob                                                |           |            |          |           |       |           |       |               |                |              |             |             |           |           |             |
| Indirects, Overhead & Profit                             |           |            |          |           |       |           |       |               |                |              |             | 701,000     |           |           | 389,000     |
| Engineering Design                                       |           |            |          |           |       |           |       |               |                |              |             | 8,889,000   |           |           | 4,948,000   |
| Resident Engineering                                     |           |            |          |           |       |           |       |               |                |              |             | 155,000     |           |           | 88,000      |
| Contingency                                              |           |            |          |           |       |           |       |               |                |              |             | 542,000     |           |           | 309,000     |
|                                                          |           |            |          |           |       |           |       |               |                |              |             | 8,500,000   |           |           | 5,410,000   |
| <b>Subtotal (O = J+K+L+M+N)</b>                          |           |            |          |           |       |           |       |               |                |              |             |             |           |           |             |
|                                                          |           |            |          |           |       |           |       |               |                |              |             | 19,597,000  |           |           | 11,154,000  |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>     |           |            |          |           |       |           |       |               |                |              |             |             |           |           |             |
| B - In Situ Surface Soil Heating                         | A         | 1          | 27       | 27.30     | /SY   | 5,500,000 | SY    | 1.000         | 1.000          | 1.000        |             | 171,346,000 |           |           | 97,573,000  |
| <b>Subtotal (H)</b>                                      |           |            |          |           |       |           |       |               |                |              |             |             |           |           |             |
|                                                          |           |            |          |           |       |           |       |               |                |              |             | 171,346,000 |           |           | 97,573,000  |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>   |           |            |          |           |       |           |       |               |                |              |             |             |           |           |             |
| COST CODE: H                                             |           |            |          |           |       |           |       |               |                |              |             |             |           |           |             |
| Mob/Demob                                                |           |            |          |           |       |           |       |               |                |              |             |             |           |           |             |
| Contractor Markup                                        |           |            |          |           |       |           |       |               |                |              |             |             |           |           |             |
| Engineering Design                                       |           |            |          |           |       |           |       |               |                |              |             | 11,894,000  |           |           | 8,830,000   |
| Resident Engineering                                     |           |            |          |           |       |           |       |               |                |              |             | 817,000     |           |           | 522,000     |
| Contingency                                              |           |            |          |           |       |           |       |               |                |              |             | 3,867,000   |           |           | 2,098,000   |
|                                                          |           |            |          |           |       |           |       |               |                |              |             | 75,170,000  |           |           | 42,805,000  |
| <b>Subtotal (O1 = J1+K1+L1+M1+N1)</b>                    |           |            |          |           |       |           |       |               |                |              |             |             |           |           |             |
|                                                          |           |            |          |           |       |           |       |               |                |              |             | 81,747,000  |           |           | 52,248,000  |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = H+O+H1+O1)</b> |           |            |          |           |       |           |       |               |                |              |             |             |           |           |             |
|                                                          |           |            |          |           |       |           |       |               |                |              |             | 304,258,000 |           |           | 173,280,000 |

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**Cost Estimate - Surficial Soils Medium Group  
Alternative B11: In Situ Thermal Treatment (Surface Soil Heating)**

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity  | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-------|-----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |       |           |       |               |                |              |             |                          |                         |                      |
| B - No Action                                                                                           | A         | 27         | 30       | 0.00                   | /SY   | 5,500,000 | SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| Subtotal (P)                                                                                            |           |            |          |                        |       |           |       |               |                |              |             | 0                        | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |       |           |       |               |                |              |             |                          |                         |                      |
| COST CODE: 0                                                                                            |           |            |          |                        |       |           |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                            |           |            |          |                        |       |           |       |               |                |              |             | 0                        | 0                       | 0                    |
| Contingency                                                                                             |           |            |          |                        |       |           |       |               |                |              |             | 0                        | 0                       | 0                    |
| Subtotal (S = Q+R)                                                                                      |           |            |          |                        |       |           |       |               |                |              |             | 0                        | 0                       | 0                    |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |       |           |       |               |                |              |             | 0                        | 0                       | 0                    |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |       |           |       |               |                |              |             |                          | 323,000,000             | 192,000,000          |

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**Table B3.3-B1**  
**Cost Estimate - Ditches/Drainage Areas Medium Group**  
**Alternative B1: No Additional Action (Provisions of FFA)**

| Cost Item                     | Cost Type | Start Year | End Year | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | Annual Cost | 1995 (\$)                     | Total Cost | 1995 (\$) | PW Cost |
|-------------------------------|-----------|------------|----------|-------|----------|-------|---------------|----------------|--------------|-------------|-------------|-------------------------------|------------|-----------|---------|
| <b>DIRECT CAPITAL COSTS</b>   |           |            |          |       |          |       |               |                |              |             |             |                               |            |           |         |
| B - No Action                 | LS        | 1          | --       | /SY   | 25,000   | SY    | 1.000         | 1.000          | 1.000        |             |             | 0                             | 0          | 0         | 0       |
|                               |           |            |          |       |          |       |               |                |              |             |             | Subtotal (A)                  | 0          | 0         | 0       |
| <b>INDIRECT CAPITAL COSTS</b> |           |            |          |       |          |       |               |                |              |             |             |                               |            |           |         |
| Mod/Demob                     |           |            |          |       |          |       |               |                |              |             |             |                               |            |           |         |
| Indirects, Overhead & Profit  |           |            |          |       |          |       |               |                |              |             |             |                               |            |           |         |
| Engineering Design            |           |            |          |       |          |       |               |                |              |             |             |                               |            |           |         |
| Resident Engineering          |           |            |          |       |          |       |               |                |              |             |             |                               |            |           |         |
| Contingency                   |           |            |          |       |          |       |               |                |              |             |             |                               |            |           |         |
|                               |           |            |          |       |          |       |               |                |              |             |             | Subtotal (G = B+C+D+E+F)      | 0          | 0         | 0       |
|                               |           |            |          |       |          |       |               |                |              |             |             | TOTAL CAPITAL COSTS (H = A+G) | 0          | 0         | 0       |

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Table B3.3-B1 Cost Estimate - Ditches/Drainage Areas Medium Group  
Alternative B1: No Additional Action (Provisions of FFA)

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$) | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|---------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |           |          |       |               |                |              |             |           |           |           |         |
| B - No Action                                                                                  | LS        | 1          | -        | 0.00      | 25,000   | SY    | 1.000         | 1.000          | 1.000        |             |           | 0         | 0         | 0       |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |           |          |       |               |                |              |             |           |           |           |         |
| Subtotal (I)                                                                                   |           |            |          |           |          |       |               |                |              |             |           | 0         | 0         | 0       |
| COST CODE                                                                                      |           |            |          |           |          |       |               |                |              |             |           |           |           |         |
| J = 0.033 * (I)                                                                                |           |            |          |           |          |       |               |                |              |             |           | 0         | 0         | 0       |
| K = 0.390 * (I+J)                                                                              |           |            |          |           |          |       |               |                |              |             |           | 0         | 0         | 0       |
| L = 0.005 * (I+J+K)                                                                            |           |            |          |           |          |       |               |                |              |             |           | 0         | 0         | 0       |
| M = 0.013 * (I+J+K+L)                                                                          |           |            |          |           |          |       |               |                |              |             |           | 0         | 0         | 0       |
| N = 0.283 * (I+J+K+L+M)                                                                        |           |            |          |           |          |       |               |                |              |             |           | 0         | 0         | 0       |
| Subtotal (O = J+K+L+M+N)                                                                       |           |            |          |           |          |       |               |                |              |             |           | 0         | 0         | 0       |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |           |          |       |               |                |              |             |           |           |           |         |
| B - Long Term Soil Monitoring, Ditches and Drainage Areas                                      | A         | 1          | 30       | 16,000.00 | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 16,000    | 548,000   | 290,000   |         |
| B - Site Reviews                                                                               | A         | 1          | 30       | 5,400.00  | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000     | 185,000   | 98,000    |         |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |           |          |       |               |                |              |             |           |           |           |         |
| Subtotal (P)                                                                                   |           |            |          |           |          |       |               |                |              |             |           | 24,000    | 733,000   | 388,000 |
| COST CODE                                                                                      |           |            |          |           |          |       |               |                |              |             |           |           |           |         |
| Q = 0.390 * (P)                                                                                |           |            |          |           |          |       |               |                |              |             |           | 10,000    | 286,000   | 151,000 |
| R = 0.300 * (P+Q)                                                                              |           |            |          |           |          |       |               |                |              |             |           | 10,000    | 306,000   | 162,000 |
| Subtotal (S)                                                                                   |           |            |          |           |          |       |               |                |              |             |           | 20,000    | 591,000   | 313,000 |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |           |          |       |               |                |              |             |           | 44,000    | 1,324,000 | 702,000 |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |           |          |       |               |                |              |             |           | 1,320,000 |           | 702,000 |

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| Cost Item                     | Cost Type | Start Year                | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------|-----------|---------------------------|----------|------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS          |           |                           |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| B - Fences                    | LS        | 1                         | --       | 15.00                  | /LF   | 27,000   | LF    | 1.000            | 1.000             | 1.000           |             | 482,000                  | 482,000                 | 482,000              |
| Subtotal (A)                  |           |                           |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| 482,000                       |           |                           |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| INDIRECT CAPITAL COSTS        |           |                           |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mod/Demob                     | LLSS      |                           |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit  | 3.3%      | COST CODE B = 0.033 * (A) |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design            | 38.0%     | C = 0.380 * (A+B)         |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering          | 3.0%      | D = 0.030 * (A+B+C)       |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                   | 1.3%      | E = 0.013 * (A+B+C)       |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                               | 26.3%     | F = 0.263 * (A+B+C+D+E)   |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                               |           | Subtotal (G = B+C+D+E+F)  |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                               |           | 411,000                   |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| TOTAL CAPITAL COSTS (H = A+G) |           |                           |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                               |           | 873,000                   |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| BDD-B02.W01                   |           |                           |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| SOILS DAA                     |           |                           |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
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Table B3.3-B2 Cost Estimate - Ditches/Drainage Areas Medium Group  
Alternative B2: Biot Management (Exclusion, Habitat Modification)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| B - Habitat Modification                                                                                      | A         | 1          | 3        | 0.17                   | /SY    | 25,000   | SY    | 1.000         | 1.000          | 1.000        | -           | 5,000                    | 5,000                   | 5,000                |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (I)                                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 5,000                   | 5,000                |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| B - Fences                                                                                                    | A         | 2          | 30       | 0.75                   | /LF-YR | 27,000   | LF    | 1.000         | 1.000          | 1.000        |             | 23,000                   | 670,000                 | 350,000              |
| B - Habitat Modification                                                                                      | A         | 3          | 30       | 0.01                   | /SY-YR | 25,000   | SY    | 1.000         | 1.000          | 1.000        |             | 200                      | 5,000                   | 2,000                |
| B - Long Term Soil Monitoring, Ditches and Drainage Areas                                                     | A         | 3          | 30       | 16,000.00              | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 16,000                   | 511,000                 | 259,000              |
| B - Site Reviews                                                                                              | A         | 3          | 30       | 5,000.00               | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 173,000                 | 87,000               |
| Subtotal (O = J+K+L+M+N)                                                                                      |           |            |          |                        |        |          |       |               |                |              |             | 4,000                    | 4,000                   | 4,000                |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (P)                                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 48,000                  | 689,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (P)                                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 19,000                  | 272,000              |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 20,000                  | 291,000              |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          | 38,000                  | 564,000              |
| Subtotal (S)                                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 86,000                  | 1,271,000            |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (T)                                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 3,340,000               | 21,400,000           |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = I+T)</b>                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (U)                                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 3,340,000               | 21,400,000           |

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Table B3.3-B3 Cost Estimate - Ditches/Drainage Areas Medium Group  
Alternative B3: Landfill (On-Post Landfill)

| Cost Item                                    | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|----------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                  |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| B - On-Post Hazardous Waste Landfill         | LS        | 1          | --       | 5.72                   | /BCY  | 25,000   | BCY   | 1.000            | 1.000             | 1.000           |             |                          | 168,000                 | 168,000              |
| B - On-Post Hazardous Waste Landfill Closure | LS        | 2          | --       | 3.80                   | /BCY  | 25,000   | BCY   | 1.000            | 1.000             | 1.000           |             |                          | 106,000                 | 103,000              |
| <b>INDIRECT CAPITAL COSTS</b>                |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mod/Demob                                    |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                 |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design                           |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering                         |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                                  |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>SUBTOTAL (A)</b>                          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                              |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 272,000                 | 268,000              |
| <b>INDIRECT CAPITAL COSTS</b>                |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mod/Demob                                    |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                 |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design                           |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering                         |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                                  |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>SUBTOTAL (G) = B+C+D+E+F</b>              |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                              |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 241,000                 | 237,000              |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b>         |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                              |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 513,000                 | 503,000              |

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Table B3.3-B3 Cost Estimate - Ditches/Drainage Areas Medium Group  
Alternative B3: Landfill (On-Post Landfill)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Exp/Red | Mileage | Other | Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost   |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------|---------|-------|--------|-------------|-----------|-----------|-----------|-----------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |           |           |          |       |         |         |       |        |             |           |           |           |           |
| B - Soil Excavation                                                                                           | LS        | 2          | --       | 3.91      | /BCY      | 25,000   | BCY   | 1.000   | 1.000   | 1.000 | 1.000  |             | 112,000   |           |           | 106,000   |
| B - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill                                   | LS        | 2          | --       | 1.07      | /BCY-MILE | 25,000   | BCY   | 1.000   | 3.000   | 1.000 | 1.000  |             | 82,000    |           |           | 87,000    |
| B - On-Post Hazardous Waste Landfill                                                                          | LS        | 2          | --       | 4.07      | /BCY      | 25,000   | BCY   | 1.000   | 1.000   | 1.000 | 1.000  |             | 116,000   |           |           | 111,000   |
| B - Excavation of Borrow Material                                                                             | LS        | 2          | --       | 1.89      | /BCY      | 25,000   | BCY   | 1.000   | 1.000   | 1.000 | 1.000  |             | 54,000    |           |           | 51,000    |
| B - Transportation of Borrow Material to Backfill Area                                                        | LS        | 2          | --       | 0.86      | /BCY-MILE | 25,000   | BCY   | 1.000   | 1.500   | 1.000 | 1.000  |             | 37,000    |           |           | 36,000    |
| B - Backfill with Borrow Material                                                                             | LS        | 2          | --       | 1.72      | /BCY      | 25,000   | BCY   | 1.000   | 1.000   | 1.000 | 1.000  |             | 49,000    |           |           | 47,000    |
| B - Installation of 6 Inches of Topsoil                                                                       | LS        | 2          | --       | 3.24      | /SY       | 25,000   | SY    | 1.000   | 1.000   | 1.000 | 1.000  |             | 92,000    |           |           | 88,000    |
| B - Revegetation of Disturbed Areas                                                                           | LS        | 2          | --       | 0.18      | /SY       | 25,000   | SY    | 1.000   | 1.000   | 1.100 | 1.100  | Disturbance | 6,000     |           |           | 5,000     |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |           |           |          |       |         |         |       |        |             |           |           |           |           |
| Subtotal (I)                                                                                                  |           |            |          |           |           |          |       |         |         |       |        |             | 557,000   |           |           | 531,000   |
| Cost CODE                                                                                                     |           |            |          |           |           |          |       |         |         |       |        |             |           |           |           |           |
| J = 0.038 * (I)                                                                                               |           |            |          |           |           |          |       |         |         |       |        |             | 22,000    |           |           | 21,000    |
| K = 0.403 * (I+J)                                                                                             |           |            |          |           |           |          |       |         |         |       |        |             | 233,000   |           |           | 222,000   |
| L = 0.005 * (I+J+K)                                                                                           |           |            |          |           |           |          |       |         |         |       |        |             | 4,000     |           |           | 4,000     |
| M = 0.015 * (I+J+K)                                                                                           |           |            |          |           |           |          |       |         |         |       |        |             | 12,000    |           |           | 12,000    |
| N = 0.275 * (I+J+K+L+M)                                                                                       |           |            |          |           |           |          |       |         |         |       |        |             | 228,000   |           |           | 217,000   |
| Subtotal (O = J+K+L+M+N)                                                                                      |           |            |          |           |           |          |       |         |         |       |        |             | 498,000   |           |           | 475,000   |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |           |           |          |       |         |         |       |        |             |           |           |           |           |
| B - On-Post Hazardous Waste Landfill Closure                                                                  | A         | 2          | 30       | 0.13      | /BCY-YR   | 25,000   | BCY   | 1.000   | 1.000   | 1.000 | 1.000  |             | 4,000     |           |           | 56,000    |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |           |           |          |       |         |         |       |        |             |           |           |           |           |
| Subtotal (P)                                                                                                  |           |            |          |           |           |          |       |         |         |       |        |             | 4,000     |           |           | 56,000    |
| Cost CODE                                                                                                     |           |            |          |           |           |          |       |         |         |       |        |             |           |           |           |           |
| Q = 0.390 * (P)                                                                                               |           |            |          |           |           |          |       |         |         |       |        |             | 1,000     |           |           | 22,000    |
| R = 0.300 * (P+Q)                                                                                             |           |            |          |           |           |          |       |         |         |       |        |             | 2,000     |           |           | 23,000    |
| Subtotal (S)                                                                                                  |           |            |          |           |           |          |       |         |         |       |        |             | 3,000     |           |           | 45,000    |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |           |           |          |       |         |         |       |        |             |           |           |           |           |
|                                                                                                               |           |            |          |           |           |          |       |         |         |       |        |             | 7,000     |           |           | 1,107,000 |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |           |           |          |       |         |         |       |        |             |           |           |           |           |
|                                                                                                               |           |            |          |           |           |          |       |         |         |       |        |             | 1,760,000 |           |           | 1,610,000 |

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Table B3.3-B5a Cost Estimate - Ditches/Drainage Areas Medium Group  
Alternative B5a: Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                            | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| INDIRECT CAPITAL COSTS               |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (A)                         |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| INDIRECT CAPITAL COSTS               |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                            |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| Indirects, Overhead & Profit         |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| Engineering Design                   |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| Resident Engineering                 |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| Contingency                          |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| Subtotal (G =B+C+D+E+F)              |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b> |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |

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Table B3.3-B5a Cost Estimate - Ditches/Drainage Areas Medium Group  
Alternative B5a: Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                     | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$) |         |
|---------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|-----------|---------|
|                                                               |           |            |          | Unit Cost |           |          |       |               |                |              |             | Annual Cost | Total Cost | PW Cost   |         |
| DIRECT O&M COSTS (OPERATIONS)                                 |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| B - Soil Excavation                                           | LS        | 1          | -        | 3.91      | /BCY      | 25,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 112,000     | 112,000    | 112,000   |         |
| B - Transportation of Contaminated Soil to Consolidation Area | LS        | 1          | -        | 1.07      | /BCY-MILE | 25,000   | BCY   | 1.000         | 3.500          | 1.000        |             | 107,000     | 107,000    | 107,000   |         |
| B - Grade Filling w/Consolidated Soil Prior to Capping        | LS        | 1          | -        | 3.63      | /BCY      | 25,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 104,000     | 104,000    | 104,000   |         |
| B - Excavation of Borrow Material                             | LS        | 1          | -        | 1.89      | /BCY      | 25,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 54,000      | 54,000     | 54,000    |         |
| B - Transportation of Borrow Material to Backfill Area        | LS        | 1          | -        | 0.86      | /BCY-MILE | 25,000   | BCY   | 1.000         | 1.500          | 1.000        |             | 37,000      | 37,000     | 37,000    |         |
| B - Backfill with Borrow Material                             | LS        | 1          | -        | 1.72      | /BCY      | 25,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 49,000      | 49,000     | 49,000    |         |
| B - Installation of 6 Inches of Topsoil                       | LS        | 1          | -        | 3.24      | /SY       | 25,000   | SY    | 1.000         | 1.000          | 1.000        |             | 92,000      | 92,000     | 92,000    |         |
| B - Revegetation of Disturbed Areas                           | LS        | 1          | -        | 0.18      | /SY       | 25,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance | 6,000       | 6,000      | 6,000     |         |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 560,000    | 560,000   | 560,000 |
| INDIRECT O&M COSTS (OPERATIONS)                               |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| Subtotal (I)                                                  |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| Cost CODE                                                     |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| J = 0.039 * (I)                                               |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| Indirects, Overhead & Profit                                  |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| K = 0.403 * (I+J)                                             |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| Engineering Design                                            |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| L = 0.005 * (I+J+K)                                           |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| Resident Engineering                                          |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| M = 0.015 * (I+J+K)                                           |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| Contingency                                                   |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| N = 0.275 * (I+J+K+L+M)                                       |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| Subtotal (O = J+K+L+M+N)                                      |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                       |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| B - No Action                                                 | A         | 1          | 30       | 0.00      | /SY       | 25,000   | SY    | 1.000         | 1.000          | 1.000        |             | 0           | 0          | 0         |         |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 501,000    | 501,000   | 501,000 |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                     |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| Subtotal (P)                                                  |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| Cost CODE                                                     |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| Q = 0.390 * (P)                                               |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| Indirects, Overhead & Profit                                  |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| R = 0.283 * (P+Q)                                             |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
| Contingency                                                   |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
| Subtotal (S)                                                  |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 0          | 0         | 0       |
|                                                               |           |            |          |           |           |          |       |               |                |              |             |             |            |           |         |

Table B3.3-B6 Cost Estimate - Ditches/Drainage Areas Medium Group  
Alternative B6: Direct Thermal Desorption (Direct Heating)

| Cost Item                                                   | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                                 |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| B - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2          | --       | 5.72                   | /BCY  | 250      | BCY   | 1.000            | 1.000             | 1.000           | 1.000       | 2,000                    | 2,000                   | 2,000                |
| B - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3          | --       | 3.80                   | /BCY  | 250      | BCY   | 1.000            | 1.000             | 1.000           | 1.000       | 1,000                    | 1,000                   | 1,000                |
| <b>Subtotal (A)</b>                                         |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>INDIRECT CAPITAL COSTS</b>                               |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| MOB/DEMOL                                                   |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 100                     | 100                  |
| Engineering Design                                          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 1,000                   | 1,000                |
| Resident Engineering                                        |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 100                     | 100                  |
| Contingency                                                 |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 50                      | 50                   |
| <b>Subtotal (B)</b>                                         |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                     |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| B - Thermal Desorption (Dry Soil)                           | A         | 1          | 2        | 14.17                  | /BCY  | 25,000   | BCY   | 1.000            | 1.000             | 1.000           | 1.000       | 404,000                  | 404,000                 | 395,000              |
| <b>Subtotal (A1)</b>                                        |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                   |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| MOB/DEMOL                                                   |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contractor Markup                                           |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 8,000                   | 8,000                |
| Engineering Design                                          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 41,000                  | 40,000               |
| Resident Engineering                                        |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 41,000                  | 40,000               |
| Contingency                                                 |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 14,000                  | 13,000               |
| <b>Subtotal (G1 = B1+C1+D1+E1+F1)</b>                       |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS (H = A1+G1+G11)</b>                  |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                             |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 258,000                 | 250,000              |
|                                                             |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 686,000                 | 649,000              |

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| Cost Item                                                              | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)        | 1995 (\$) | 1995 (\$)        |
|------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|------------------|-----------|------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                               |           |            |          |           |           |          |       |               |                |              |             |                  |           |                  |
| B - Soil Excavation                                                    | LS        | 3          | --       | 3.91      | /BCY      | 25,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 112,000          |           | 101,000          |
| B - Transportation of Contaminated Soil to Thermal Desorption Facility | LS        | 3          | --       | 1.07      | /BCY-MILE | 25,000   | BCY   | 1.000         | 2.500          | 1.000        |             | 78,000           |           | 68,000           |
| B - Load Treated Soil for Transport to Hazardous Landfill              | LS        | 3          | --       | 1.55      | /BCY      | 250      | BCY   | 1.000         | 1.000          | 1.000        |             | 400              |           | 400              |
| B - Transportation of Particulates to On-Post Hazardous Waste Landfill | LS        | 3          | --       | 1.07      | /BCY-MILE | 250      | BCY   | 1.000         | 1.000          | 1.000        |             | 300              |           | 300              |
| B - On-Post Hazardous Waste Landfill (Particulates)                    | LS        | 3          | --       | 4.07      | /BCY      | 250      | BCY   | 1.000         | 1.000          | 1.000        |             | 1,000            |           | 1,000            |
| B - Load Nonhazardous Treated Soil from Stockpile for Backfill         | LS        | 3          | --       | 1.28      | /BCY      | 25,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 37,000           |           | 33,000           |
| B - Transportation of Treated Soil to Backfill Excavation              | LS        | 3          | --       | 0.86      | /BCY-MILE | 25,000   | BCY   | 1.000         | 2.500          | 1.000        |             | 61,000           |           | 56,000           |
| B - Backfill with Treated Soil                                         | LS        | 3          | --       | 1.72      | /BCY      | 25,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 48,000           |           | 45,000           |
| B - Installation of 6 Inches of Topsoil                                | LS        | 3          | --       | 3.24      | /SY       | 25,000   | SY    | 1.000         | 1.000          | 1.000        |             | 92,000           |           | 84,000           |
| B - Revegetation of Disturbed Areas                                    | LS        | 3          | --       | 0.18      | /SY       | 25,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance | 6,000            |           | 5,000            |
| <b>Subtotal (I)</b>                                                    |           |            |          |           |           |          |       |               |                |              |             | <b>435,000</b>   |           | <b>384,000</b>   |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                             |           |            |          |           |           |          |       |               |                |              |             |                  |           |                  |
| Mob/Demob                                                              |           |            |          |           |           |          |       |               |                |              |             |                  |           |                  |
| Indirects, Overhead & Profit                                           |           |            |          |           |           |          |       |               |                |              |             |                  |           |                  |
| Engineering Design                                                     |           |            |          |           |           |          |       |               |                |              |             |                  |           |                  |
| Resident Engineering                                                   |           |            |          |           |           |          |       |               |                |              |             |                  |           |                  |
| Contingency                                                            |           |            |          |           |           |          |       |               |                |              |             |                  |           |                  |
| <b>Subtotal (J)</b>                                                    |           |            |          |           |           |          |       |               |                |              |             | <b>17,000</b>    |           | <b>15,000</b>    |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |           |           |          |       |               |                |              |             |                  |           |                  |
| B - Thermal Desorption (Dry Soil)                                      | LS        | 3          | --       | 49.13     | /BCY      | 25,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 1,402,000        |           | 1,271,000        |
| <b>Subtotal (II)</b>                                                   |           |            |          |           |           |          |       |               |                |              |             | <b>1,402,000</b> |           | <b>1,271,000</b> |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                 |           |            |          |           |           |          |       |               |                |              |             |                  |           |                  |
| Mob/Demob                                                              |           |            |          |           |           |          |       |               |                |              |             |                  |           |                  |
| Contractor Markup                                                      |           |            |          |           |           |          |       |               |                |              |             |                  |           |                  |
| Engineering Design                                                     |           |            |          |           |           |          |       |               |                |              |             |                  |           |                  |
| Resident Engineering                                                   |           |            |          |           |           |          |       |               |                |              |             |                  |           |                  |
| Contingency                                                            |           |            |          |           |           |          |       |               |                |              |             |                  |           |                  |
| <b>Subtotal (K)</b>                                                    |           |            |          |           |           |          |       |               |                |              |             | <b>0</b>         |           | <b>0</b>         |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+J+K+L+M+N)</b>             |           |            |          |           |           |          |       |               |                |              |             | <b>3,025,000</b> |           | <b>2,744,000</b> |

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| Cost Item                                                                                                | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1992 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|----------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                       |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| B - On-Post Hazardous Waste Landfill Closure                                                             | A         | 3          | 30       | 0.13                   | /BCY-YR | 250      | BCY   | 1.000         | 1.000          | 1.000        |             | 40                       | 1,000                   | 1,000                |
| Subtotal (P)                                                                                             |           |            |          |                        |         |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                                          |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                             |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| 38.0%                                                                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                              |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| 30.0%                                                                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (S = Q+R)                                                                                       |           |            |          |                        |         |          |       |               |                |              |             |                          | 400                     | 400                  |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                              |           |            |          |                        |         |          |       |               |                |              |             |                          | 2,000                   | 1,000                |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = It+OO+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          | 3,690,000               | 3,390,000            |

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**Table B3.3-B9**  
**Cost Estimate - Ditches/Drainage Areas Medium Group**  
**Alternative B9: In Situ Biological Treatment (Landfarm/Agricultural Practice)**

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| B - Agricultural Practices                                                                                    | LS        | 1          | --       | 0.20                   | /SY    | 25,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 6,000                   | 6,000                |
| B - Habitat Modification                                                                                      | A         | 1          | 3        | 0.17                   | /SY    | 25,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 5,000                   | 5,000                |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                                                                     |           |            |          |                        |        |          |       |               |                |              |             |                          | 11,000                  | 10,000               |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 300                     | 300                  |
| Engineering Design                                                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          | 4,000                   | 4,000                |
| Resident Engineering                                                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          | 100                     | 100                  |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          | 200                     | 200                  |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 4,000                   | 4,000                |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| B - Long Term Soil Monitoring, Ditches and Drainage Areas                                                     | A         | 4          | 30       | 16,000.00              | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 18,000                   | 483,000                 | 243,000              |
| B - Site Reviews                                                                                              | A         | 4          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 166,000                 | 82,000               |
| B - Habitat Modification                                                                                      | A         | 4          | 30       | 0.01                   | /SY-YR | 25,000   | SY    | 1.000         | 1.000          | 1.000        |             | 200                      | 4,000                   | 2,000                |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 10,000                  | 259,000              |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          | 10,000                  | 277,000              |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 20,000                  | 536,000              |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             | 44,000                   | 1,219,000               | 609,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 1,220,000               | 609,000              |

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Table B4.1-1 Cost Estimate - Basin A Medium Group  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost  | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------|-----------|------------|----------|-------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS          |           |            |          |                         |       |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                 | LS        | 1          | --       | 0.00                    | /SY   | 280,000  | SY    | 1,000         | 1,000          | 1,000        |             |                          | 0                       | 0                    |
| B - No Action                 | LS        | 1          | --       | 0.00                    | /SY   | 290,000  | SY    | 1,000         | 1,000          | 1,000        |             |                          | 0                       | 0                    |
| A - No Action                 | LS        | 1          | --       | 0.00                    | /SY   | 420,000  | SY    | 1,000         | 1,000          | 1,000        |             |                          | 0                       | 0                    |
| U - No Action                 | LS        | 1          | --       | 0.00                    | /SY   | 130,000  | SY    | 1,000         | 1,000          | 1,000        |             |                          | 0                       | 0                    |
| Subtotal (A)                  |           |            |          |                         |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| INDIRECT CAPITAL COSTS        |           |            |          |                         |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                     | 3.3%      |            |          | COST CODE               |       |          | LLSS  |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit  | 39.0%     |            |          | B = 0.033 * (A)         |       |          |       |               |                | 0            |             |                          |                         |                      |
| Engineering Design            | 3.0%      |            |          | C = 0.390 * (A+B)       |       |          |       |               |                | 0            |             |                          |                         |                      |
| Resident Engineering          | 1.3%      |            |          | D = 0.030 * (A+B+C)     |       |          |       |               |                | 0            |             |                          |                         |                      |
| Contingency                   | 26.3%     |            |          | E = 0.013 * (A+B+C)     |       |          |       |               |                | 0            |             |                          |                         |                      |
|                               |           |            |          | F = 0.263 * (A+B+C+D+E) |       |          |       |               |                | 0            |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)      |           |            |          |                         |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| TOTAL CAPITAL COSTS (H = A+G) |           |            |          |                         |       |          |       |               |                |              |             |                          | 0                       | 0                    |

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Table B4.1-1 Cost Estimate - Basin A Medium Group  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                                                    | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Quantity | Units  | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1992 (\$)<br>PW Cost |
|--------------------------------------------------------------|-----------|------------|----------|------------------------|----------|--------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                     |           |            |          |                        |          |        |               |                |              |             |                          |                         |                      |
| H - No Action                                                | LS        | 1          | --       | 0.00                   | 290,000  | /SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| B - No Action                                                | LS        | 1          | --       | 0.00                   | 290,000  | /SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| A - No Action                                                | LS        | 1          | --       | 0.00                   | 420,000  | /SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| U - No Action                                                | LS        | 1          | --       | 0.00                   | 130,000  | /SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |                        |          |        |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                    |           |            |          |                        |          |        |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                 |           |            |          |                        |          |        |               |                |              |             |                          |                         |                      |
| Engineering Design                                           |           |            |          |                        |          |        |               |                |              |             |                          |                         |                      |
| Resident Engineering                                         |           |            |          |                        |          |        |               |                |              |             |                          |                         |                      |
| Contingency                                                  |           |            |          |                        |          |        |               |                |              |             |                          |                         |                      |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>           |           |            |          |                        |          |        |               |                |              |             |                          |                         |                      |
| HB - Long Term Soil Monitoring, Basin A                      | A         | 1          | 30       | 116,000.00             | 1        | /EA-YR | 1.000         | 1.000          | 1.000        |             | 132,000                  | 3,971,000               | 2,105,000            |
| HBAU - Site Reviews                                          | A         | 1          | 30       | 3,400.00               | 1        | /EA-YR | 1.000         | 1.000          | 1.000        |             | 6,000                    | 165,000                 | 98,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>         |           |            |          |                        |          |        |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                 |           |            |          |                        |          |        |               |                |              |             |                          |                         |                      |
| Contingency                                                  |           |            |          |                        |          |        |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (T = H+O+P+S)</b>                     |           |            |          |                        |          |        |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b> |           |            |          |                        |          |        |               |                |              |             |                          |                         |                      |
| <b>Subtotal (T) = J+K+L+M+N</b>                              |           |            |          |                        |          |        |               |                |              |             |                          |                         |                      |
| <b>Subtotal (P) = Q+R</b>                                    |           |            |          |                        |          |        |               |                |              |             |                          |                         |                      |
| <b>Subtotal (S)</b>                                          |           |            |          |                        |          |        |               |                |              |             |                          |                         |                      |
| <b>Subtotal (U) = H+T</b>                                    |           |            |          |                        |          |        |               |                |              |             |                          |                         |                      |

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Table B4.1-1a Cost Estimate - Basin A Medium Group  
Alternative 1a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume, No Additional Action (Provisions of FFA)

| Cost Item                                                   | Cost Type | Start Year                    | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |
|-------------------------------------------------------------|-----------|-------------------------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|---------|
| DIRECT CAPITAL COSTS                                        |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| H - No Action (Limited)                                     | LS        | 1                             | --       | 0.00      | /SY   | 280,000  | SY    | 1.000         | 1.000          | 1.000        |             | 0         | 0         | 0         | 0       |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | --       | 5.72      | /BCY  | 46       | BCY   | 1.000         | 1.000          | 1.000        |             | 300       | 300       | 300       | 300     |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                             | --       | 3.80      | /BCY  | 46       | BCY   | 1.000         | 1.000          | 1.000        |             | 200       | 200       | 200       | 200     |
| B - No Action                                               | LS        | 1                             | --       | 0.00      | /SY   | 290,000  | SY    | 1.000         | 1.000          | 1.000        |             | 0         | 0         | 0         | 0       |
| Subtotal (A)                                                |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| INDIRECT CAPITAL COSTS                                      |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| COST CODE: LLSS                                             |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Mod/Demob                                                   | 3.3%      | B = 0.033 * (A)               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Indirects, Overhead & Profit                                | 38.0%     | C = 0.380 * (A+B)             |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Engineering Design                                          | 3.0%      | D = 0.030 * (A+B+C)           |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Resident Engineering                                        | 1.3%      | E = 0.013 * (A+B+C)           |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Contingency                                                 | 28.3%     | F = 0.283 * (A+B+C+D+E)       |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal (G = B+C+D+E+F)                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| DIRECT SUBCONTRACT CAPITAL COSTS                            |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| H - Thermal Desorption (Saturated Soil)                     | A         | 1                             | 2        | 14.17     | /BCY  | 4,600    | BCY   | 1.000         | 1.000          | 1.000        |             | 74,000    | 74,000    | 73,000    | 73,000  |
| Subtotal (A1)                                               |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| INDIRECT SUBCONTRACT CAPITAL COSTS                          |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| COST CODE: C                                                |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Mod/Demob                                                   | 2.0%      | B1 = 0.020 * (A1)             |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Contractor Markup                                           | 10.0%     | C1 = 0.100 * (A1+B1)          |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Engineering Design                                          | 8.0%      | D1 = 0.080 * (A1+B1+C1)       |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Resident Engineering                                        | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Contingency                                                 | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                         |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal                                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
|                                                             |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |

Alternative 1a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume, No Additional Action (Provisions of FFA)

| Cost Item                                                              | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$)  | 1995 (\$) | 1995 (\$) |
|------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|--------------|------------|-----------|-----------|
|                                                                        |           |            |          | Unit Cost |           |          |       |               |                |              |              | Total Cost | PW Cost   |           |
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                               |           |            |          |           |           |          |       |               |                |              |              |            |           |           |
| A - Drilling and Agent Screening Prior to Excavation                   | LS        | 2          | --       | 4.89      | /SY       | 17,000   | SY    | 1,000         | 1,000          | 1,000        |              | 85,000     | 90,000    |           |
| U - UXO Clearance by Geophysics                                        | LS        | 2          | --       | 0.85      | /SY       | 17,000   | SY    | 1,000         | 1,000          | 1,000        |              | 16,000     | 16,000    |           |
| H - No Action (Limited)                                                | LS        | 1          | --       | 0.00      | /SY       | 280,000  | SY    | 1,000         | 1,000          | 1,000        |              | 0          | 0         |           |
| H - Soil Excavation                                                    | LS        | 3          | --       | 3.91      | /BCY      | 4,600    | BCY   | 1,000         | 1,000          | 1,200        | Odor Control | 25,000     | 22,000    |           |
| H - Transportation of Contaminated Soil to Thermal Desorption Facility | LS        | 3          | --       | 1.07      | /BCY-MILE | 4,600    | BCY   | 1,000         | 1,250          | 1,000        |              | 7,000      | 6,000     |           |
| H - Load Treated Soil for Transport to Hazardous Landfill              | LS        | 3          | --       | 1.55      | /BCY      | 46       | BCY   | 1,000         | 1,000          | 1,000        |              | 100        | 100       |           |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill | LS        | 3          | --       | 1.07      | /BCY-MILE | 46       | BCY   | 1,000         | 1,000          | 1,000        |              | 100        | 100       |           |
| H - On-Post Hazardous Waste Landfill (Particulates)                    | LS        | 3          | --       | 4.07      | /BCY      | 46       | BCY   | 1,000         | 1,000          | 1,000        |              | 200        | 200       |           |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill         | LS        | 3          | --       | 1.28      | /BCY      | 4,600    | BCY   | 1,000         | 1,000          | 1,000        |              | 7,000      | 6,000     |           |
| H - Transportation of Treated Soil to Backfill Excavation              | LS        | 3          | --       | 0.86      | /BCY-MILE | 4,600    | BCY   | 1,000         | 1,250          | 1,000        |              | 8,000      | 5,000     |           |
| H - Backfill with Treated Soil                                         | LS        | 3          | --       | 1.72      | /BCY      | 4,600    | BCY   | 1,000         | 1,000          | 1,000        |              | 8,000      | 8,000     |           |
| H - Installation of 6 Inches of Topsoil                                | LS        | 3          | --       | 3.24      | /SY       | 17,000   | SY    | 1,000         | 1,000          | 1,100        | Disturbance  | 63,000     | 57,000    |           |
| H - Re-vegetation of Disturbed Areas                                   | LS        | 3          | --       | 0.18      | /SY       | 17,000   | SY    | 1,000         | 1,000          | 1,000        |              | 4,000      | 3,000     |           |
| B - No Action                                                          | LS        | 1          | --       | 0.00      | /SY       | 290,000  | SY    | 1,000         | 1,000          | 1,000        |              | 0          | 0         |           |
| A - No Action                                                          | LS        | 1          | --       | 0.00      | /SY       | 420,000  | SY    | 1,000         | 1,000          | 1,000        |              | 0          | 0         |           |
| U - No Action                                                          | LS        | 1          | --       | 0.00      | /SY       | 130,000  | SY    | 1,000         | 1,000          | 1,000        |              | 0          | 0         |           |
| <b>Subtotal (f)</b>                                                    |           |            |          |           |           |          |       |               |                |              |              |            | 231,000   | 215,000   |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                             |           |            |          |           |           |          |       |               |                |              |              |            |           |           |
| Mob/Demob                                                              |           |            |          |           |           |          |       |               |                |              |              |            |           |           |
| Indirects, Overhead & Profit                                           |           |            |          |           |           |          |       |               |                |              |              |            |           |           |
| Engineering Design                                                     |           |            |          |           |           |          |       |               |                |              |              |            |           |           |
| Resident Engineering                                                   |           |            |          |           |           |          |       |               |                |              |              |            |           |           |
| Contingency                                                            |           |            |          |           |           |          |       |               |                |              |              |            |           |           |
| <b>Subtotal (g) = J+K+L+M+N</b>                                        |           |            |          |           |           |          |       |               |                |              |              |            | 8,000     | 8,000     |
| <b>Subtotal (h) = J+K+L+M+N</b>                                        |           |            |          |           |           |          |       |               |                |              |              |            | 97,000    | 90,000    |
| <b>Subtotal (i) = J+K+L+M+N</b>                                        |           |            |          |           |           |          |       |               |                |              |              |            | 2,000     | 2,000     |
| <b>Subtotal (j) = J+K+L+M+N</b>                                        |           |            |          |           |           |          |       |               |                |              |              |            | 5,000     | 5,000     |
| <b>Subtotal (k) = J+K+L+M+N</b>                                        |           |            |          |           |           |          |       |               |                |              |              |            | 95,000    | 86,000    |
| <b>Subtotal (l) = J+K+L+M+N</b>                                        |           |            |          |           |           |          |       |               |                |              |              |            | 207,000   | 192,000   |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |           |           |          |       |               |                |              |              |            |           |           |
| H - Thermal Desorption (Saturated Soil)                                | LS        | 3          | --       | 73.64     | /BCY      | 4,600    | BCY   | 1,000         | 1,000          | 1,000        |              | 367,000    | 351,000   |           |
| <b>Subtotal (m) = J+K+L+M+N</b>                                        |           |            |          |           |           |          |       |               |                |              |              |            | 367,000   | 351,000   |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                 |           |            |          |           |           |          |       |               |                |              |              |            |           |           |
| Mob/Demob                                                              |           |            |          |           |           |          |       |               |                |              |              |            |           |           |
| Contractor Markup                                                      |           |            |          |           |           |          |       |               |                |              |              |            |           |           |
| Engineering Design                                                     |           |            |          |           |           |          |       |               |                |              |              |            |           |           |
| Resident Engineering                                                   |           |            |          |           |           |          |       |               |                |              |              |            |           |           |
| Contingency                                                            |           |            |          |           |           |          |       |               |                |              |              |            |           |           |
| <b>Subtotal (n) = J+K+L+M+N</b>                                        |           |            |          |           |           |          |       |               |                |              |              |            | 0         | 0         |
| <b>Subtotal (o) = J+K+L+M+N</b>                                        |           |            |          |           |           |          |       |               |                |              |              |            | 39,000    | 35,000    |
| <b>Subtotal (p) = J+K+L+M+N</b>                                        |           |            |          |           |           |          |       |               |                |              |              |            | 0         | 0         |
| <b>Subtotal (q) = J+K+L+M+N</b>                                        |           |            |          |           |           |          |       |               |                |              |              |            | 9,000     | 8,000     |
| <b>Subtotal (r) = J+K+L+M+N</b>                                        |           |            |          |           |           |          |       |               |                |              |              |            | 173,000   | 157,000   |
| <b>Subtotal (s) = J+K+L+M+N</b>                                        |           |            |          |           |           |          |       |               |                |              |              |            | 221,000   | 200,000   |
| <b>Subtotal (t) = J+K+L+M+N</b>                                        |           |            |          |           |           |          |       |               |                |              |              |            | 1,046,000 | 959,000   |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = H+O+I+Q)</b>                 |           |            |          |           |           |          |       |               |                |              |              |            |           |           |

Table B4.1-1a  
Cost Estimate - Basin A Medium Group  
Alternative 1a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; No Additional Action (Provisions of FFA)

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       | 0.13                   | /BCY-YR | 46       | BCY   | 1.000            | 1.000             | 1.000           |             | 10                       | 200                     | 100                  |
| HB - Long Term Soil Monitoring, Basin A                                                                | A         | 3          | 30       | 116,000.00             | /EA-YR  | 1        | EA    | 1.000            | 1.000             | 1.000           |             | 132,000                  | 3,707,000               | 1,878,000            |
| HBAU - Site Reviews                                                                                    | A         | 3          | 30       | 5,400.00               | /EA-YR  | 1        | EA    | 1.000            | 1.000             | 1.000           |             | 6,000                    | 173,000                 | 87,000               |
| Subtotal (P)                                                                                           |           |            |          |                        |         |          |       |                  |                   |                 |             | 138,000                  | 3,879,000               | 1,988,000            |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| COST CODE: LLSL                                                                                        |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                           |           |            |          | 39.0%                  |         |          |       |                  |                   |                 |             | 54,000                   | 1,513,000               | 767,000              |
| Contingency                                                                                            |           |            |          | 30.0%                  |         |          |       |                  |                   |                 |             | 58,000                   | 1,618,000               | 820,000              |
| Subtotal (S = Q+R)                                                                                     |           |            |          |                        |         |          |       |                  |                   |                 |             | 112,000                  | 3,131,000               | 1,588,000            |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |                        |         |          |       |                  |                   |                 |             | 250,000                  | 7,010,000               | 3,552,000            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |                  |                   |                 |             |                          | 8,180,000               | 4,630,000            |

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Table B4.1.3 Cost Estimate - Basin A Medium Group  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                                    | Cost Type | Start Year | End Year | 1992 (\$)                      | Units                         | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$)  | 1995 (\$) | 1995 (\$) | PW Cost   |
|------------------------------------------------------------------------------|-----------|------------|----------|--------------------------------|-------------------------------|----------|-------|---------------|----------------|--------------|--------------|------------|-----------|-----------|-----------|
| DIRECT O&M COSTS (OPERATIONS)                                                |           |            |          |                                |                               |          |       |               |                |              |              |            |           |           |           |
| HA - Excavation Dewatering, Basin A                                          | A         | 1          | 4        | 743,278.00                     | /EA-YR                        | 1        | EA    | 1.000         | 1.000          | 1.000        |              | 3,393,000  | 4,444,000 | 3,158,000 | 3,158,000 |
| HB - Soil Excavation                                                         | A         | 3          | 4        | 3.91                           | /BCY                          | 830,000  | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 3,835,000  | 4,444,000 | 3,935,000 | 3,935,000 |
| HB - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill | A         | 3          | 4        | 1.07                           | /BCY-MILE                     | 830,000  | BCY   | 1.000         | 1.250          | 1.000        |              | 1,267,000  | 1,267,000 | 1,122,000 | 1,122,000 |
| HB - On-Post Hazardous Waste Landfill                                        | A         | 3          | 4        | 4.07                           | /BCY                          | 830,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 3,655,000  | 3,413,000 | 3,413,000 | 3,413,000 |
| HB - Excavation of Borrow Material                                           | A         | 3          | 4        | 1.89                           | /BCY                          | 830,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 1,790,000  | 1,790,000 | 1,585,000 | 1,585,000 |
| HB - Transportation of Borrow Material to Backfill Area                      | A         | 3          | 4        | 0.86                           | /BCY-MILE                     | 830,000  | BCY   | 1.000         | 1.500          | 1.000        |              | 1,082,000  | 1,082,000 | 1,082,000 | 1,082,000 |
| HB - Backfill with Borrow Material                                           | A         | 3          | 4        | 1.72                           | /BCY                          | 830,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 1,629,000  | 1,629,000 | 1,442,000 | 1,442,000 |
| HB - Installation of 6 Inches of Topsoil                                     | A         | 3          | 4        | 3.24                           | /SY                           | 560,000  | SY    | 1.000         | 1.000          | 1.000        |              | 2,071,000  | 2,071,000 | 1,833,000 | 1,833,000 |
| HB - Revegetation of Disturbed Areas                                         | A         | 3          | 4        | 0.18                           | /SY                           | 560,000  | SY    | 1.000         | 1.000          | 1.000        | Disturbance  | 127,000    | 112,000   | 112,000   | 112,000   |
| A - Drilling and Agent Screening Prior to Excavation                         | LS        | 2          | --       | 4.89                           | /SY                           | 420,000  | SY    | 1.000         | 1.000          | 1.000        |              | 2,344,000  | 2,344,000 | 2,232,000 | 2,232,000 |
| A - Excavation of Soil with Agent                                            | LS        | 3          | --       | 4.55                           | /BCY                          | 700      | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 4,000      | 4,000     | 1,000     | 1,000     |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility     | LS        | 3          | --       | 1.07                           | /BCY-MILE                     | 700      | BCY   | 1.000         | 1.250          | 1.000        |              | 1,000      | 1,000     | 1,000     | 1,000     |
| A - Load Treated Soil for Transport to Hazardous Landfill                    | LS        | 3          | --       | 1.55                           | /BCY                          | 7        | BCY   | 1.000         | 1.000          | 1.000        | Disturbance  | 10         | 10        | 10        | 10        |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill       | LS        | 3          | --       | 1.07                           | /BCY-MILE                     | 7        | BCY   | 1.000         | 1.000          | 1.000        |              | 10         | 10        | 10        | 10        |
| A - On-Post Hazardous Waste Landfill (Particulates)                          | LS        | 3          | --       | 4.07                           | /BCY                          | 7        | BCY   | 1.000         | 1.000          | 1.000        |              | 30         | 30        | 30        | 30        |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill               | LS        | 3          | --       | 1.28                           | /BCY                          | 700      | BCY   | 1.000         | 1.000          | 1.000        |              | 1,000      | 1,000     | 1,000     | 1,000     |
| A - Transportation of Treated Soil to Backfill Excavation                    | LS        | 3          | --       | 0.86                           | /BCY-MILE                     | 700      | BCY   | 1.000         | 1.250          | 1.000        |              | 1,000      | 1,000     | 1,000     | 1,000     |
| A - Backfill with Treated Soil                                               | LS        | 3          | --       | 1.72                           | /BCY                          | 700      | BCY   | 1.000         | 1.000          | 1.000        |              | 1,000      | 1,000     | 1,000     | 1,000     |
| U - UXO Clearance by Geophysics                                              | LS        | 2          | --       | 0.85                           | /SY                           | 130,000  | SY    | 1.000         | 1.000          | 1.000        |              | 126,000    | 126,000   | 120,000   | 120,000   |
| U - Removal of Soil with UXO                                                 | LS        | 3          | --       | 70.57                          | /BCY                          | 90       | BCY   | 1.000         | 1.000          | 1.000        |              | 7,000      | 7,000     | 7,000     | 7,000     |
| U - Excavation of Debris from Surface Soil                                   | LS        | 3          | --       | 3.91                           | /BCY                          | 43,000   | BCY   | 1.000         | 1.000          | 1.300        | Productivity | 249,000    | 249,000   | 228,000   | 228,000   |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill  | LS        | 3          | --       | 0.71                           | /BCY-MILE                     | 43,000   | BCY   | 1.000         | 1.250          | 1.000        | Productivity | 57,000     | 57,000    | 51,000    | 51,000    |
| U - On-Post Solid Waste Landfill                                             | LS        | 3          | --       | 4.07                           | /BCY                          | 43,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 200,000    | 200,000   | 181,000   | 181,000   |
|                                                                              |           |            |          | Subtotal (I)                   |                               |          |       |               |                |              |              |            |           |           |           |
|                                                                              |           |            |          | 22,788,000                     |                               |          |       |               |                |              |              |            |           |           |           |
| INDIRECT O&M COSTS (OPERATIONS)                                              |           |            |          |                                |                               |          |       |               |                |              |              |            |           |           |           |
| Mod/Demob                                                                    |           |            |          | 5.1%                           | J = 0.051 * (I)               |          |       |               |                |              |              | 1,168,000  | 1,051,000 | 1,051,000 | 1,051,000 |
| Indirects, Overhead & Profit                                                 |           |            |          | 39.0%                          | K = 0.390 * (I+J)             |          |       |               |                |              |              | 9,343,000  | 8,343,000 | 8,408,000 | 8,408,000 |
| Engineering Design                                                           |           |            |          | 1.5%                           | L = 0.015 * (I+J+K)           |          |       |               |                |              |              | 489,000    | 489,000   | 450,000   | 450,000   |
| Resident Engineering                                                         |           |            |          | 2.0%                           | M = 0.020 * (I+J+K)           |          |       |               |                |              |              | 686,000    | 599,000   | 599,000   | 599,000   |
| Contingency                                                                  |           |            |          | 31.3%                          | N = 0.313 * (I+J+K+L+M)       |          |       |               |                |              |              | 10,770,000 | 9,663,000 | 9,663,000 | 9,663,000 |
|                                                                              |           |            |          | Subtotal (O = J+K+L+M+N)       |                               |          |       |               |                |              |              |            |           |           |           |
|                                                                              |           |            |          | 22,447,000                     |                               |          |       |               |                |              |              |            |           |           |           |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                    |           |            |          |                                |                               |          |       |               |                |              |              |            |           |           |           |
| A - Incineration                                                             | LS        | 3          | --       | 96.24                          | /BCY                          | 700      | BCY   | 1.000         | 1.000          | 1.000        |              | 77,000     | 77,000    | 70,000    | 70,000    |
| U - Packaging and Transportation of Agent UXO to Army Off-Post UXO Facility  | LS        | 3          | --       | 2,200.00                       | /BCY                          | 90       | BCY   | 1.000         | 1.000          | 1.000        |              | 228,000    | 228,000   | 205,000   | 205,000   |
|                                                                              |           |            |          | Subtotal (II)                  |                               |          |       |               |                |              |              |            |           |           |           |
|                                                                              |           |            |          | 303,000                        |                               |          |       |               |                |              |              |            |           |           |           |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                  |           |            |          |                                |                               |          |       |               |                |              |              |            |           |           |           |
| Mod/Demob                                                                    |           |            |          | 0.0%                           | J1 = 0.000 * (II)             |          |       |               |                |              |              | 0          | 0         | 0         | 0         |
| Contractor Markup                                                            |           |            |          | 10.0%                          | K1 = 0.100 * (II+J1)          |          |       |               |                |              |              | 30,000     | 27,000    | 27,000    | 27,000    |
| Engineering Design                                                           |           |            |          | 0.0%                           | L1 = 0.000 * (II+J1+K1)       |          |       |               |                |              |              | 0          | 0         | 0         | 0         |
| Resident Engineering                                                         |           |            |          | 2.0%                           | M1 = 0.020 * (II+J1+K1)       |          |       |               |                |              |              | 7,000      | 7,000     | 6,000     | 6,000     |
| Contingency                                                                  |           |            |          | 40.0%                          | N1 = 0.400 * (II+J1+K1+L1+M1) |          |       |               |                |              |              | 136,000    | 136,000   | 123,000   | 123,000   |
|                                                                              |           |            |          | Subtotal (O1 = J1+K1+L1+M1+N1) |                               |          |       |               |                |              |              |            |           |           |           |
|                                                                              |           |            |          | 173,000                        |                               |          |       |               |                |              |              |            |           |           |           |
|                                                                              |           |            |          | 45,711,000                     |                               |          |       |               |                |              |              |            |           |           |           |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O+II+O1)                                |           |            |          |                                |                               |          |       |               |                |              |              |            |           |           |           |
|                                                                              |           |            |          | 45,711,000                     |                               |          |       |               |                |              |              |            |           |           |           |

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Table B4.1-3 Cost Estimate - Basin A Medium Group  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill Closure                                                           | A         | 4          | 30       | 0.13                   | /BCY-YR | 830,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 123,000                  | 3,325,000               | 1,635,000            |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 4          | 30       | 0.13                   | /BCY-YR | 7        | BCY   | 1.000         | 1.000          | 1.000        |             | 1                        | 30                      | 10                   |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                                   | A         | 4          | 30       | 0.13                   | /BCY-YR | 43,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 6,000                    | 172,000                 | 85,000               |
| <b>Subtotal (P)</b>                                                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             | 130,000                  | 3,487,000               | 1,720,000            |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                            |           |            |          |                        |         |          |       |               |                |              |             | 51,000                   | 1,364,000               | 671,000              |
| Contingency                                                                                             |           |            |          |                        |         |          |       |               |                |              |             | 54,000                   | 1,458,000               | 717,000              |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             | 105,000                  | 2,822,000               | 1,388,000            |
| <b>Subtotal (S = Q+R)</b>                                                                               |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             | 224,000                  | 6,319,000               | 3,108,000            |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 70,900,000              | 61,600,000           |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |

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| Cost Item                   | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b> |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (A)                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (B)                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (C)                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (D)                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (E)                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (F)                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)    |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G)          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

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Table B4.1-6 Cost Estimate - Basin A Medium Group  
Alternative 6: Caps/Covers (Clay/Soil Cap)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$)  |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|------------|
|                                                                                                               |           |            |          | Unit Cost |           |          |       |               |                |              |             | Annual Cost | Total Cost | PW Cost    |
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| HBAU - Subgrade Preparation Prior to Installing Cap/Cover                                                     | LS        | 1          | --       | 0.06      | /SY       | 560,000  | SY    | 1.000         | 1.000          | 1.000        |             |             | 36,000     | 36,000     |
| HBAU - Installation of Clay/Soil Cap                                                                          | A         | 1          | 2        | 23.30     | /SY       | 560,000  | SY    | 1.000         | 1.000          | 1.000        |             |             | 14,535,000 | 14,535,000 |
| HBAU - Excavation of Borrow Material                                                                          | LS        | 1          | --       | 1.89      | /BCY      | 700,000  | BCY   | 1.000         | 1.000          | 1.000        |             |             | 1,510,000  | 1,510,000  |
| HBAU - Transportation of Borrow Material to Backfill Area                                                     | LS        | 1          | --       | 0.86      | /BCY-MILE | 700,000  | BCY   | 1.000         | 1.500          | 1.000        |             |             | 1,030,000  | 1,030,000  |
| HBAU - Backfill with Borrow Material                                                                          | LS        | 1          | --       | 1.72      | /BCY      | 700,000  | BCY   | 1.000         | 1.000          | 1.000        |             |             | 1,374,000  | 1,374,000  |
| HBAU - Revegetation of Disturbed Areas                                                                        | A         | 1          | 2        | 0.18      | /SY       | 560,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance |             | 127,000    | 124,000    |
| <b>Subtotal (T) = J+K+L+M+N</b>                                                                               |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
|                                                                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 18,989,000 | 18,611,000 |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| Indirects: Overhead & Profit                                                                                  |           |            |          | 3.3%      |           |          |       |               |                |              |             |             | 616,000    | 605,000    |
| Indirects: Design                                                                                             |           |            |          | 37.8%     |           |          |       |               |                |              |             |             | 7,394,000  | 7,254,000  |
| Indirects: Engineering                                                                                        |           |            |          | 0.5%      |           |          |       |               |                |              |             |             | 156,000    | 132,000    |
| Indirects: Resident Engineering                                                                               |           |            |          | 1.3%      |           |          |       |               |                |              |             |             | 337,000    | 331,000    |
| Indirects: Contingency                                                                                        |           |            |          | 28.3%     |           |          |       |               |                |              |             |             | 7,206,000  | 7,070,000  |
|                                                                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 15,669,000 | 15,392,000 |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| HBAU - Installation of Clay/Soil Cap                                                                          | A         | 2          | 30       | 0.80      | /SY-YR    | 560,000  | SY    | 1.000         | 1.000          | 1.000        |             | 511,000     | 14,826,000 | 7,741,000  |
| HBAU - Site Reviews                                                                                           | A         | 2          | 30       | 5,400.00  | /EA-YR    | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000       | 179,000    | 93,000     |
|                                                                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 517,000    | 7,834,000  |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| Indirects: Overhead & Profit                                                                                  |           |            |          | 38.0%     |           |          |       |               |                |              |             | 202,000     | 5,852,000  | 3,065,000  |
| Indirects: Contingency                                                                                        |           |            |          | 30.0%     |           |          |       |               |                |              |             | 216,000     | 6,257,000  | 3,267,000  |
|                                                                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 418,000    | 6,322,000  |
|                                                                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 935,000    | 48,160,000 |
|                                                                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 61,800,000 | 48,200,000 |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| <b>HBA-06-W01</b>                                                                                             |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| <b>SOILS DAA</b>                                                                                              |           |            |          |           |           |          |       |               |                |              |             |             |            |            |

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Table B4.1-6f Cost Estimate - Basin A Medium Group  
Alternative 6f: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume: Caps/Covers (Clay/Soil Cap)

| Cost Item                                                   | Cost Type               | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------------------|-------------------------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                        |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS                      | 2          | --       | 5.72                   | /BCY  | 46       | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 300                     | 300                  |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS                      | 3          | --       | 3.80                   | /BCY  | 46       | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 200                     | 200                  |
| Subtotal (A)                                                |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSS                                             |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                   |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                | B = 0.033 * (A)         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                          | C = 0.380 * (A+B)       |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                        | D = 0.030 * (A+B+C)     |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                 | E = 0.013 * (A+B+C)     |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| F = 0.263 * (A+B+C+D+E)                                     |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                    |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| DIRECT SUBCONTRACT CAPITAL COSTS                            |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - Thermal Desorption (Saturated Soil)                     | A                       | 1          | 2        | 14.17                  | /BCY  | 4,600    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 74,000                  | 73,000               |
| Subtotal (A1)                                               |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: C                                                |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                   |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                           | B1 = 0.020 * (A1)       |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                          | C1 = 0.100 * (A1+B1)    |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                        | D1 = 0.080 * (A1+B1+C1) |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                 | E1 = 0.030 * (A1+B1+C1) |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| F1 = 0.300 * (A1+B1+C1+D1+E1)                               |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                         |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                                             |                         |            |          |                        |       |          |       |               |                |              |             |                          | 500                     |                      |
|                                                             |                         |            |          |                        |       |          |       |               |                |              |             |                          | 20                      |                      |
|                                                             |                         |            |          |                        |       |          |       |               |                |              |             |                          | 200                     |                      |
|                                                             |                         |            |          |                        |       |          |       |               |                |              |             |                          | 20                      |                      |
|                                                             |                         |            |          |                        |       |          |       |               |                |              |             |                          | 10                      |                      |
|                                                             |                         |            |          |                        |       |          |       |               |                |              |             |                          | 200                     |                      |
|                                                             |                         |            |          |                        |       |          |       |               |                |              |             |                          | 400                     |                      |
|                                                             |                         |            |          |                        |       |          |       |               |                |              |             |                          | 74,000                  |                      |
|                                                             |                         |            |          |                        |       |          |       |               |                |              |             |                          | 74,000                  | 73,000               |
|                                                             |                         |            |          |                        |       |          |       |               |                |              |             |                          | 1,000                   |                      |
|                                                             |                         |            |          |                        |       |          |       |               |                |              |             |                          | 8,000                   |                      |
|                                                             |                         |            |          |                        |       |          |       |               |                |              |             |                          | 8,000                   |                      |
|                                                             |                         |            |          |                        |       |          |       |               |                |              |             |                          | 3,000                   |                      |
|                                                             |                         |            |          |                        |       |          |       |               |                |              |             |                          | 26,000                  |                      |
|                                                             |                         |            |          |                        |       |          |       |               |                |              |             |                          | 47,000                  | 46,000               |
|                                                             |                         |            |          |                        |       |          |       |               |                |              |             |                          | 122,000                 | 120,000              |
| HBA-06F-W01                                                 |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| SOILS DAA                                                   |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 16-Jul-93                                                   |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

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Table B4.1-6f

Cost Estimate - Basin A Medium Group

Alternative 6f: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap)

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| Cost Item                                                              | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1993 (\$)  | 1995 (\$)  | 1995 (\$)  | PW Cost    |
|------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|--------------|------------|------------|------------|------------|
| DIRECT O&M COSTS (OPERATIONS)                                          |           |            |          |           |           |          |       |               |                |              |              |            |            |            |            |
| H - Soil Excavation                                                    | LS        | 3          | --       | 3.91      | /BCY      | 4,600    | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 25,000     | 7,000      | 22,000     | 6,000      |
| H - Transportation of Contaminated Soil to Thermal Desorption Facility | LS        | 3          | --       | 1.07      | /BCY-MILE | 4,600    | BCY   | 1.000         | 1.250          | 1.000        |              | 100        | 100        | 100        | 100        |
| H - Load Treated Soil for Transport to Hazardous Landfill              | LS        | 3          | --       | 1.55      | /BCY      | 46       | BCY   | 1.000         | 1.000          | 1.000        |              | 100        | 100        | 100        | 100        |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill | LS        | 3          | --       | 1.07      | /BCY-MILE | 46       | BCY   | 1.000         | 1.000          | 1.000        |              | 200        | 200        | 200        | 200        |
| H - On-Post Hazardous Waste Landfill (Particulates)                    | LS        | 3          | --       | 4.07      | /BCY      | 46       | BCY   | 1.000         | 1.000          | 1.000        |              | 7,000      | 7,000      | 6,000      | 5,000      |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill         | LS        | 3          | --       | 1.28      | /BCY      | 4,600    | BCY   | 1.000         | 1.000          | 1.000        |              | 6,000      | 6,000      | 5,000      | 5,000      |
| H - Transportation of Treated Soil to Backfill Excavation              | LS        | 3          | --       | 0.86      | /BCY-MILE | 4,600    | BCY   | 1.000         | 1.250          | 1.000        |              | 8,000      | 8,000      | 8,000      | 8,000      |
| H - Backfill with Treated Soil                                         | LS        | 3          | --       | 1.72      | /BCY      | 4,600    | BCY   | 1.000         | 1.000          | 1.000        |              | 36,000     | 36,000     | 34,000     | 34,000     |
| HBAU - Subgrade Preparation Prior to Installing Cap/Cover              | LS        | 2          | --       | 0.06      | /SY       | 560,000  | SY    | 1.000         | 1.000          | 1.000        |              | 14,880,000 | 14,880,000 | 13,164,000 | 13,164,000 |
| HBAU - Installation of Clay/Soil Cap                                   | A         | 3          | 4        | 23.30     | /SY       | 560,000  | SY    | 1.000         | 1.000          | 1.000        | Disturbance  | 127,000    | 127,000    | 112,000    | 112,000    |
| HBAU - Revegetation of Disturbed Areas                                 | A         | 3          | 4        | 0.18      | /SY       | 560,000  | SY    | 1.000         | 1.000          | 1.000        |              | 95,000     | 95,000     | 90,000     | 90,000     |
| A - Drilling and Agrmt Screening Prior to Excavation                   | LS        | 2          | --       | 4.89      | /SY       | 17,000   | SY    | 1.000         | 1.000          | 1.000        |              | 36,000     | 36,000     | 34,000     | 34,000     |
| U - UXO Clearance In Surface Soil by Geophysics                        | LS        | 2          | --       | 0.24      | /SY       | 130,000  | SY    | 1.000         | 1.000          | 1.000        |              |            |            |            |            |
| Subtotal (I)                                                           |           |            |          |           |           |          |       |               |                |              |              | 15,238,000 | 13,505,000 |            |            |
| INDIRECT O&M COSTS (OPERATIONS)                                        |           |            |          |           |           |          |       |               |                |              |              |            |            |            |            |
| Mob/Demob                                                              |           |            |          | 3.9%      |           |          |       |               |                |              |              |            |            |            |            |
| Indirects, Overhead & Profit                                           |           |            |          | 37.8%     |           |          |       |               |                |              |              | 580,000    | 523,000    |            |            |
| Engineering Design                                                     |           |            |          | 0.5%      |           |          |       |               |                |              |              | 5,976,000  | 5,286,000  |            |            |
| Resident Engineering                                                   |           |            |          | 1.5%      |           |          |       |               |                |              |              | 109,000    | 97,000     |            |            |
| Contingency                                                            |           |            |          | 27.5%     |           |          |       |               |                |              |              | 327,000    | 280,000    |            |            |
|                                                                        |           |            |          |           |           |          |       |               |                |              |              | 6,116,000  | 5,421,000  |            |            |
| Subtotal (O = J+K+L+M+N)                                               |           |            |          |           |           |          |       |               |                |              |              | 13,118,000 | 11,628,000 |            |            |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                              |           |            |          |           |           |          |       |               |                |              |              |            |            |            |            |
| H - Thermal Desorption (Saturated Soil)                                | LS        | 3          | --       | 73.64     | /BCY      | 4,600    | BCY   | 1.000         | 1.000          | 1.000        |              | 387,000    | 351,000    |            |            |
| Subtotal (II)                                                          |           |            |          |           |           |          |       |               |                |              |              | 387,000    | 351,000    |            |            |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                            |           |            |          |           |           |          |       |               |                |              |              |            |            |            |            |
| Mob/Demob                                                              |           |            |          | 0.0%      |           |          |       |               |                |              |              |            |            |            |            |
| Contractor Markup                                                      |           |            |          | 10.0%     |           |          |       |               |                |              |              | 0          | 0          |            |            |
| Engineering Design                                                     |           |            |          | 0.0%      |           |          |       |               |                |              |              | 38,000     | 35,000     |            |            |
| Resident Engineering                                                   |           |            |          | 2.0%      |           |          |       |               |                |              |              | 0          | 0          |            |            |
| Contingency                                                            |           |            |          | 40.0%     |           |          |       |               |                |              |              | 9,000      | 8,000      |            |            |
|                                                                        |           |            |          |           |           |          |       |               |                |              |              | 173,000    | 157,000    |            |            |
| Subtotal (O1 = JI+K1+L1+M1+N1)                                         |           |            |          |           |           |          |       |               |                |              |              | 221,000    | 200,000    |            |            |
| Subtotal (O2 = I+Q+II+O1)                                              |           |            |          |           |           |          |       |               |                |              |              | 28,864,000 | 25,682,000 |            |            |

Table B4.1-6f Cost Estimate - Basin A Medium Group  
Alternative 6f: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume: Caps/Covers (Clay/Soil Cap)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 3          | 30       | 0.13                   | 46       | BCY   | 1.000         | 1.000          | 1.000        |             | 10                       | 200                     | 100                  |
| HBAU - Installation of Clay/Soil Cap                                                                    | A         | 3          | 30       | 0.80                   | 560,000  | SY    | 1.000         | 1.000          | 1.000        |             | 511,000                  | 14,315,000              | 7,254,000            |
| HBAU - Site Reviews                                                                                     | A         | 3          | 30       | 5,400.00               | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 173,000                 | 87,000               |
| Subtotal (P)                                                                                            |           |            |          |                        |          |       |               |                |              |             |                          | 517,000                 | 7,341,000            |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                                         |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                            |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                             |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Q = 0.390 * (P)                                                                                         |           |            |          |                        |          |       |               |                |              |             |                          | 202,000                 | 2,883,000            |
| R = 0.300 * (P+Q)                                                                                       |           |            |          |                        |          |       |               |                |              |             |                          | 216,000                 | 3,061,000            |
| Subtotal (S = Q+R)                                                                                      |           |            |          |                        |          |       |               |                |              |             |                          | 418,000                 | 5,925,000            |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |          |       |               |                |              |             |                          | 935,000                 | 13,266,000           |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OQ+T)</b> |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |          |       |               |                |              |             |                          | 55,300,000              | 39,100,000           |

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Table B4.1-8 Cost Estimate - Basin A Medium Group  
Alternative 8: Direct Soil Washing (Solvent Washing)

| Cost Item                                                             | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------|-----------|------------|----------|------------------------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                                           |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| H - Excavation Dewatering, Basin A                                    | LS        | 1          | --       | 281,046.00             | EA       | EA    | 1.000         | 1.000          | 1.000        |             |                          | 321,000                 | 321,000              |
| A - On-Post Hazardous Waste Landfill                                  | LS        | 2          | --       | 5.72                   | 700      | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 5,000                   | 4,000                |
| A - On-Post Hazardous Waste Landfill Closure                          | LS        | 3          | --       | 3.80                   | 700      | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 3,000                   | 3,000                |
| U - On-Post Solid Waste Landfill                                      | LS        | 2          | --       | 4.32                   | 43,000   | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 212,000                 | 202,000              |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS        | 3          | --       | 3.70                   | 43,000   | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 182,000                 | 186,000              |
| Subtotal (A)                                                          |           |            |          |                        |          |       |               |                |              |             |                          | 722,000                 | 694,000              |
| <b>INDIRECT CAPITAL COSTS</b>                                         |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LMSS                                                       |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                             |           |            |          | 3.9%                   |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                          |           |            |          | 39.0%                  |          |       |               |                |              |             |                          | 28,000                  | 27,000               |
| Engineering Design                                                    |           |            |          | 4.5%                   |          |       |               |                |              |             |                          | 292,000                 | 281,000              |
| Resident Engineering                                                  |           |            |          | 1.5%                   |          |       |               |                |              |             |                          | 47,000                  | 45,000               |
| Contingency                                                           |           |            |          | 27.5%                  |          |       |               |                |              |             |                          | 16,000                  | 15,000               |
| Subtotal (G = B+C+D+E+F)                                              |           |            |          |                        |          |       |               |                |              |             |                          | 304,000                 | 292,000              |
| Subtotal (A)                                                          |           |            |          |                        |          |       |               |                |              |             |                          | 687,000                 | 681,000              |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                               |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| H - Cement-Based Solidification                                       | LS        | 2          | --       | 3.35                   | 700      | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 3,000                   | 3,000                |
| HB - Solvent Washing                                                  | A         | 1          | 2        | 28.55                  | 820,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 28,716,000              | 28,080,000           |
| A - Solvent/Caustic Washing of Agent Soil                             | A         | 1          | 2        | 32.55                  | 700      | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 28,000                  | 25,000               |
| Subtotal (A1)                                                         |           |            |          |                        |          |       |               |                |              |             |                          | 28,745,000              | 28,108,000           |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                             |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: F                                                          |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                             |           |            |          | 5.0%                   |          |       |               |                |              |             |                          | 1,337,000               | 1,305,000            |
| Contractor Markup                                                     |           |            |          | 10.0%                  |          |       |               |                |              |             |                          | 2,808,000               | 2,741,000            |
| Engineering Design                                                    |           |            |          | 4.5%                   |          |       |               |                |              |             |                          | 1,390,000               | 1,357,000            |
| Resident Engineering                                                  |           |            |          | 2.0%                   |          |       |               |                |              |             |                          | 618,000                 | 603,000              |
| Contingency                                                           |           |            |          | 30.0%                  |          |       |               |                |              |             |                          | 8,868,000               | 8,634,000            |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                        |           |            |          |                        |          |       |               |                |              |             |                          | 16,023,000              | 15,641,000           |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                                   |           |            |          |                        |          |       |               |                |              |             |                          | 44,176,000              | 43,104,000           |

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Table B4.1-8 Cost Estimate - Basin A Medium Group  
Alternative 8: Direct Soil Washing (Solvent Washing)

| Cost Item                                                                   | Cost Type | Start Year | End Year | 1992 (\$)  | Unit Cost                     | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$)   | Annual Cost | 1995 (\$)   | Total Cost | 1995 (\$)  | PW Cost |
|-----------------------------------------------------------------------------|-----------|------------|----------|------------|-------------------------------|-------|----------|-------|---------------|----------------|--------------|--------------|-------------|-------------|-------------|------------|------------|---------|
| DIRECT O&M COSTS (OPERATIONS)                                               |           |            |          |            |                               |       |          |       |               |                |              |              |             |             |             |            |            |         |
| H - Excavation Dewatering Basin A                                           | A         | 1          | 5        | 743,278.00 | /EA-YR                        | EA    | 1        | EA    | 1.000         | 1.000          | 1.000        |              | 4,241,000   |             | 4,241,000   |            | 3,656,000  |         |
| HB - Soil Excavation                                                        | A         | 3          | 5        | 3.91       | /BCY                          | BCY   | 830,000  | BCY   | 1.000         | 1.000          | 1.000        | Odor Control | 4,444,000   |             | 4,444,000   |            | 3,842,000  |         |
| HB - Transportation of Contaminated Soil to Soil Washing Unit               | A         | 3          | 5        | 1.07       | /BCY-MILE                     | BCY   | 830,000  | BCY   | 1.000         | 1.250          | 1.000        |              | 1,287,000   |             | 1,287,000   |            | 1,095,000  |         |
| HB - Load Nonhazardous Treated Soil from Stockpile for Backfill             | A         | 3          | 5        | 1.28       | /BCY                          | BCY   | 820,000  | BCY   | 1.000         | 1.250          | 1.000        |              | 1,497,000   |             | 1,497,000   |            | 1,294,000  |         |
| HB - Transportation of Treated Soil to Backfill Excavation                  | A         | 3          | 5        | 0.86       | /BCY-MILE                     | BCY   | 820,000  | BCY   | 1.000         | 1.250          | 1.000        |              | 1,006,000   |             | 1,006,000   |            | 870,000    |         |
| HB - Backfill with Treated Soil                                             | A         | 3          | 5        | 1.72       | /BCY                          | BCY   | 820,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 1,610,000   |             | 1,610,000   |            | 1,391,000  |         |
| HB - Installation of 6 inches of Topsoil                                    | A         | 3          | 5        | 3.24       | /SY                           | SY    | 560,000  | SY    | 1.000         | 1.000          | 1.000        |              | 2,071,000   |             | 2,071,000   |            | 1,790,000  |         |
| HB - Revegetation of Disturbed Areas                                        | A         | 3          | 5        | 0.18       | /SY                           | SY    | 560,000  | SY    | 1.000         | 1.000          | 1.000        | Disturbance  | 127,000     |             | 127,000     |            | 109,000    |         |
| A - Drilling and Agent Screening Prior to Excavation                        | LS        | 2          | --       | 4.89       | /SY                           | SY    | 420,000  | SY    | 1.000         | 1.000          | 1.000        |              | 2,344,000   |             | 2,344,000   |            | 2,232,000  |         |
| A - Excavation of Soil with Agent                                           | LS        | 3          | --       | 4.55       | /BCY                          | BCY   | 700      | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 4,000       |             | 4,000       |            | 4,000      |         |
| A - Transportation of Contaminated Soil to Soil Washing Unit                | LS        | 3          | --       | 1.07       | /BCY-MILE                     | BCY   | 700      | BCY   | 1.000         | 1.250          | 1.000        |              | 1,000       |             | 1,000       |            | 1,000      |         |
| A - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3          | --       | 1.55       | /BCY                          | BCY   | 700      | BCY   | 1.000         | 1.250          | 1.000        |              | 2,000       |             | 2,000       |            | 1,000      |         |
| A - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill | LS        | 3          | --       | 1.07       | /BCY-MILE                     | BCY   | 700      | BCY   | 1.000         | 1.250          | 1.000        |              | 1,000       |             | 1,000       |            | 1,000      |         |
| A - On-Post Hazardous Waste Landfill                                        | LS        | 3          | --       | 4.07       | /BCY                          | BCY   | 700      | BCY   | 1.000         | 1.250          | 1.000        |              | 4,000       |             | 4,000       |            | 4,000      |         |
| U - UXO Clearance by Geophysics                                             | LS        | 2          | --       | 0.85       | /SY                           | SY    | 130,000  | SY    | 1.000         | 1.250          | 1.000        |              | 156,000     |             | 156,000     |            | 150,000    |         |
| U - Removal of Soil with UXO                                                | LS        | 3          | --       | 70.57      | /BCY                          | BCY   | 90       | BCY   | 1.000         | 1.250          | 1.000        |              | 9,000       |             | 9,000       |            | 8,000      |         |
| U - Excavation of Debris from Surface Soil                                  | LS        | 3          | --       | 3.91       | /BCY                          | BCY   | 43,000   | BCY   | 1.000         | 1.250          | 1.300        | Productivity | 312,000     |             | 312,000     |            | 283,000    |         |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill | LS        | 3          | --       | 0.71       | /BCY-MILE                     | BCY   | 43,000   | BCY   | 1.000         | 1.250          | 1.300        | Productivity | 57,000      |             | 57,000      |            | 51,000     |         |
| U - On-Post Solid Waste Landfill                                            | LS        | 3          | --       | 4.07       | /BCY                          | BCY   | 43,000   | BCY   | 1.000         | 1.250          | 1.000        |              | 250,000     |             | 250,000     |            | 228,000    |         |
| Subtotal (I)                                                                |           |            |          |            |                               |       |          |       |               |                |              |              | 19,402,000  |             | 17,210,000  |            |            |         |
| INDIRECT O&M COSTS (OPERATIONS)                                             |           |            |          |            |                               |       |          |       |               |                |              |              |             |             |             |            |            |         |
| Mod/Demob                                                                   |           |            |          | 5.1%       | J = 0.051 * (I)               |       |          |       |               |                |              |              | 894,000     |             | 894,000     |            | 882,000    |         |
| Indirects, Overhead & Profit                                                |           |            |          | 39.0%      | K = 0.390 * (I+J)             |       |          |       |               |                |              |              | 7,965,000   |             | 7,965,000   |            | 7,056,000  |         |
| Engineering Design                                                          |           |            |          | 1.5%       | L = 0.015 * (I+J+K)           |       |          |       |               |                |              |              | 425,000     |             | 425,000     |            | 377,000    |         |
| Resident Engineering                                                        |           |            |          | 2.3%       | M = 0.023 * (I+J+K)           |       |          |       |               |                |              |              | 638,000     |             | 638,000     |            | 566,000    |         |
| Contingency                                                                 |           |            |          | 32.5%      | N = 0.325 * (I+J+K+L+M)       |       |          |       |               |                |              |              | 8,590,000   |             | 8,590,000   |            | 8,480,000  |         |
| Subtotal (O = J+K+L+M+N)                                                    |           |            |          |            |                               |       |          |       |               |                |              |              | 19,572,000  |             | 17,361,000  |            |            |         |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                   |           |            |          |            |                               |       |          |       |               |                |              |              |             |             |             |            |            |         |
| HB - Solvent Washing                                                        | A         | 3          | 5        | 118.53     | /BCY                          | BCY   | 820,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 110,915,000 |             | 110,915,000 |            | 96,889,000 |         |
| H - Cement-Based Solidification                                             | LS        | 3          | --       | 70.10      | /BCY                          | BCY   | 700      | BCY   | 1.000         | 1.000          | 1.000        |              | 56,000      |             | 56,000      |            | 51,000     |         |
| A - Solvent/Caustic Washing of Agent Soil                                   | LS        | 3          | --       | 248.53     | /BCY                          | BCY   | 700      | BCY   | 1.000         | 1.000          | 1.000        |              | 199,000     |             | 199,000     |            | 180,000    |         |
| U - Packaging and Transportation of Agent UXO to Army Off-Post UXO Facility | LS        | 3          | --       | 2,200.00   | /BCY                          | BCY   | 90       | BCY   | 1.000         | 1.000          | 1.000        |              | 226,000     |             | 226,000     |            | 205,000    |         |
| Subtotal (I1)                                                               |           |            |          |            |                               |       |          |       |               |                |              |              | 111,398,000 |             | 98,325,000  |            |            |         |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                 |           |            |          |            |                               |       |          |       |               |                |              |              |             |             |             |            |            |         |
| Mod/Demob                                                                   |           |            |          | 5.0%       | J1 = 0.050 * (I1)             |       |          |       |               |                |              |              | 5,570,000   |             | 5,570,000   |            | 4,816,000  |         |
| Contractor Markup                                                           |           |            |          | 10.0%      | K1 = 0.100 * (I1+J1)          |       |          |       |               |                |              |              | 11,697,000  |             | 11,697,000  |            | 10,114,000 |         |
| Engineering Design                                                          |           |            |          | 0.0%       | L1 = 0.000 * (I1+J1+K1)       |       |          |       |               |                |              |              | 0           |             | 0           |            | 0          |         |
| Resident Engineering                                                        |           |            |          | 2.0%       | M1 = 0.020 * (I1+J1+K1)       |       |          |       |               |                |              |              | 2,573,000   |             | 2,573,000   |            | 2,225,000  |         |
| Contingency                                                                 |           |            |          | 30.0%      | N1 = 0.300 * (I1+J1+K1+L1+M1) |       |          |       |               |                |              |              | 39,371,000  |             | 39,371,000  |            | 34,044,000 |         |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                              |           |            |          |            |                               |       |          |       |               |                |              |              | 59,210,000  |             | 51,199,000  |            |            |         |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O+I1+O1)                               |           |            |          |            |                               |       |          |       |               |                |              |              | 208,580,000 |             | 182,086,000 |            |            |         |
| HIBA-08-WQ1<br>SOILS DAA                                                    |           |            |          |            |                               |       |          |       |               |                |              |              |             |             |             |            |            |         |
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Table B4.1-8 Cost Estimate - Basin A Medium Group  
Alternative 8: Direct Soil Washing (Solvent Washing)

| Cost Item                                                                                | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                       |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| H - Long Term Monitoring of Solidified Soil                                              | A         | 3          | 30       | 0.25                   | /SY-YR  | 3,000    | SY    | 1.000         | 1.000          | 1.000        |             | 1,000                    | 24,000                  | 12,000               |
| H - Site Reviews                                                                         | A         | 3          | 30       | 5,400.00               | /EA-YR  | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 173,000                 | 87,000               |
| A - On-Post Hazardous Waste Landfill Closure                                             | A         | 3          | 30       | 0.13                   | /BCY-YR | 700      | BCY   | 1.000         | 1.000          | 1.000        |             | 100                      | 3,000                   | 1,000                |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                    | A         | 3          | 30       | 0.13                   | /BCY-YR | 43,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 6,000                    | 179,000                 | 91,000               |
| Subtotal (P)                                                                             |           |            |          |                        |         |          |       |               |                |              |             | 14,000                   | 378,000                 | 192,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                          |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                             |           |            |          |                        |         |          |       |               |                |              |             | 5,000                    | 147,000                 | 75,000               |
| Contingency                                                                              |           |            |          |                        |         |          |       |               |                |              |             | 6,000                    | 158,000                 | 80,000               |
| Subtotal (S = Q+R)                                                                       |           |            |          |                        |         |          |       |               |                |              |             | 11,000                   | 305,000                 | 155,000              |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                         |           |            |          |                        |         |          |       |               |                |              |             | 24,000                   | 683,000                 | 346,000              |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (OPERATIONS & LONG-TERM ACTIVITIES) (U = H+OO+T) |           |            |          |                        |         |          |       |               |                |              |             |                          | 254,000,000             | 226,000,000          |

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| Cost Item                                                             | Cost Type | Start Year | End Year | Unit Cost  | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)  | 1995 (\$)  | 1995 (\$) |
|-----------------------------------------------------------------------|-----------|------------|----------|------------|-------|----------|-------|---------------|----------------|--------------|-------------|------------|------------|-----------|
|                                                                       |           |            |          |            |       |          |       |               |                |              |             | Total Cost | PW Cost    |           |
| <b>DIRECT CAPITAL COSTS</b>                                           |           |            |          |            |       |          |       |               |                |              |             |            |            |           |
| HB - Excavation Dewatering, Basin A                                   | LS        | 1          | --       | 281,046.00 | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 321,000    | 321,000    |           |
| HB - On-Post Hazardous Waste Landfill (Particulates)                  | LS        | 2          | --       | 5.72       | /BCY  | 8,200    | BCY   | 1.000         | 1.000          | 1.000        |             | 54,000     | 51,000     |           |
| A - On-Post Hazardous Waste Landfill (Particulates)                   | LS        | 2          | --       | 5.72       | /BCY  | 7        | BCY   | 1.000         | 1.000          | 1.000        |             | 50         | 40         |           |
| U - On-Post Solid Waste Landfill                                      | LS        | 2          | --       | 4.32       | /BCY  | 43,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 212,000    | 202,000    |           |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates)          | LS        | 5          | --       | 3.80       | /BCY  | 8,200    | BCY   | 1.000         | 1.000          | 1.000        |             | 38,000     | 29,000     |           |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS        | 3          | --       | 3.80       | /BCY  | 7        | BCY   | 1.000         | 1.000          | 1.000        |             | 30         | 30         |           |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS        | 3          | --       | 3.70       | /BCY  | 43,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 182,000    | 185,000    |           |
| Subtotal (A)                                                          |           |            |          |            |       |          |       |               |                |              |             | 803,000    | 788,000    |           |
| <b>INDIRECT CAPITAL COSTS</b>                                         |           |            |          |            |       |          |       |               |                |              |             |            |            |           |
| Mod/Demob                                                             |           |            |          | 3.9%       |       |          |       |               |                |              |             | 31,000     | 30,000     |           |
| Indirects, Overhead & Profit                                          |           |            |          | 37.8%      |       |          |       |               |                |              |             | 315,000    | 301,000    |           |
| Engineering Design                                                    |           |            |          | 4.5%       |       |          |       |               |                |              |             | 52,000     | 49,000     |           |
| Resident Engineering                                                  |           |            |          | 1.5%       |       |          |       |               |                |              |             | 17,000     | 16,000     |           |
| Contingency                                                           |           |            |          | 27.5%      |       |          |       |               |                |              |             | 336,000    | 320,000    |           |
| Subtotal (G = B+C+D+E+F)                                              |           |            |          |            |       |          |       |               |                |              |             | 750,000    | 717,000    |           |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                               |           |            |          |            |       |          |       |               |                |              |             |            |            |           |
| HB - Cement-Based Solidification                                      | LS        | 2          | --       | 3.35       | /BCY  | 700      | BCY   | 1.000         | 1.000          | 1.000        |             | 3,000      | 3,000      |           |
| HB - Thermal Desorption (Saturated Soil)                              | A         | 1          | 2        | 14.17      | /BCY  | 820,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 13,280,000 | 12,944,000 |           |
| A - Incineration                                                      | A         | 1          | 2        | 36.37      | /BCY  | 700      | BCY   | 1.000         | 1.000          | 1.000        |             | 28,000     | 28,000     |           |
| Subtotal (A1)                                                         |           |            |          |            |       |          |       |               |                |              |             | 13,281,000 | 12,975,000 |           |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                             |           |            |          |            |       |          |       |               |                |              |             |            |            |           |
| Mod/Demob                                                             |           |            |          | 2.0%       |       |          |       |               |                |              |             | 268,000    | 259,000    |           |
| Contractor Markup                                                     |           |            |          | 10.0%      |       |          |       |               |                |              |             | 1,356,000  | 1,323,000  |           |
| Engineering Design                                                    |           |            |          | 9.0%       |       |          |       |               |                |              |             | 1,342,000  | 1,310,000  |           |
| Resident Engineering                                                  |           |            |          | 3.0%       |       |          |       |               |                |              |             | 447,000    | 437,000    |           |
| Contingency                                                           |           |            |          | 30.0%      |       |          |       |               |                |              |             | 5,011,000  | 4,891,000  |           |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                        |           |            |          |            |       |          |       |               |                |              |             | 8,422,000  | 8,221,000  |           |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>                            |           |            |          |            |       |          |       |               |                |              |             | 23,287,000 | 22,981,000 |           |

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Table B4.1-13 Cost Estimate - Basin A Medium Group  
Alternative 13: Direct Thermal Desorption (Direct Heating): Direct Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                   | Cost Type | Start Year | End Year | 1997 (\$)  | Units                         | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description   | 1995 (\$)   | 1995 (\$)   | 1995 (\$)   |
|-----------------------------------------------------------------------------|-----------|------------|----------|------------|-------------------------------|----------|-------|---------------|----------------|--------------|---------------|-------------|-------------|-------------|
| DIRECT O&M COSTS (OPERATIONS)                                               |           |            |          |            |                               |          |       |               |                |              |               |             |             |             |
| H - Excavation/Decontamination, Basin A                                     |           |            |          |            |                               |          |       |               |                |              |               |             |             |             |
| HB - Soil Excavation                                                        | A         | 1          | 5        | 743,278.00 | /EA-YR                        | 1        | EA    | 1.000         | 1.000          | 1.000        | 1.000         | 4,241,000   | 3,856,000   | 3,856,000   |
| HB - Transportation of Contaminated Soil to Thermal Desorption Facility     | A         | 3          | 5        | 3.91       | /BCY                          | 830,000  | BCY   | 1.000         | 1.000          | 1.200        | Older Control | 4,444,000   | 3,842,000   | 3,842,000   |
| HB - Load Treated Soil for Transport to Hazardous Landfill                  | A         | 3          | 5        | 1.07       | /BCY-MILE                     | 830,000  | BCY   | 1.000         | 1.250          | 1.000        | 1.000         | 1,287,000   | 1,095,000   | 1,095,000   |
| HB - Transportation of Particulates to On-Post Hazardous Waste Landfill     | A         | 3          | 5        | 1.55       | /BCY                          | 8,200    | BCY   | 1.000         | 1.000          | 1.000        | 1.000         | 15,000      | 13,000      | 13,000      |
| HB - Transportation of Particulates to On-Post Hazardous Waste Landfill     | A         | 3          | 5        | 1.07       | /BCY-MILE                     | 8,200    | BCY   | 1.000         | 1.000          | 1.000        | 1.000         | 10,000      | 8,000       | 8,000       |
| HB - On-Post Hazardous Waste Landfill (Particulates)                        | A         | 3          | 5        | 4.07       | /BCY                          | 8,200    | BCY   | 1.000         | 1.000          | 1.000        | 1.000         | 38,000      | 33,000      | 33,000      |
| HB - Load Nonhazardous Treated Soil from Stockpile for Backfill             | A         | 3          | 5        | 1.28       | /BCY                          | 820,000  | BCY   | 1.000         | 1.250          | 1.000        | 1.000         | 1,487,000   | 1,294,000   | 1,294,000   |
| HB - Transportation of Treated Soil to Backfill Excavation                  | A         | 3          | 5        | 0.86       | /BCY-MILE                     | 820,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000         | 1,006,000   | 870,000     | 870,000     |
| HB - Backfill with Treated Soil                                             | A         | 3          | 5        | 1.72       | /BCY                          | 820,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000         | 1,810,000   | 1,391,000   | 1,391,000   |
| HB - Installation of 6 Inches of Topsoil                                    | A         | 3          | 5        | 3.24       | /SY                           | 560,000  | SY    | 1.000         | 1.000          | 1.000        | 1.000         | 2,071,000   | 1,790,000   | 1,790,000   |
| HB - Revegetation of Disturbed Areas                                        | A         | 3          | 5        | 0.18       | /SY                           | 560,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance   | 127,000     | 108,000     | 108,000     |
| A - Drilling and Agent Screening Prior to Excavation                        | LS        | 2          | --       | 4.89       | /SY                           | 420,000  | SY    | 1.000         | 1.000          | 1.000        | 1.000         | 2,344,000   | 2,232,000   | 2,232,000   |
| A - Excavation of Soil with Agent                                           | LS        | 3          | --       | 4.55       | /BCY                          | 700      | BCY   | 1.000         | 1.000          | 1.200        | Older Control | 4,000       | 4,000       | 4,000       |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility    | LS        | 3          | --       | 1.07       | /BCY-MILE                     | 700      | BCY   | 1.000         | 1.250          | 1.000        | 1.000         | 1,000       | 1,000       | 1,000       |
| A - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3          | --       | 1.55       | /BCY                          | 7        | BCY   | 1.000         | 1.000          | 1.000        | 1.000         | 10          | 10          | 10          |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill      | LS        | 3          | --       | 1.07       | /BCY-MILE                     | 7        | BCY   | 1.000         | 1.000          | 1.000        | 1.000         | 30          | 30          | 30          |
| A - On-Post Hazardous Waste Landfill (Particulates)                         | LS        | 3          | --       | 4.07       | /BCY                          | 7        | BCY   | 1.000         | 1.000          | 1.000        | 1.000         | 1,000       | 1,000       | 1,000       |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill              | LS        | 3          | --       | 1.28       | /BCY                          | 700      | BCY   | 1.000         | 1.250          | 1.000        | 1.000         | 1,000       | 1,000       | 1,000       |
| A - Transportation of Treated Soil to Backfill Excavation                   | LS        | 3          | --       | 0.86       | /BCY-MILE                     | 700      | BCY   | 1.000         | 1.250          | 1.000        | 1.000         | 1,000       | 1,000       | 1,000       |
| A - Backfill with Treated Soil                                              | LS        | 3          | --       | 1.72       | /BCY                          | 700      | BCY   | 1.000         | 1.000          | 1.000        | 1.000         | 128,000     | 120,000     | 120,000     |
| U - UXO Clearance by Geophysics                                             | LS        | 2          | --       | 0.85       | /SY                           | 130,000  | SY    | 1.000         | 1.000          | 1.000        | 1.000         | 7,000       | 7,000       | 7,000       |
| U - Removal of Soil with UXO                                                | LS        | 3          | --       | 70.57      | /BCY                          | 90       | BCY   | 1.000         | 1.000          | 1.000        | 1.000         | 249,000     | 228,000     | 228,000     |
| U - Excavation of Debris from Surface Soil                                  | LS        | 3          | --       | 3.91       | /BCY                          | 43,000   | BCY   | 1.000         | 1.000          | 1.300        | Productivity  | 57,000      | 51,000      | 51,000      |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill | LS        | 3          | --       | 0.71       | /BCY-MILE                     | 43,000   | BCY   | 1.000         | 1.250          | 1.000        | 1.000         | 200,000     | 181,000     | 181,000     |
| U - On-Post Solid Waste Landfill                                            | LS        | 3          | --       | 4.07       | /BCY                          | 43,000   | BCY   | 1.000         | 1.000          | 1.000        | 1.000         | 19,316,000  | 17,128,000  | 17,128,000  |
| Subtotal (I)                                                                |           |            |          |            |                               |          |       |               |                |              |               |             |             |             |
| INDIRECT O&M COSTS (OPERATIONS)                                             |           |            |          |            |                               |          |       |               |                |              |               |             |             |             |
| Mod/Demob                                                                   |           |            |          | 5.1%       | J = 0.051 * (I)               |          |       |               |                |              |               | 990,000     | 878,000     | 878,000     |
| Indirects, Overhead & Profit                                                |           |            |          | 38.0%      | K = 0.380 * (I+J)             |          |       |               |                |              |               | 7,919,000   | 7,022,000   | 7,022,000   |
| Engineering Design                                                          |           |            |          | 1.5%       | L = 0.015 * (I+J+K)           |          |       |               |                |              |               | 423,000     | 375,000     | 375,000     |
| Resident Engineering                                                        |           |            |          | 2.3%       | M = 0.023 * (I+J+K)           |          |       |               |                |              |               | 635,000     | 563,000     | 563,000     |
| Contingency                                                                 |           |            |          | 32.5%      | N = 0.325 * (I+J+K+L+M)       |          |       |               |                |              |               | 9,517,000   | 8,436,000   | 8,436,000   |
| Subtotal (O = J+K+L+M+N)                                                    |           |            |          |            |                               |          |       |               |                |              |               |             |             |             |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                   |           |            |          |            |                               |          |       |               |                |              |               |             |             |             |
| H - Cement-Based Solidification                                             | LS        | 3          | --       | 70.10      | /BCY                          | 700      | BCY   | 1.000         | 1.000          | 1.000        | 1.000         | 56,000      | 51,000      | 51,000      |
| HB - Thermal Desorption (Saturated Soil)                                    | A         | 3          | 5        | 73.64      | /BCY                          | 820,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000         | 68,909,000  | 58,574,000  | 58,574,000  |
| A - Incineration                                                            | LS        | 3          | --       | 96.24      | /BCY                          | 700      | BCY   | 1.000         | 1.000          | 1.000        | 1.000         | 77,000      | 70,000      | 70,000      |
| U - Packaging and Transportation of Agent UXO to Army Off-Post UXO Facility | LS        | 3          | --       | 2,200.00   | /BCY                          | 90       | BCY   | 1.000         | 1.000          | 1.000        | 1.000         | 226,000     | 205,000     | 205,000     |
| Subtotal (II)                                                               |           |            |          |            |                               |          |       |               |                |              |               |             |             |             |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                 |           |            |          |            |                               |          |       |               |                |              |               |             |             |             |
| Mod/Demob                                                                   |           |            |          | 0.0%       | J1 = 0.000 * (II)             |          |       |               |                |              |               | 0           | 0           | 0           |
| Contractor Markup                                                           |           |            |          | 10.0%      | K1 = 0.100 * (II+J1)          |          |       |               |                |              |               | 6,827,000   | 5,980,000   | 5,980,000   |
| Engineering Design                                                          |           |            |          | 0.0%       | L1 = 0.000 * (II+J1+K1)       |          |       |               |                |              |               | 0           | 0           | 0           |
| Resident Engineering                                                        |           |            |          | 2.0%       | M1 = 0.020 * (II+J1+K1)       |          |       |               |                |              |               | 1,524,000   | 1,318,000   | 1,318,000   |
| Contingency                                                                 |           |            |          | 40.0%      | N1 = 0.400 * (II+J1+K1+L1+M1) |          |       |               |                |              |               | 31,087,000  | 26,883,000  | 26,883,000  |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                              |           |            |          |            |                               |          |       |               |                |              |               |             |             |             |
| TOTAL O&M COSTS (OPERATIONS) (OO = IO+II+O1)                                |           |            |          |            |                               |          |       |               |                |              |               |             |             |             |
|                                                                             |           |            |          |            |                               |          |       |               |                |              |               | 147,807,000 | 128,485,000 | 128,485,000 |



Table B4.1-13

Cost Estimate - Basin A Medium Group

Alternative 13: Direct Thermal Desorption (Direct Heating): Direct Solidification/Stabilization (Cement-Based Solidification)

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| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$) | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)   | 1995 (\$)   |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|---------|----------|-------|---------------|----------------|--------------|-------------|-------------|-------------|-------------|
|                                                                                                        |           |            |          | Unit Cost |         |          |       |               |                |              |             | Annual Cost | Total Cost  | PW Cost     |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |           |         |          |       |               |                |              |             |             |             |             |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates)                                           | A         | 5          | 30       | 0.13      | /BCY-YR | 8,200    | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000       | 32,000      | 15,000      |
| H - Long Term Monitoring of Solidified Soil                                                            | A         | 3          | 30       | 0.25      | /SY-YR  | 3,000    | SY    | 1,000         | 1,000          | 1,000        |             | 1,000       | 24,000      | 12,000      |
| H - Site Reviews                                                                                       | A         | 3          | 30       | 5,400.00  | /EA-YR  | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 8,000       | 173,000     | 87,000      |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       | 0.13      | /BCY-YR | 7        | BCY   | 1,000         | 1,000          | 1,000        |             | 1           | 30          | 10          |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                                  | A         | 3          | 30       | 0.13      | /BCY-YR | 43,000   | BCY   | 1,000         | 1,000          | 1,000        |             | 6,000       | 178,000     | 91,000      |
| Subtotal (P)                                                                                           |           |            |          |           |         |          |       |               |                |              |             | 15,000      | 407,000     | 205,000     |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |           |         |          |       |               |                |              |             |             |             |             |
| Indirects, Overhead & Profit                                                                           |           |            |          |           |         |          |       |               |                |              |             | 6,000       | 159,000     | 80,000      |
| Contingency                                                                                            |           |            |          |           |         |          |       |               |                |              |             | 6,000       | 170,000     | 86,000      |
| Subtotal (S = Q+P)                                                                                     |           |            |          |           |         |          |       |               |                |              |             | 12,000      | 328,000     | 166,000     |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                                       |           |            |          |           |         |          |       |               |                |              |             | 28,000      | 735,000     | 371,000     |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |           |         |          |       |               |                |              |             |             |             |             |
|                                                                                                        |           |            |          |           |         |          |       |               |                |              |             |             | 172,000,000 | 132,000,000 |

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Table B4.1-17 Cost Estimate - Basin A Medium Group  
Alternative 17: In Situ Physical/Chemical Treatment (Soil Flushing); In Situ Thermal Treatment (Surface Soil Heating)

| Cost Item                                                             | Cost Type | Start Year | End Year | 1992 (\$)    | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)  | 1995 (\$)  | 1995 (\$) |
|-----------------------------------------------------------------------|-----------|------------|----------|--------------|-------|----------|-------|---------------|----------------|--------------|-------------|------------|------------|-----------|
|                                                                       |           |            |          | Unit Cost    |       |          |       |               |                |              |             | Total Cost | PW Cost    |           |
| <b>DIRECT CAPITAL COSTS</b>                                           |           |            |          |              |       |          |       |               |                |              |             |            |            |           |
| H - In Situ Soil Flushing                                             | LS        | 17         | --       | 8,113,000.00 | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 9,258,000  | 4,241,000  |           |
| A - On-Post Hazardous Waste Landfill (Particulates)                   | LS        | 2          | --       | 5.72         | /BCY  | 7        | BCY   | 1.000         | 1.000          | 1.000        |             | 50         | 40         |           |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS        | 3          | --       | 3.80         | /BCY  | 7        | BCY   | 1.000         | 1.000          | 1.000        |             | 30         | 30         |           |
| U - On-Post Solid Waste Landfill                                      | LS        | 2          | --       | 4.32         | /BCY  | 43,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 212,000    | 202,000    |           |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS        | 3          | --       | 3.70         | /BCY  | 43,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 162,000    | 165,000    |           |
| Subtotal (A)                                                          |           |            |          |              |       |          |       |               |                |              |             | 9,652,000  | 4,608,000  |           |
| <b>INDIRECT CAPITAL COSTS</b>                                         |           |            |          |              |       |          |       |               |                |              |             |            |            |           |
| COST CODE: UMMS                                                       |           |            |          |              |       |          |       |               |                |              |             |            |            |           |
| Mob/Demob                                                             |           |            |          | 3.9%         |       |          |       |               |                |              |             | 374,000    | 178,000    |           |
| Indirects, Overhead & Profit                                          |           |            |          | 37.8%        |       |          |       |               |                |              |             | 3,785,000  | 1,807,000  |           |
| Engineering Design                                                    |           |            |          | 4.5%         |       |          |       |               |                |              |             | 821,000    | 297,000    |           |
| Resident Engineering                                                  |           |            |          | 1.5%         |       |          |       |               |                |              |             | 207,000    | 99,000     |           |
| Contingency                                                           |           |            |          | 27.5%        |       |          |       |               |                |              |             | 4,026,000  | 1,922,000  |           |
| Subtotal (G = B+C+D+E+F)                                              |           |            |          |              |       |          |       |               |                |              |             | 9,013,000  | 4,303,000  |           |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                               |           |            |          |              |       |          |       |               |                |              |             |            |            |           |
| HR - In Situ Surface Soil Heating                                     | LS        | 1          | --       | 951,200.00   | /UNIT | 2        | UNITS | 1.000         | 1.000          | 1.000        |             | 2,171,000  | 2,171,000  |           |
| A - Incineration                                                      | A         | 1          | 2        | 36.37        | /BCY  | 700      | BCY   | 1.000         | 1.000          | 1.000        |             | 28,000     | 28,000     |           |
| Subtotal (A1)                                                         |           |            |          |              |       |          |       |               |                |              |             | 2,200,000  | 2,199,000  |           |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                             |           |            |          |              |       |          |       |               |                |              |             |            |            |           |
| COST CODE: H                                                          |           |            |          |              |       |          |       |               |                |              |             |            |            |           |
| Mob/Demob                                                             |           |            |          | 0.0%         |       |          |       |               |                |              |             | 0          | 0          |           |
| Contractor Markup                                                     |           |            |          | 7.0%         |       |          |       |               |                |              |             | 154,000    | 154,000    |           |
| Engineering Design                                                    |           |            |          | 0.0%         |       |          |       |               |                |              |             | 0          | 0          |           |
| Resident Engineering                                                  |           |            |          | 2.0%         |       |          |       |               |                |              |             | 47,000     | 47,000     |           |
| Contingency                                                           |           |            |          | 40.0%        |       |          |       |               |                |              |             | 960,000    | 960,000    |           |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                        |           |            |          |              |       |          |       |               |                |              |             | 1,162,000  | 1,161,000  |           |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>                            |           |            |          |              |       |          |       |               |                |              |             | 22,027,000 | 12,271,000 |           |

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Table B4.1-17 Cost Estimate - Basin A Medium Group  
Alternative 17: In Situ Physical/Chemical Treatment (Soil Flushing): In Situ Thermal Treatment (Surface Soil Heating)

| Cost Item                                                                   | Cost Type | Start Year | End Year | 1992 (\$) | Units                         | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$)   | 1995 (\$)   | 1995 (\$) |
|-----------------------------------------------------------------------------|-----------|------------|----------|-----------|-------------------------------|----------|-------|---------------|----------------|--------------|--------------|-------------|-------------|-----------|
|                                                                             |           |            |          | Unit Cost |                               |          |       |               |                |              |              | Total Cost  | PW Cost     |           |
| DIRECT O&M COSTS (OPERATIONS)                                               |           |            |          |           |                               |          |       |               |                |              |              |             |             |           |
| H - In Situ Soil Flushing                                                   | A         | 18         | 27       | 83.45     | /BCY-YR                       | 330,000  | BCY   | 1,000         | 1,000          | 1,000        |              | 314,280,000 | 111,167,000 |           |
| HB - Installation of 6 inches of Topsoil                                    | A         | 1          | 17       | 3.24      | /SY                           | 570,000  | SY    | 1,000         | 1,000          | 1,000        |              | 2,108,000   | 1,468,000   |           |
| HB - Revegetation of Disturbed Areas                                        | A         | 1          | 17       | 0.18      | /SY                           | 570,000  | SY    | 1,000         | 1,000          | 1,100        | Disturbance  | 128,000     | 90,000      |           |
| A - Drilling and Agent Screening Prior to Excavation                        | LS        | 3          | --       | 4.89      | /SY                           | 420,000  | SY    | 1,000         | 1,000          | 1,000        |              | 2,344,000   | 2,128,000   |           |
| A - Excavation of Soil with Agent                                           | LS        | 3          | --       | 4.55      | /BCY                          | 700      | BCY   | 1,000         | 1,000          | 1,200        | Odor Control | 4,000       | 4,000       |           |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility    | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 700      | BCY   | 1,000         | 1,250          | 1,000        |              | 1,000       | 1,000       |           |
| A - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3          | --       | 1.55      | /BCY                          | 7        | BCY   | 1,000         | 1,000          | 1,000        |              | 10          | 10          |           |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill      | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 7        | BCY   | 1,000         | 1,000          | 1,000        |              | 10          | 10          |           |
| A - On-Post Hazardous Waste Landfill (Particulates)                         | LS        | 3          | --       | 4.07      | /BCY                          | 7        | BCY   | 1,000         | 1,000          | 1,000        |              | 30          | 30          |           |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill              | LS        | 3          | --       | 1.28      | /BCY                          | 700      | BCY   | 1,000         | 1,000          | 1,000        |              | 1,000       | 1,000       |           |
| A - Transportation of Treated Soil to Backfill Excavation                   | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 700      | BCY   | 1,000         | 1,250          | 1,000        |              | 1,000       | 1,000       |           |
| A - Backfill with Treated Soil                                              | LS        | 3          | --       | 1.72      | /BCY                          | 700      | BCY   | 1,000         | 1,000          | 1,000        |              | 1,000       | 1,000       |           |
| U - UXO Clearance by Geophysics                                             | LS        | 2          | --       | 0.85      | /SY                           | 130,000  | SY    | 1,000         | 1,000          | 1,000        |              | 128,000     | 120,000     |           |
| U - Removal of Soil with UXO                                                | LS        | 3          | --       | 70.57     | /BCY                          | 90       | BCY   | 1,000         | 1,000          | 1,000        |              | 7,000       | 7,000       |           |
| U - Excavation of Debris from Surface Soil                                  | LS        | 3          | --       | 3.91      | /BCY                          | 43,000   | BCY   | 1,000         | 1,000          | 1,300        | Productivity | 248,000     | 228,000     |           |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill | LS        | 3          | --       | 0.71      | /BCY-MILE                     | 43,000   | BCY   | 1,000         | 1,000          | 1,300        | Productivity | 45,000      | 41,000      |           |
| U - On-Post Solid Waste Landfill                                            | LS        | 3          | --       | 4.07      | /BCY                          | 43,000   | BCY   | 1,000         | 1,000          | 1,000        |              | 200,000     | 181,000     |           |
| Subtotal (I)                                                                |           |            |          |           |                               |          |       |               |                |              |              | 319,477,000 | 115,433,000 |           |
| INDIRECT O&M COSTS (OPERATIONS)                                             |           |            |          |           |                               |          |       |               |                |              |              |             |             |           |
| Mod/Demob                                                                   |           |            |          | 4.5%      | J = 0.045 * (I)               |          |       |               |                |              |              | 14,378,000  | 5,194,000   |           |
| Indirects, Overhead & Profit                                                |           |            |          | 40.3%     | K = 0.403 * (I+J)             |          |       |               |                |              |              | 134,378,000 | 48,953,000  |           |
| Engineering Design                                                          |           |            |          | 1.5%      | L = 0.015 * (I+J+K)           |          |       |               |                |              |              | 7,023,000   | 2,538,000   |           |
| Resident Engineering                                                        |           |            |          | 2.3%      | M = 0.023 * (I+J+K)           |          |       |               |                |              |              | 10,535,000  | 3,807,000   |           |
| Contingency                                                                 |           |            |          | 32.5%     | N = 0.325 * (I+J+K+L+M)       |          |       |               |                |              |              | 157,881,000 | 57,045,000  |           |
| Subtotal (O = J+K+L+M+N)                                                    |           |            |          |           |                               |          |       |               |                |              |              | 324,192,000 | 117,137,000 |           |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                   |           |            |          |           |                               |          |       |               |                |              |              |             |             |           |
| HB - In Situ Surface Soil Heating                                           | A         | 1          | 17       | 27.30     | /SY                           | 570,000  | SY    | 1,000         | 1,000          | 1,000        |              | 17,758,000  | 12,385,000  |           |
| A - Incineration                                                            | LS        | 3          | --       | 96.24     | /BCY                          | 700      | BCY   | 1,000         | 1,000          | 1,000        |              | 77,000      | 70,000      |           |
| U - Packaging and Transportation of Agent UXO to Army Off-Post UXO Facility | LS        | 3          | --       | 2,200.00  | /BCY                          | 90       | BCY   | 1,000         | 1,000          | 1,000        |              | 228,000     | 205,000     |           |
| Subtotal (I1)                                                               |           |            |          |           |                               |          |       |               |                |              |              | 18,081,000  | 12,640,000  |           |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                 |           |            |          |           |                               |          |       |               |                |              |              |             |             |           |
| Mod/Demob                                                                   |           |            |          | 0.2%      | J1 = 0.002 * (I1)             |          |       |               |                |              |              | 34,000      | 24,000      |           |
| Contractor Markup                                                           |           |            |          | 6.0%      | K1 = 0.060 * (I1+J1)          |          |       |               |                |              |              | 1,086,000   | 760,000     |           |
| Engineering Design                                                          |           |            |          | 0.1%      | L1 = 0.001 * (I1+J1+K1)       |          |       |               |                |              |              | 10,000      | 7,000       |           |
| Resident Engineering                                                        |           |            |          | 0.6%      | M1 = 0.006 * (I1+J1+K1)       |          |       |               |                |              |              | 115,000     | 81,000      |           |
| Contingency                                                                 |           |            |          | 30.5%     | N1 = 0.305 * (I1+J1+K1+L1+M1) |          |       |               |                |              |              | 5,888,000   | 4,121,000   |           |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                              |           |            |          |           |                               |          |       |               |                |              |              | 7,133,000   | 4,992,000   |           |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O+I1+O1)                               |           |            |          |           |                               |          |       |               |                |              |              | 668,852,000 | 250,202,000 |           |

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Table BA.1.1-17 Cost Estimate - Basin A Medium Group  
Alternative 17: In Situ Physical/Chemical Treatment (Soil Flushing); In Situ Thermal Treatment (Surface Soil Heating)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |               |                |              |             |                          |                         |                      |
| HB - No Action                                                                                          | A         | 27         | 30       | 0.00                   | SV      | 570,000  | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 3          | 30       | 0.13                   | /BCY-YR | 7        | 1.000         | 1.000          | 1.000        |             | 1                        | 30                      | 10                   |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                                   | A         | 3          | 30       | 0.13                   | /BCY-YR | 43,000   | 1.000         | 1.000          | 1.000        |             | 6,000                    | 179,000                 | 91,000               |
| Subtotal (P)                                                                                            |           |            |          |                        |         |          |               |                |              |             | 6,000                    | 179,000                 | 91,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                            |           |            |          |                        |         |          |               |                |              |             | 2,000                    | 70,000                  | 36,000               |
| Contingency                                                                                             |           |            |          |                        |         |          |               |                |              |             | 3,000                    | 74,000                  | 38,000               |
| Subtotal (S = Q+R)                                                                                      |           |            |          |                        |         |          |               |                |              |             | 5,000                    | 144,000                 | 73,000               |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |               |                |              |             | 12,000                   | 323,000                 | 164,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |               |                |              |             |                          | 691,000,000             | 263,000,000          |

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Table B4.1-19 Cost Estimate - Basin A Medium Group  
Alternative 19: In Situ Thermal Treatment (RF/Microwave Heating): In Situ Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                             | Cost Type                     | Start Year | End Year | 1992 (\$)    | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)  | 1995 (\$) | 1995 (\$) | PW Cost    |
|-----------------------------------------------------------------------|-------------------------------|------------|----------|--------------|-------|----------|-------|---------------|----------------|--------------|-------------|------------|-----------|-----------|------------|
| <b>DIRECT CAPITAL COSTS</b>                                           |                               |            |          |              |       |          |       |               |                |              |             |            |           |           |            |
| H - Excavation Dewatering, Basin A                                    | LS                            | 1          | --       | 281,046.00   | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 321,000    |           |           | 321,000    |
| A - On-Post Hazardous Waste Landfill (Particulates)                   | LS                            | 2          | --       | 5.72         | /BCY  | 7        | BCY   | 1.000         | 1.000          | 1.000        |             | 50         |           |           | 40         |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS                            | 3          | --       | 3.80         | /BCY  | 7        | BCY   | 1.000         | 1.000          | 1.000        |             | 30         |           |           | 30         |
| U - On-Post Solid Waste Landfill                                      | LS                            | 2          | --       | 4.32         | /BCY  | 43,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 212,000    |           |           | 202,000    |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS                            | 3          | --       | 3.70         | /BCY  | 43,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 162,000    |           |           | 166,000    |
| <b>Subtotal (A)</b>                                                   |                               |            |          |              |       |          |       |               |                |              |             | 714,000    |           |           | 687,000    |
| <b>INDIRECT CAPITAL COSTS</b>                                         |                               |            |          |              |       |          |       |               |                |              |             |            |           |           |            |
| <b>MOB/DENOB COST CODE: MNSS</b>                                      |                               |            |          |              |       |          |       |               |                |              |             |            |           |           |            |
| 4.5%                                                                  | B = 0.045 * (A)               |            |          |              |       |          |       |               |                |              |             | 32,000     |           |           | 31,000     |
| 40.3%                                                                 | C = 0.403 * (A+B)             |            |          |              |       |          |       |               |                |              |             | 300,000    |           |           | 288,000    |
| 4.5%                                                                  | D = 0.045 * (A+B+C)           |            |          |              |       |          |       |               |                |              |             | 47,000     |           |           | 45,000     |
| 1.8%                                                                  | E = 0.018 * (A+B+C)           |            |          |              |       |          |       |               |                |              |             | 18,000     |           |           | 18,000     |
| 28.6%                                                                 | F = 0.286 * (A+B+C+D+E)       |            |          |              |       |          |       |               |                |              |             | 320,000    |           |           | 308,000    |
| <b>Subtotal (G = B+C+D+E+F)</b>                                       |                               |            |          |              |       |          |       |               |                |              |             | 718,000    |           |           | 681,000    |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                               |                               |            |          |              |       |          |       |               |                |              |             |            |           |           |            |
| HB - In Situ RF/Microwave Heating - Deep/Saturated                    | LS                            | 1          | --       | 7,066,000.00 | /UNIT | 1        | UNITS | 1.000         | 1.000          | 1.000        |             | 8,063,000  |           |           | 8,063,000  |
| A - Incineration                                                      | A                             | 1          | 2        | 36.37        | /BCY  | 700      | BCY   | 1.000         | 1.000          | 1.000        |             | 28,000     |           |           | 28,000     |
| <b>Subtotal (A1)</b>                                                  |                               |            |          |              |       |          |       |               |                |              |             | 8,083,000  |           |           | 8,083,000  |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                             |                               |            |          |              |       |          |       |               |                |              |             |            |           |           |            |
| <b>MOB/DENOB COST CODE: K</b>                                         |                               |            |          |              |       |          |       |               |                |              |             |            |           |           |            |
| 2.0%                                                                  | B1 = 0.020 * (A1)             |            |          |              |       |          |       |               |                |              |             | 162,000    |           |           | 162,000    |
| 6.0%                                                                  | C1 = 0.060 * (A1+B1)          |            |          |              |       |          |       |               |                |              |             | 486,000    |           |           | 486,000    |
| 12.0%                                                                 | D1 = 0.120 * (A1+B1+C1)       |            |          |              |       |          |       |               |                |              |             | 1,050,000  |           |           | 1,050,000  |
| 1.5%                                                                  | E1 = 0.015 * (A1+B1+C1)       |            |          |              |       |          |       |               |                |              |             | 131,000    |           |           | 131,000    |
| 30.0%                                                                 | F1 = 0.300 * (A1+B1+C1+D1+E1) |            |          |              |       |          |       |               |                |              |             | 2,979,000  |           |           | 2,979,000  |
| <b>Subtotal (G1 = B1+C1+D1+E1+F1)</b>                                 |                               |            |          |              |       |          |       |               |                |              |             | 4,818,000  |           |           | 4,817,000  |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>                            |                               |            |          |              |       |          |       |               |                |              |             | 14,342,000 |           |           | 14,287,000 |

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Table B4.1-19 Cost Estimate - Basin A Medium Group  
Alternative 19: In Situ Thermal Treatment (RF/Microwave Heating): In Situ Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                   | Cost Type | Start Year | End Year | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1993 (\$)   | 1995 (\$)   | 1995 (\$) | PW Cost |
|-----------------------------------------------------------------------------|-----------|------------|----------|-----------|----------|-------|---------------|----------------|--------------|--------------|-------------|-------------|-----------|---------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                    |           |            |          |           |          |       |               |                |              |              |             |             |           |         |
| H - Excavation Decontaminating Basin A                                      | LS        | 1          | 20       | /EA-YR    | 1        | EA    | 1.000         | 1.000          | 1.000        |              | 18,984,000  | 11,089,000  |           |         |
| H - Soil Cover for Solidified Materials                                     | LS        | 3          | --       | /SY       | 3,000    | SY    | 1.000         | 1.000          | 1.000        |              | 31,000      | 28,000      |           |         |
| HB - Installation of 6 Inches of Topsoil                                    | A         | 1          | 20       | /SY       | 560,000  | SY    | 1.000         | 1.000          | 1.000        |              | 2,071,000   | 1,955,000   |           |         |
| HB - Revegetation of Disturbed Areas                                        | A         | 1          | 20       | /SY       | 560,000  | SY    | 1.000         | 1.000          | 1.000        | Disturbance  | 127,000     | 83,000      |           |         |
| A - Drilling and Agent Screening Prior to Excavation                        | LS        | 2          | --       | /SY       | 420,000  | SY    | 1.000         | 1.000          | 1.000        |              | 2,344,000   | 2,232,000   |           |         |
| A - Excavation of Soil with Agent                                           | LS        | 3          | --       | /BCY      | 700      | BCY   | 1.000         | 1.000          | 1.000        | Odor Control | 4,000       | 4,000       |           |         |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility    | LS        | 3          | --       | /BCY-MILE | 700      | BCY   | 1.000         | 1.250          | 1.000        |              | 1,000       | 1,000       |           |         |
| A - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3          | --       | /BCY      | 7        | BCY   | 1.000         | 1.000          | 1.000        |              | 10          | 10          |           |         |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill      | LS        | 3          | --       | /BCY-MILE | 7        | BCY   | 1.000         | 1.000          | 1.000        |              | 10          | 10          |           |         |
| A - On-Post Hazardous Landfill (Particulates)                               | LS        | 3          | --       | /BCY      | 7        | BCY   | 1.000         | 1.000          | 1.000        |              | 30          | 30          |           |         |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill              | LS        | 3          | --       | /BCY      | 700      | BCY   | 1.000         | 1.000          | 1.000        |              | 1,000       | 1,000       |           |         |
| A - Transportation of Treated Soil to Backfill Excavation                   | LS        | 3          | --       | /BCY-MILE | 700      | BCY   | 1.000         | 1.250          | 1.000        |              | 1,000       | 1,000       |           |         |
| A - Backfill with Treated Soil                                              | LS        | 3          | --       | /BCY      | 700      | BCY   | 1.000         | 1.000          | 1.000        |              | 1,000       | 1,000       |           |         |
| U - UXO Clearance by Geophysics                                             | LS        | 2          | --       | /SY       | 130,000  | SY    | 1.000         | 1.000          | 1.000        |              | 128,000     | 120,000     |           |         |
| U - Removal of Soil with UXO                                                | LS        | 3          | --       | /BCY      | 90       | BCY   | 1.000         | 1.000          | 1.000        |              | 7,000       | 7,000       |           |         |
| U - Excavation of Debris from Surface Soil                                  | LS        | 3          | --       | /BCY      | 43,000   | BCY   | 1.000         | 1.000          | 1.300        | Productivity | 249,000     | 228,000     |           |         |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill | LS        | 3          | --       | /BCY-MILE | 43,000   | BCY   | 1.000         | 1.250          | 1.300        | Productivity | 57,000      | 51,000      |           |         |
| U - On-Post Solid Waste Landfill                                            | LS        | 3          | --       | /BCY      | 43,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 200,000     | 181,000     |           |         |
| Subtotal (I)                                                                |           |            |          |           |          |       |               |                |              |              | 22,184,000  | 15,390,000  |           |         |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |            |          |           |          |       |               |                |              |              |             |             |           |         |
| Mod/Demob                                                                   |           |            |          |           |          |       |               |                |              |              |             |             |           |         |
| Indirects, Overhead & Profit                                                |           |            |          |           |          |       |               |                |              |              | 1,137,000   | 789,000     |           |         |
| Engineering Design                                                          |           |            |          |           |          |       |               |                |              |              | 9,387,000   | 6,512,000   |           |         |
| Resident Engineering                                                        |           |            |          |           |          |       |               |                |              |              | 481,000     | 340,000     |           |         |
| Contingency                                                                 |           |            |          |           |          |       |               |                |              |              | 818,000     | 587,000     |           |         |
| Subtotal (O = J+K+L+M+N)                                                    |           |            |          |           |          |       |               |                |              |              | 11,908,000  | 8,260,000   |           |         |
| Subtotal (I)                                                                |           |            |          |           |          |       |               |                |              |              | 23,737,000  | 16,469,000  |           |         |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                        |           |            |          |           |          |       |               |                |              |              |             |             |           |         |
| HB - In Situ RF/Microwave Heating - Deep/Saturated                          | A         | 1          | 20       | /BCY      | 820,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 214,672,000 | 140,452,000 |           |         |
| H - In Situ Cement-Based Solidification                                     | LS        | 3          | --       | /BCY      | 700      | BCY   | 1.000         | 1.000          | 1.000        |              | 48,000      | 44,000      |           |         |
| A - Incineration                                                            | LS        | 3          | --       | /BCY      | 700      | BCY   | 1.000         | 1.000          | 1.000        |              | 77,000      | 70,000      |           |         |
| U - Packaging and Transportation of Agent UXO to Army Off-Post UXO Facility | LS        | 3          | --       | /BCY      | 90       | BCY   | 1.000         | 1.000          | 1.000        |              | 228,000     | 205,000     |           |         |
| Subtotal (I)                                                                |           |            |          |           |          |       |               |                |              |              | 215,023,000 | 140,771,000 |           |         |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |            |          |           |          |       |               |                |              |              |             |             |           |         |
| Mod/Demob                                                                   |           |            |          |           |          |       |               |                |              |              |             |             |           |         |
| Contractor Markup                                                           |           |            |          |           |          |       |               |                |              |              | 0           | 0           |           |         |
| Engineering Design                                                          |           |            |          |           |          |       |               |                |              |              | 12,801,000  | 8,448,000   |           |         |
| Resident Engineering                                                        |           |            |          |           |          |       |               |                |              |              | 1,140,000   | 746,000     |           |         |
| Contingency                                                                 |           |            |          |           |          |       |               |                |              |              | 2,279,000   | 1,492,000   |           |         |
| Subtotal (O = J+K+L+M+N)                                                    |           |            |          |           |          |       |               |                |              |              | 92,537,000  | 60,582,000  |           |         |
| Subtotal (I)                                                                |           |            |          |           |          |       |               |                |              |              | 108,857,000 | 71,287,000  |           |         |
| Subtotal (O = J+K+L+M+N)                                                    |           |            |          |           |          |       |               |                |              |              | 369,802,000 | 243,896,000 |           |         |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = IO+OI+OI)</b>                     |           |            |          |           |          |       |               |                |              |              |             |             |           |         |

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Table BA.1-19 Cost Estimate - Basin A Medium Group  
Alternative 19: In Situ Thermal Treatment (RF/Microwave Heating); In Situ Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Volume Factor | Mitigation Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|---------------|-------------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |               |                   |              |             |                          |                         |                      |
| H - Long Term Monitoring of In Situ Solidified Soil                                                     | A         | 3          | 30       | 0.25                   | /SY-YR  | 3,000    | 1.000         | 1.000             | 1.000        |             | 1,000                    | 24,000                  | 12,000               |
| HB - Site Reviews                                                                                       | A         | 20         | 30       | 5,400.00               | /EA-YR  | 1        | 1.000         | 1.000             | 1.000        |             | 6,000                    | 66,000                  | 21,000               |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 3          | 30       | 0.13                   | /BCY-YR | 7        | 1.000         | 1.000             | 1.000        |             | 1                        | 30                      | 10                   |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                                   | A         | 3          | 30       | 0.13                   | /BCY-YR | 43,000   | 1.000         | 1.000             | 1.000        |             | 6,000                    | 178,000                 | 91,000               |
| Subtotal (P)                                                                                            |           |            |          |                        |         |          |               |                   |              |             | 13,000                   | 270,000                 | 124,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |               |                   |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                            |           |            |          |                        |         |          |               |                   |              |             | 5,000                    | 105,000                 | 46,000               |
| Contingency                                                                                             |           |            |          |                        |         |          |               |                   |              |             | 6,000                    | 113,000                 | 52,000               |
| Subtotal (S = Q+R)                                                                                      |           |            |          |                        |         |          |               |                   |              |             | 11,000                   | 218,000                 | 100,000              |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |               |                   |              |             | 24,000                   | 488,000                 | 224,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OQ+T)</b> |           |            |          |                        |         |          |               |                   |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |               |                   |              |             |                          | 385,000,000             | 258,000,000          |

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Table B4.2-1 Cost Estimate - Basin F Wastepile Medium Group  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                            | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                        | LS        | 1          | --       | 0.00                   | /SY   | 75,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (A)</b>                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (B)</b>                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (C)</b>                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (D)</b>                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (E)</b>                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (F)</b>                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (G)</b>                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (H)</b>                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b> |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (I)</b>                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |



Table B4.2-1 Cost Estimate - Basin F Wastepile Medium Group  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units  | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|--------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| H - Modification to Existing Pump                                                                             | LS        | 1          | --       | 9,440.00               | /EA    | 1        | EA     | 1.000         | 1.000          | 1.000        |             | 11,000                   | 11,000                  | 11,000               |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                                                                     |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Engineering Design                                                                                            |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                                                          |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Contingency                                                                                                   |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| H - Treatment and Disposal of Wastepile Leachate                                                              | A         | 1          | 30       | 18.00                  | /GAL   | 50,000   | GAL/YR | 1.000         | 1.000          | 1.000        |             | 1,027,000                | 30,811,000              | 16,328,000           |
| H - Site Reviews                                                                                              | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA     | 1.000         | 1.000          | 1.000        |             | 8,000                    | 185,000                 | 98,000               |
| H - Maintenance of Existing Soil Cover                                                                        | A         | 1          | 30       | 0.33                   | /SY-YR | 75,000   | SY     | 1.000         | 1.000          | 1.000        |             | 28,000                   | 847,000                 | 449,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Contingency                                                                                                   |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |        |               |                |              |             | 1,061,000                | 31,844,000              | 16,875,000           |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |        |               |                |              |             | 1,918,000                | 57,562,000              | 30,514,000           |
|                                                                                                               |           |            |          |                        |        |          |        |               |                |              |             | 57,600,000               | 30,500,000              |                      |
|                                                                                                               |           |            |          |                        |        |          |        |               |                |              |             | 16-Jul-93                |                         |                      |

| Cost Item                            | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>H - Public Education</b>          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                      | LS        | 1          | --       | 1,500.00               | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 2,000                    | 2,000                   | 2,000                |
|                                      |           |            |          |                        |       |          |       |               |                |              |             | 2,000                    | 2,000                   |                      |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demab                            |           |            |          |                        |       |          |       |               |                |              |             |                          | 100                     | 100                  |
| Indirects, Overhead & Profit         |           |            |          |                        |       |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
| Engineering Design                   |           |            |          |                        |       |          |       |               |                |              |             |                          | 100                     | 100                  |
| Resident Engineering                 |           |            |          |                        |       |          |       |               |                |              |             |                          | 30                      | 30                   |
| Contingency                          |           |            |          |                        |       |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
|                                      |           |            |          |                        |       |          |       |               |                |              |             | 2,000                    | 2,000                   | 2,000                |
| <b>TOTAL CAPITAL COSTS (H + A+G)</b> |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                      |           |            |          |                        |       |          |       |               |                |              |             | 2,000                    | 2,000                   | 3,000                |

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Table B4.2-2 Cost Estimate - Basin F Wastepile Medium Group  
Alternative 2: Access Restrictions (Modifications to FFA)

| Cost Item                                                                                      | Cost Type                | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units  | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|------------------------------------------------------------------------------------------------|--------------------------|------------|----------|------------------------|--------|----------|--------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| H - Public Education                                                                           | A                        | 1          | 30       | 500.00                 | /EA-YR | 1        | EA     | 1.000         | 1.000          | 1.000        |             |                          | 17,000                  | 9,000                |
| H - Habitat Modification                                                                       | A                        | 1          | 3        | 0.17                   | /SY    | 75,000   | SY     | 1.000         | 1.000          | 1.000        |             |                          | 14,000                  | 14,000               |
| H - Modification to Existing Sump                                                              | LS                       | 1          | --       | 9,400.00               | /EA    | 1        | EA     | 1.000         | 1.000          | 1.000        |             |                          | 11,000                  | 11,000               |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (I)                                                                                   | COST CODE                |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                                                      | J = 0.033 * (I)          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                   | K = 0.390 * (I+J)        |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Engineering Design                                                                             | L = 0.005 * (I+J+K)      |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                                           | M = 0.013 * (I+J+K)      |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Contingency                                                                                    | N = 0.263 * (I+J+K+L+M)  |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (I)                                                                                   | Subtotal (I) = J+K+L+M+N |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| H - Fences                                                                                     | A                        | 1          | 30       | 0.75                   | /LF-YR | 3,700    | LF     | 1.000         | 1.000          | 1.000        |             | 3,000                    | 95,000                  | 50,000               |
| H - Habitat Modification                                                                       | A                        | 3          | 30       | 0.01                   | /SY-YR | 75,000   | SY     | 1.000         | 1.000          | 1.000        |             | 500                      | 14,000                  | 7,000                |
| H - Treatment and Disposal of Wastepile Leachate                                               | A                        | 1          | 30       | 18.00                  | /GAL   | 50,000   | GAL/YR | 1.000         | 1.000          | 1.000        |             | 1,027,000                | 30,811,000              | 16,328,000           |
| H - Site Reviews                                                                               | A                        | 3          | 30       | 5,400.00               | /EA-YR | 1        | EA     | 1.000         | 1.000          | 1.000        |             | 6,000                    | 173,000                 | 87,000               |
| H - Maintenance of Existing Soil Cover                                                         | A                        | 3          | 30       | 0.33                   | /SY-YR | 75,000   | SY     | 1.000         | 1.000          | 1.000        |             | 28,000                   | 791,000                 | 401,000              |
| Subtotal (I)                                                                                   | Subtotal (I) = J+K+L+M+N |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (P)                                                                                   | COST CODE                |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                   | Q = 0.390 * (P)          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Contingency                                                                                    | R = 0.300 * (P+Q)        |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   | Subtotal (S)             |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
|                                                                                                |                          |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |

Table B4.2-6e Cost Estimate - Basin F Wastepile Medium Group  
Alternative 6e: Caps/Covers (Composite Cap)

| Cost Item                     | Cost Type               | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------|-------------------------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS          |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| INDIRECT CAPITAL COSTS        |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                     |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit  |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design            |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering          |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                   |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (A)                  |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| ILSS                          |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE                     |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 3.3%                          | B = 0.033 * (A)         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 38.0%                         | C = 0.380 * (A+B)       |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 3.0%                          | D = 0.030 * (A+B+C)     |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 1.3%                          | E = 0.013 * (A+B+C)     |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 28.3%                         | F = 0.283 * (A+B+C+D+E) |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)      |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| TOTAL CAPITAL COSTS (H = A+G) |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| HBRW-06E.W/01                 |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| SOILS DATA                    |                         |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

Table B4.2-6e Cost Estimate - Basin F Wastepile Medium Group  
Alternative 6e: Caps/Covers (Composite Cap)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units  | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|--------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| H - Subgrade Preparation Prior to Installing Cap/Cover                                                        | LS        | 1          | --       | 0.06                   | /SY    | 75,000   | SY     | 1.000         | 1.000          | 1.000        |             |                          | 5,000                   | 5,000                |
| H - Installation of Composite Cap                                                                             | LS        | 1          | --       | 36.04                  | /SY    | 75,000   | SY     | 1.000         | 1.000          | 1.000        |             |                          | 3,005,000               | 3,005,000            |
| H - Revegetation of Disturbed Areas                                                                           | LS        | 1          | --       | 0.18                   | /SY    | 75,000   | SY     | 1.000         | 1.000          | 1.100        | Disturbance |                          | 17,000                  | 17,000               |
| H - Modification to Existing Sump                                                                             | LS        | 1          | --       | 9,440.00               | /EA    | 1        | EA     | 1.000         | 1.000          | 1.000        |             |                          | 11,000                  | 11,000               |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                                                                     |           |            |          | 3.3%                   |        |          |        |               |                |              |             |                          | 3,117,000               | 3,117,000            |
| Indirects, Overhead & Profit                                                                                  |           |            |          | 37.8%                  |        |          |        |               |                |              |             |                          | 101,000                 | 101,000              |
| Engineering Design                                                                                            |           |            |          | 0.5%                   |        |          |        |               |                |              |             |                          | 1,215,000               | 1,215,000            |
| Resident Engineering                                                                                          |           |            |          | 1.3%                   |        |          |        |               |                |              |             |                          | 22,000                  | 22,000               |
| Contingency                                                                                                   |           |            |          | 28.3%                  |        |          |        |               |                |              |             |                          | 55,000                  | 55,000               |
|                                                                                                               |           |            |          |                        |        |          |        |               |                |              |             |                          | 1,184,000               | 1,184,000            |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| H - Installation of Composite Cap                                                                             | A         | 1          | 30       | 1.23                   | /SY-YR | 75,000   | SY     | 1.000         | 1.000          | 1.000        |             | 105,000                  | 3,158,000               | 1,874,000            |
| H - Treatment and Disposal of Wastepile Leachate                                                              | A         | 1          | 30       | 18.00                  | /GAL   | 550      | GAL/YR | 1.000         | 1.000          | 1.000        |             | 11,000                   | 336,000                 | 180,000              |
| H - Site Reviews                                                                                              | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA     | 1.000         | 1.000          | 1.000        |             | 6,000                    | 185,000                 | 98,000               |
|                                                                                                               |           |            |          |                        |        |          |        |               |                |              |             |                          | 2,578,000               | 2,578,000            |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          | 39.0%                  |        |          |        |               |                |              |             |                          | 123,000                 | 3,682,000            |
| Contingency                                                                                                   |           |            |          | 30.0%                  |        |          |        |               |                |              |             |                          | 48,000                  | 1,438,000            |
|                                                                                                               |           |            |          |                        |        |          |        |               |                |              |             |                          | 51,000                  | 1,536,000            |
|                                                                                                               |           |            |          |                        |        |          |        |               |                |              |             |                          | 99,000                  | 2,971,000            |
|                                                                                                               |           |            |          |                        |        |          |        |               |                |              |             |                          | 222,000                 | 12,349,000           |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |        |               |                |              |             |                          | 12,300,000              | 9,220,000            |

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Table B4.2-8a Cost Estimate - Basin F Wastepile Medium Group  
Alternative 8a: Direct Soil Washing (Solvent Washing)

| Cost Item                                         | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                       |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| H - Wastepile Excavation Including Vapor Controls | LS        | 1          | --       | 34,521,250.00          | /EA   | 1        | EA    | 1.000            | 1.000             | 1.000           |             | 38,387,000               | 38,387,000              | 38,387,000           |
| Subtotal (A)                                      |           |            |          |                        |       |          |       |                  |                   |                 |             | 38,387,000               | 38,387,000              | 38,387,000           |
| <b>INDIRECT CAPITAL COSTS</b>                     |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| COST CODE: LMMSSO                                 |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mob/Demob                                         | 0.0%      |            |          |                        |       |          |       |                  |                   |                 |             | 0                        | 0                       | 0                    |
| Indirects, Overhead & Profit                      | 37.8%     |            |          |                        |       |          |       |                  |                   |                 |             | 14,872,000               | 14,872,000              | 14,872,000           |
| Engineering Design                                | 3.0%      |            |          |                        |       |          |       |                  |                   |                 |             | 1,628,000                | 1,628,000               | 1,628,000            |
| Resident Engineering                              | 1.5%      |            |          |                        |       |          |       |                  |                   |                 |             | 814,000                  | 814,000                 | 814,000              |
| Contingency                                       | 27.5%     |            |          |                        |       |          |       |                  |                   |                 |             | 15,586,000               | 15,586,000              | 15,586,000           |
| Subtotal (G = B+C+D+E+F)                          |           |            |          |                        |       |          |       |                  |                   |                 |             | 32,910,000               | 32,910,000              | 32,910,000           |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>           |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| H - Solvent Washing                               | LS        | 1          | --       | 28.55                  | /BCY  | 600,000  | BCY   | 1.000            | 1.000             | 1.000           |             | 19,548,000               | 19,548,000              | 19,548,000           |
| Subtotal (A1)                                     |           |            |          |                        |       |          |       |                  |                   |                 |             | 19,548,000               | 19,548,000              | 19,548,000           |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>         |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| COST CODE: F                                      |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mob/Demob                                         | 5.0%      |            |          |                        |       |          |       |                  |                   |                 |             | 977,000                  | 977,000                 | 977,000              |
| Contractor Markup                                 | 10.0%     |            |          |                        |       |          |       |                  |                   |                 |             | 2,053,000                | 2,053,000               | 2,053,000            |
| Engineering Design                                | 4.5%      |            |          |                        |       |          |       |                  |                   |                 |             | 1,016,000                | 1,016,000               | 1,016,000            |
| Resident Engineering                              | 2.0%      |            |          |                        |       |          |       |                  |                   |                 |             | 452,000                  | 452,000                 | 452,000              |
| Contingency                                       | 30.0%     |            |          |                        |       |          |       |                  |                   |                 |             | 7,214,000                | 7,214,000               | 7,214,000            |
| Subtotal (G1 = B1+C1+D1+E1+F1)                    |           |            |          |                        |       |          |       |                  |                   |                 |             | 11,711,000               | 11,711,000              | 11,711,000           |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>        |           |            |          |                        |       |          |       |                  |                   |                 |             | 103,586,000              | 103,586,000             | 103,586,000          |

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Table B4.2-8a Cost Estimate - Basin F Wastepile Medium Group  
Alternative 8a: Direct Soil Washing (Solvent Washing)

| Cost Item                                                      | Cost Type | Start Year                      | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|----------------------------------------------------------------|-----------|---------------------------------|----------|------------------------|-----------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                       |           |                                 |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| H - Excavation of Wastepile Overburden                         | LS        | 1                               | -        | 1.89                   | /BCY      | 75,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 182,000                  | 182,000                 | 182,000              |
| H - Wastepile Excavation Including Vapor Controls              | A         | 1                               | 2        | 21.53                  | /BCY      | 600,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 14,742,000               | 14,742,000              | 14,391,000           |
| H - Transportation of Contaminated Soil to Soil Washing Unit   | A         | 1                               | 2        | 1.07                   | /BCY-MILE | 600,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 733,000                  | 733,000                 | 715,000              |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill | A         | 1                               | 2        | 1.28                   | /BCY      | 600,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 878,000                  | 878,000                 | 866,000              |
| H - Transportation of Treated Soil to Backfill Excavation      | A         | 1                               | 2        | 0.86                   | /BCY-MILE | 600,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 589,000                  | 589,000                 | 575,000              |
| H - Backfill with Treated Soil                                 | A         | 1                               | 2        | 1.72                   | /BCY      | 600,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 1,178,000                | 1,178,000               | 1,150,000            |
| H - Backfill of Wastepile Overburden                           | A         | 1                               | 2        | 1.72                   | /BCY      | 75,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 147,000                  | 147,000                 | 144,000              |
| H - Revegetation of Disturbed Areas                            | A         | 1                               | 2        | 0.18                   | /SY       | 75,000   | SY    | 1.000         | 1.000          | 1.000        |             | 15,000                   | 15,000                  | 15,000               |
| Subtotal (I)                                                   |           |                                 |          |                        |           |          |       |               |                |              |             | 18,442,000               | 18,442,000              | 18,008,000           |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                     |           |                                 |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: HLLS                                                |           |                                 |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                      | 4.5%      | $J = 0.045 * (I)$               |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                   | 30.0%     | $K = 0.300 * (I+J)$             |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                             | 0.5%      | $L = 0.005 * (I+J+K)$           |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                           | 1.8%      | $M = 0.018 * (I+J+K)$           |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                    | 30.0%     | $N = 0.300 * (I+J+K+L+M)$       |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (O) = J+K+L+M+N                                       |           |                                 |          |                        |           |          |       |               |                |              |             | 830,000                  | 830,000                 | 810,000              |
|                                                                |           |                                 |          |                        |           |          |       |               |                |              |             | 7,516,000                | 7,516,000               | 7,336,000            |
|                                                                |           |                                 |          |                        |           |          |       |               |                |              |             | 134,000                  | 134,000                 | 131,000              |
|                                                                |           |                                 |          |                        |           |          |       |               |                |              |             | 469,000                  | 469,000                 | 458,000              |
|                                                                |           |                                 |          |                        |           |          |       |               |                |              |             | 8,217,000                | 8,217,000               | 8,023,000            |
| Subtotal (O) = J+K+L+M+N                                       |           |                                 |          |                        |           |          |       |               |                |              |             | 17,165,000               | 17,165,000              | 16,780,000           |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>           |           |                                 |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| H - Solvent Washing                                            | A         | 1                               | 2        | 118.33                 | /BCY      | 600,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 81,157,000               | 81,157,000              | 79,225,000           |
| Subtotal (I1)                                                  |           |                                 |          |                        |           |          |       |               |                |              |             | 81,157,000               | 81,157,000              | 79,225,000           |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>         |           |                                 |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: F                                                   |           |                                 |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                      | 5.0%      | $J1 = 0.050 * (I1)$             |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                              | 10.0%     | $K1 = 0.100 * (I1+J1)$          |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                             | 0.0%      | $L1 = 0.000 * (I1+J1+K1)$       |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                           | 2.0%      | $M1 = 0.020 * (I1+J1+K1)$       |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                    | 30.0%     | $N1 = 0.300 * (I1+J1+K1+L1+M1)$ |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (O1) = J1+K1+L1+M1+N1                                 |           |                                 |          |                        |           |          |       |               |                |              |             | 4,059,000                | 4,059,000               | 3,981,000            |
|                                                                |           |                                 |          |                        |           |          |       |               |                |              |             | 8,522,000                | 8,522,000               | 8,319,000            |
|                                                                |           |                                 |          |                        |           |          |       |               |                |              |             | 0                        | 0                       | 0                    |
|                                                                |           |                                 |          |                        |           |          |       |               |                |              |             | 1,875,000                | 1,875,000               | 1,830,000            |
|                                                                |           |                                 |          |                        |           |          |       |               |                |              |             | 28,683,000               | 28,683,000              | 28,001,000           |
| Subtotal (O1) = J1+K1+L1+M1+N1                                 |           |                                 |          |                        |           |          |       |               |                |              |             | 43,136,000               | 43,136,000              | 42,111,000           |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+I1+O1)</b>       |           |                                 |          |                        |           |          |       |               |                |              |             | 159,902,000              | 159,902,000             | 156,102,000          |

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Table B4.2.8a Cost Estimate - Basin F Wastepile Medium Group  
Alternative 8a: Direct Soil Washing (Solvent Washing)

| Cost Item                                                                                | Cost Type | Start Year | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$)   | 1995 (\$)   | 1995 (\$)   | PW Cost |
|------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-------------|-------------|-------------|---------|
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                  |           |            |          |           |       |          |       |               |                |              |             |           |             |             |             |         |
| H - No Action                                                                            | A         | 3          | 30       | 0.00      | /SY   | 6,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 0         | 0           | 0           | 0           | 0       |
| Subtotal (P)                                                                             |           |            |          |           |       |          |       |               |                |              |             |           |             |             |             |         |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                |           |            |          |           |       |          |       |               |                |              |             |           |             |             |             |         |
| COST CODE: 0                                                                             |           |            |          |           |       |          |       |               |                |              |             |           |             |             |             |         |
| Indirects, Overhead & Profit                                                             |           |            |          |           |       |          |       |               |                |              |             |           |             |             |             |         |
| Q = 0.000 * (P)                                                                          |           |            |          |           |       |          |       |               |                |              |             |           |             |             |             |         |
| R = 0.000 * (P+Q)                                                                        |           |            |          |           |       |          |       |               |                |              |             |           |             |             |             |         |
| Contingency                                                                              |           |            |          |           |       |          |       |               |                |              |             |           |             |             |             |         |
| Subtotal (S = Q+R)                                                                       |           |            |          |           |       |          |       |               |                |              |             |           |             |             |             |         |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                         |           |            |          |           |       |          |       |               |                |              |             |           |             |             |             |         |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (OPERATIONS & LONG-TERM ACTIVITIES) (U = H+OO+T) |           |            |          |           |       |          |       |               |                |              |             |           |             |             |             |         |
|                                                                                          |           |            |          |           |       |          |       |               |                |              |             |           | 263,000,000 | 260,000,000 | 260,000,000 |         |



Table B4.2.9a Cost Estimate - Basin F Wastepile Medium Group  
Alternative 9a: Direct Soil Washing (Solution Washing); Direct Thermal Desorption (Direct Heating)

| Cost Item                                                   | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                        |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - Wastepile Excavation Including Vapor Controls           | A         | 1                             | 2        | 34,523,250.00          | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             |                          | 38,387,000              | 38,459,000           |
| H - Treatment of Effluent at CERCLA Facility                | LS        | 2                             | --       | 3,838,000.00           | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             |                          | 4,360,000               | 4,171,000            |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | --       | 5.72                   | /BCY  | 6,000    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 39,000                  | 37,000               |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 9                             | --       | 3.80                   | /BCY  | 6,000    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 26,000                  | 18,000               |
| Subtotal (A)                                                |           |                               |          |                        |       |          |       |               |                |              |             |                          | 43,842,000              | 42,685,000           |
| INDIRECT CAPITAL COSTS                                      |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LMMSO                                            |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                   | 0.0%      | B = 0.000 * (A)               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                | 37.8%     | C = 0.378 * (A+B)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                          | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                        | 1.5%      | E = 0.015 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                 | 27.5%     | F = 0.275 * (A+B+C+D+E)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                    |           |                               |          |                        |       |          |       |               |                |              |             |                          | 38,823,000              | 35,957,000           |
| DIRECT SUBCONTRACT CAPITAL COSTS                            |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - Thermal Desorption (Saturated Soil)                     | A         | 1                             | 2        | 14.17                  | /BCY  | 600,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 9,702,000               | 9,471,000            |
| H - Soil Washing with Effluent Treatment at CERCLA Facility | LS        | 2                             | --       | 2,927,000.00           | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             |                          | 3,340,000               | 3,181,000            |
| Subtotal (A1)                                               |           |                               |          |                        |       |          |       |               |                |              |             |                          | 13,042,000              | 12,652,000           |
| INDIRECT SUBCONTRACT CAPITAL COSTS                          |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: C                                                |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                   | 2.0%      | B1 = 0.020 * (A1)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                           | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                          | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                        | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                 | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |                               |          |                        |       |          |       |               |                |              |             |                          | 8,264,000               | 8,017,000            |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                         |           |                               |          |                        |       |          |       |               |                |              |             |                          | 101,771,000             | 98,011,000           |
| HHRW-09A.WQ1<br>SOILS DATA<br>16-Jul-93                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

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Table B4.2.9a Cost Estimate - Basin F Wastepile Medium Group  
Alternative 9a: Direct Soil Washing (Solution Washing); Direct Thermal Description (Direct Heating)

| Cost Item                                                              | Cost Type | Start Year | End Year | 1997 (\$) | Units                         | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)   | 1995 (\$) |
|------------------------------------------------------------------------|-----------|------------|----------|-----------|-------------------------------|----------|-------|---------------|----------------|--------------|-------------|-------------|-------------|-----------|
|                                                                        |           |            |          | Unit Cost |                               |          |       |               |                |              |             | Total Cost  | PW Cost     |           |
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                               |           |            |          |           |                               |          |       |               |                |              |             |             |             |           |
| H - Excavation of Wastepile Overburden                                 | LS        | 3          | --       | 1.89      | /BCY                          | 75,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 182,000     | 147,000     |           |
| H - Wastepile Excavation Including Vapor Controls                      | A         | 3          | 7        | 21.53     | /BCY                          | 600,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 14,742,000  | 12,157,000  |           |
| H - Transportation of Contaminated Soil to Soil Washing Unit           | A         | 3          | 7        | 1.07      | /BCY-MILE                     | 600,000  | BCY   | 1.000         | 2.000          | 1.000        |             | 1,465,000   | 1,208,000   |           |
| H - Treatment of Effluent at CERCLA Facility                           | A         | 3          | 7        | 2.91      | /BCY                          | 600,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 1,992,000   | 1,643,000   |           |
| H - Load Treated Soil for Transport to Hazardous Landfill              | A         | 3          | 8        | 1.55      | /BCY                          | 6,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 11,000      | 9,000       |           |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill | A         | 3          | 8        | 1.07      | /BCY-MILE                     | 6,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 7,000       | 6,000       |           |
| H - On-Post Hazardous Waste Landfill (Particulates)                    | A         | 3          | 8        | 4.07      | /BCY                          | 6,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 28,000      | 22,000      |           |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill         | A         | 3          | 8        | 1.28      | /BCY                          | 600,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 876,000     | 708,000     |           |
| H - Transportation of Treated Soil to Backfill Excavation              | A         | 3          | 8        | 0.86      | /BCY-MILE                     | 600,000  | BCY   | 1.000         | 2.000          | 1.000        |             | 1,178,000   | 949,000     |           |
| H - Backfill with Treated Soil                                         | A         | 3          | 8        | 1.72      | /BCY                          | 600,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 1,178,000   | 949,000     |           |
| H - Backfill of Wastepile Overburden                                   | A         | 3          | 8        | 1.72      | /BCY                          | 75,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 147,000     | 119,000     |           |
| H - Revegetation of Disturbed Areas                                    | A         | 3          | 8        | 0.18      | /SY                           | 75,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance | 17,000      | 14,000      |           |
| <b>Subtotal (I)</b>                                                    |           |            |          |           |                               |          |       |               |                |              |             | 21,803,000  | 17,928,000  |           |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                             |           |            |          |           |                               |          |       |               |                |              |             |             |             |           |
| Mob/Demob                                                              |           |            |          | 4.5%      | J = 0.045 * (I)               |          |       |               |                |              |             | 981,000     | 807,000     |           |
| Indirects, Overhead & Profit                                           |           |            |          | 36.0%     | K = 0.360 * (I+J)             |          |       |               |                |              |             | 8,886,000   | 7,307,000   |           |
| Engineering Design                                                     |           |            |          | 0.5%      | L = 0.005 * (I+J+K)           |          |       |               |                |              |             | 158,000     | 130,000     |           |
| Resident Engineering                                                   |           |            |          | 2.0%      | M = 0.020 * (I+J+K+L)         |          |       |               |                |              |             | 633,000     | 521,000     |           |
| Contingency                                                            |           |            |          | 31.3%     | N = 0.313 * (I+J+K+L+M)       |          |       |               |                |              |             | 10,144,000  | 8,341,000   |           |
| <b>Subtotal (O) = J+K+L+M+N</b>                                        |           |            |          |           |                               |          |       |               |                |              |             | 20,803,000  | 17,108,000  |           |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |           |                               |          |       |               |                |              |             |             |             |           |
| H - Thermal Description (Saturated Soil)                               | A         | 3          | 8        | 73.64     | /BCY                          | 600,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 50,421,000  | 40,823,000  |           |
| H - Soil Washing with Effluent Treatment at CERCLA Facility            | A         | 3          | 8        | 32.40     | /BCY                          | 600,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 22,184,000  | 17,873,000  |           |
| <b>Subtotal (I1)</b>                                                   |           |            |          |           |                               |          |       |               |                |              |             | 72,605,000  | 58,696,000  |           |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                 |           |            |          |           |                               |          |       |               |                |              |             |             |             |           |
| Mob/Demob                                                              |           |            |          | 0.0%      | J1 = 0.000 * (I1)             |          |       |               |                |              |             | 0           | 0           |           |
| Contractor Markup                                                      |           |            |          | 10.0%     | K1 = 0.100 * (I1+J1)          |          |       |               |                |              |             | 7,281,000   | 5,850,000   |           |
| Engineering Design                                                     |           |            |          | 0.0%      | L1 = 0.000 * (I1+J1+K1)       |          |       |               |                |              |             | 0           | 0           |           |
| Resident Engineering                                                   |           |            |          | 2.0%      | M1 = 0.020 * (I1+J1+K1+L1)    |          |       |               |                |              |             | 1,587,000   | 1,287,000   |           |
| Contingency                                                            |           |            |          | 40.0%     | N1 = 0.400 * (I1+J1+K1+L1+M1) |          |       |               |                |              |             | 32,595,000  | 26,253,000  |           |
| <b>Subtotal (O1) = J1+K1+L1+M1+N1</b>                                  |           |            |          |           |                               |          |       |               |                |              |             | 41,443,000  | 33,389,000  |           |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO) = I+O+I1+O1</b>               |           |            |          |           |                               |          |       |               |                |              |             | 156,654,000 | 128,819,000 |           |

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Table B4.2.9a Cost Estimate - Basin F Wastepile Medium Group  
Alternative 9a: Direct Soil Washing (Solution Washing); Direct Thermal Description (Direct Heating)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| II - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 9          | 30       | 0.13                   | /BCY-YR | 6,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 1,000                    | 20,000                  | 6,000                |
| <b>Subtotal (P)</b>                                                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             | 1,000                    | 20,000                  | 8,000                |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                            |           |            |          |                        |         |          |       |               |                |              |             | 300                      | 8,000                   | 3,000                |
| Contingency                                                                                             |           |            |          |                        |         |          |       |               |                |              |             | 400                      | 8,000                   | 3,000                |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             | 1,000                    | 18,000                  | 7,000                |
| <b>Subtotal (S = Q+R)</b>                                                                               |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             | 2,000                    | 35,000                  | 15,000               |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 238,000,000             | 276,000,000          |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+D)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |

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| Cost Item                                                   | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - Wastpile Excavation Including Vapor Controls            | A         | 1          | 2        | 34,523,250.00          | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             |                          | 38,387,000              | 38,459,000           |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2          | --       | 5.72                   | /BCY  | 6,000    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 36,000                  | 37,000               |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 2          | --       | 3.80                   | /BCY  | 6,000    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 28,000                  | 25,000               |
| Subtotal (A)                                                |           |            |          |                        |       |          |       |               |                |              |             |                          | 38,462,000              | 38,521,000           |
| <b>INDIRECT CAPITAL COSTS</b>                               |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: UMMSSO                                           |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                   |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| Indirects, Overhead & Profit                                |           |            |          |                        |       |          |       |               |                |              |             |                          | 14,897,000              | 14,542,000           |
| Engineering Design                                          |           |            |          |                        |       |          |       |               |                |              |             |                          | 1,631,000               | 1,562,000            |
| Resident Engineering                                        |           |            |          |                        |       |          |       |               |                |              |             |                          | 815,000                 | 796,000              |
| Contingency                                                 |           |            |          |                        |       |          |       |               |                |              |             |                          | 15,621,000              | 15,249,000           |
| Subtotal (G = B+C+D+E+F)                                    |           |            |          |                        |       |          |       |               |                |              |             |                          | 32,964,000              | 32,178,000           |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                     |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - Thermal Description (Saturated Soil)                    | A         | 1          | 2        | 14.17                  | /BCY  | 600,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 8,702,000               | 8,471,000            |
| Subtotal (A1)                                               |           |            |          |                        |       |          |       |               |                |              |             |                          | 8,702,000               | 8,471,000            |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: C                                                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                   |           |            |          |                        |       |          |       |               |                |              |             |                          | 194,000                 | 186,000              |
| Contractor Markup                                           |           |            |          |                        |       |          |       |               |                |              |             |                          | 980,000                 | 966,000              |
| Engineering Design                                          |           |            |          |                        |       |          |       |               |                |              |             |                          | 980,000                 | 956,000              |
| Resident Engineering                                        |           |            |          |                        |       |          |       |               |                |              |             |                          | 327,000                 | 319,000              |
| Contingency                                                 |           |            |          |                        |       |          |       |               |                |              |             |                          | 3,658,000               | 3,571,000            |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |            |          |                        |       |          |       |               |                |              |             |                          | 6,148,000               | 6,001,000            |
| TOTAL CAPITAL COSTS [H = A+G+A1+G1]                         |           |            |          |                        |       |          |       |               |                |              |             |                          | 86,276,000              | 86,172,000           |
| HRFW-13A.WQI                                                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| SOILS DAA                                                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 16-Jan-93                                                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

Table B4.2-13a Cost Estimate - Basin F Wastepile Medium Group  
Alternative 13a: Direct Thermal Desorption (Direct Heating)

| Cost Item                                                              | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$) | 1995 (\$) | PW Cost     |
|------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-------------|-----------|-----------|-------------|
| DIRECT O&M COSTS (OPERATIONS)                                          |           |            |          |           |           |          |       |               |                |              |             |             |           |           |             |
| H - Excavation of Wastepile Overburden                                 | LS        | 3          | 4        | 1.89      | /BCY      | 75,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 162,000     |           |           | 147,000     |
| H - Wastepile Excavation Including Vapor Controls                      | A         | 3          | 4        | 21.53     | /BCY      | 600,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 14,742,000  |           |           | 13,053,000  |
| H - Transportation of Contaminated Soil to Thermal Desorption Facility | A         | 3          | 4        | 1.07      | /BCY-MILE | 600,000  | BCY   | 1.000         | 2.000          | 1.000        |             | 1,465,000   |           |           | 1,297,000   |
| H - Load Treated Soil for Transport to Hazardous Landfill              | A         | 3          | 4        | 1.55      | /BCY      | 6,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 11,000      |           |           | 9,000       |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill | A         | 3          | 4        | 1.07      | /BCY-MILE | 6,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 7,000       |           |           | 6,000       |
| H - On-Post Hazardous Waste Landfill (Particulates)                    | A         | 3          | 4        | 4.07      | /BCY      | 6,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 28,000      |           |           | 25,000      |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill         | A         | 3          | 4        | 1.28      | /BCY      | 600,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 978,000     |           |           | 776,000     |
| H - Transportation of Treated Soil to Backfill Excavation              | A         | 3          | 4        | 0.86      | /BCY-MILE | 600,000  | BCY   | 1.000         | 2.000          | 1.000        |             | 1,178,000   |           |           | 1,043,000   |
| H - Backfill with Treated Soil                                         | A         | 3          | 4        | 1.72      | /BCY      | 600,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 1,178,000   |           |           | 1,043,000   |
| H - Backfill of Wastepile Overburden                                   | A         | 3          | 4        | 1.72      | /BCY      | 75,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 147,000     |           |           | 130,000     |
| H - Revegetation of Disturbed Areas                                    | A         | 3          | 4        | 0.18      | /SY       | 75,000   | SV    | 1.000         | 1.000          | 1.100        | Disturbance | 17,000      |           |           | 15,000      |
| Subtotal (I)                                                           |           |            |          |           |           |          |       |               |                |              |             | 19,810,000  |           |           | 17,544,000  |
| INDIRECT O&M COSTS (OPERATIONS)                                        |           |            |          |           |           |          |       |               |                |              |             |             |           |           |             |
| Mob/Demob                                                              |           |            |          |           |           |          |       |               |                |              |             |             |           |           |             |
| Indirects, Overhead & Profit                                           | 4.5%      |            |          |           |           |          |       |               |                |              |             | 881,000     |           |           | 788,000     |
| Engineering Design                                                     | 39.0%     |            |          |           |           |          |       |               |                |              |             | 8,074,000   |           |           | 7,150,000   |
| Resident Engineering                                                   | 0.5%      |            |          |           |           |          |       |               |                |              |             | 144,000     |           |           | 127,000     |
| Contingency                                                            | 1.8%      |            |          |           |           |          |       |               |                |              |             | 504,000     |           |           | 446,000     |
|                                                                        | 30.0%     |            |          |           |           |          |       |               |                |              |             | 8,827,000   |           |           | 7,817,000   |
| Subtotal (O = J+K+L+M+N)                                               |           |            |          |           |           |          |       |               |                |              |             | 18,440,000  |           |           | 16,330,000  |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                              |           |            |          |           |           |          |       |               |                |              |             |             |           |           |             |
| H - Thermal Desorption (Saturated Soil)                                | A         | 3          | 4        | 73.64     | /BCY      | 600,000  | BCY   | 1.000         | 1.000          | 1.300        |             | 66,548,000  |           |           | 58,038,000  |
| Subtotal (H)                                                           |           |            |          |           |           |          |       |               |                |              |             | 66,548,000  |           |           | 58,038,000  |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                            |           |            |          |           |           |          |       |               |                |              |             |             |           |           |             |
| Mob/Demob                                                              |           |            |          |           |           |          |       |               |                |              |             |             |           |           |             |
| Contractor Markup                                                      | 0.0%      |            |          |           |           |          |       |               |                |              |             | 0           |           |           | 0           |
| Engineering Design                                                     | 10.0%     |            |          |           |           |          |       |               |                |              |             | 6,555,000   |           |           | 5,804,000   |
| Resident Engineering                                                   | 0.0%      |            |          |           |           |          |       |               |                |              |             | 0           |           |           | 0           |
| Contingency                                                            | 2.0%      |            |          |           |           |          |       |               |                |              |             | 1,442,000   |           |           | 1,277,000   |
|                                                                        | 40.0%     |            |          |           |           |          |       |               |                |              |             | 28,418,000  |           |           | 26,048,000  |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                         |           |            |          |           |           |          |       |               |                |              |             | 37,415,000  |           |           | 33,128,000  |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O+H+O1)                           |           |            |          |           |           |          |       |               |                |              |             | 141,212,000 |           |           | 125,041,000 |

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Table B4.2-13a Cost Estimate - Basin F Wastepile Medium Group  
Alternative 13a: Direct Thermal Description (Direct Heating)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mitigation Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|-------------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |               |                   |              |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 5          | 30       | 0.13                   | /BCY-YR | 6,000    | BCY   | 1.000         | 1.000             | 1.000        |             | 1,000                    | 23,000                  | 11,000               |
| <b>Subtotal (P)</b>                                                                                     |           |            |          |                        |         |          |       |               |                   |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                   |              |             | 1,000                    | 23,000                  | 11,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |               |                   |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                            |           |            |          |                        |         |          |       |               |                   |              |             | 300                      | 9,000                   | 4,000                |
| Contingency                                                                                             |           |            |          |                        |         |          |       |               |                   |              |             | 400                      | 10,000                  | 5,000                |
| <b>Subtotal (S = Q+R)</b>                                                                               |           |            |          |                        |         |          |       |               |                   |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                   |              |             | 1,000                    | 19,000                  | 9,000                |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |               |                   |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                   |              |             | 2,000                    | 42,000                  | 20,000               |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |               |                   |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                   |              |             |                          | 230,000,000             | 211,000,000          |

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Table B4.3-1 Cost Estimate - Secondary Basins Medium Group - Secondary Basins Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| H - No Action                 | LS        | 1          | --       | 0.00                   | /SY   | 12,000   | SY    | 1.000            | 1.000             | 1.000           |             |                          | 0                       | 0                    |
| B - No Action                 | LS        | 1          | --       | 0.00                   | /SY   | 420,000  | SY    | 1.000            | 1.000             | 1.000           |             |                          | 0                       | 0                    |
| Subtotal (A)                  |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 0                       | 0                    |
| INDIRECT CAPITAL COSTS        |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mob/Demob                     |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit  | 3.3%      |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design            | 39.0%     |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering          | 3.0%      |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                   | 1.3%      |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                               | 26.3%     |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (G =B+C+D+E+F)       |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 0                       | 0                    |
| TOTAL CAPITAL COSTS (H = A+G) |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 0                       | 0                    |

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Table B4.3-1

Cost Estimate - Secondary Basins Medium Group - Secondary Basins Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

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| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 10,000   | SV    | 1,000         | 1,000          | 1,000        |             |                          | 0                       | 0                    |
| B - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 420,000  | SV    | 1,000         | 1,000          | 1,000        |             |                          | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                                                                     |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| HB - Long Term Soil Monitoring, Secondary Basins                                                              | A         | 1          | 30       | 90,000.00              | /EA-YR | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 103,000                  | 3,061,000               | 1,633,000            |
| HB - Site Reviews                                                                                             | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 6,000                    | 185,000                 | 98,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (T = H+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             | 109,000                  | 3,266,000               | 1,731,000            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             | 197,000                  | 5,902,000               | 3,128,000            |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             | 5,900,000                | 3,130,000               |                      |

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Table B4.3-2 Cost Estimate - Secondary Basins Medium Group - Secondary Basins Subgroup  
Alternative 2: Access Restrictions (Modifications to FF/A)

| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units                   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------|-----------|------------|----------|------------------------|-------------------------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS          |           |            |          |                        |                         |          |       |               |                |              |             |                          |                         |                      |
| HB - Public Education         | LS        | 1          | --       | 1,500.00               | /EA                     | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 2,000                    | 2,000                   | 2,000                |
| HB - Fences                   | LS        | 1          | --       | 15.00                  | /LF                     | 20,000   | LF    | 1.000         | 1.000          | 1.000        |             | 342,000                  | 342,000                 | 342,000              |
| Subtotal (A)                  |           |            |          |                        |                         |          |       |               |                |              |             |                          | 344,000                 | 344,000              |
| INDIRECT CAPITAL COSTS        |           |            |          |                        |                         |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                     |           |            |          | COST CODE              |                         |          | LLSS  |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit  | 3.3%      |            |          |                        | B = 0.033 * (A)         |          |       |               |                |              | 11,000      |                          |                         |                      |
| Engineering Design            | 30.0%     |            |          |                        | C = 0.300 * (A+B)       |          |       |               |                |              | 138,000     |                          |                         |                      |
| Resident Engineering          | 3.0%      |            |          |                        | D = 0.030 * (A+B+C)     |          |       |               |                |              | 15,000      |                          |                         |                      |
| Contingency                   | 1.3%      |            |          |                        | E = 0.013 * (A+B+C)     |          |       |               |                |              | 6,000       |                          |                         |                      |
|                               | 26.3%     |            |          |                        | F = 0.263 * (A+B+C+D+E) |          |       |               |                |              | 135,000     |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)      |           |            |          |                        |                         |          |       |               |                |              |             |                          | 308,000                 | 308,000              |
| TOTAL CAPITAL COSTS (H = A+G) |           |            |          |                        |                         |          |       |               |                |              |             |                          | 650,000                 | 650,000              |

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Table B4.3-2 Cost Estimate - Secondary Basins Medium Group - Secondary Basins Subgroup  
Alternative 2: Access Restrictions (Modifications to FTA)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$) | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$) |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|--------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|-----------|
|                                                                                                               |           |            |          | Unit Cost |        |          |       |               |                |              |             | Annual Cost | Total Cost | PW Cost   |
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| HB - Habitat Modification                                                                                     | A         | 1          | 3        | 0.17      | /SY    | 430,000  | SY    | 1.000         | 1.000          | 1.000        |             |             | 83,000     | 79,000    |
| H - Public Education                                                                                          | A         | 1          | 30       | 500.00    | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             |             | 17,000     | 9,000     |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| Mob/Demob                                                                                                     |           |            |          |           |        |          |       |               |                |              |             |             | 100,000    | 88,000    |
| Indirects Overhead & Profit                                                                                   |           |            |          |           |        |          |       |               |                |              |             |             | 3,000      | 3,000     |
| Engineering Design                                                                                            |           |            |          |           |        |          |       |               |                |              |             |             | 40,000     | 35,000    |
| Resident Engineering                                                                                          |           |            |          |           |        |          |       |               |                |              |             |             | 1,000      | 1,000     |
| Contingency                                                                                                   |           |            |          |           |        |          |       |               |                |              |             |             | 2,000      | 2,000     |
|                                                                                                               |           |            |          |           |        |          |       |               |                |              |             |             | 36,000     | 34,000    |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| HB - Fences                                                                                                   | A         | 2          | 30       | 0.75      | /LF-YR | 20,000   | LF    | 1.000         | 1.000          | 1.000        |             | 17,000      | 486,000    | 258,000   |
| HB - Habitat Modification                                                                                     | A         | 3          | 30       | 0.01      | /SY-YR | 430,000  | SY    | 1.000         | 1.000          | 1.000        |             | 3,000       | 78,000     | 40,000    |
| HB - Long Term Soil Monitoring, Secondary Basins                                                              | A         | 3          | 30       | 90,000.00 | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 103,000     | 2,876,000  | 1,457,000 |
| HB - Site Reviews                                                                                             | A         | 3          | 30       | 5,400.00  | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000       | 173,000    | 87,000    |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| Indirects Overhead & Profit                                                                                   |           |            |          |           |        |          |       |               |                |              |             |             | 128,000    | 3,623,000 |
| Contingency                                                                                                   |           |            |          |           |        |          |       |               |                |              |             |             | 50,000     | 1,413,000 |
|                                                                                                               |           |            |          |           |        |          |       |               |                |              |             |             | 54,000     | 1,511,000 |
|                                                                                                               |           |            |          |           |        |          |       |               |                |              |             |             | 104,000    | 2,924,000 |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long Term Activities]</b> |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
|                                                                                                               |           |            |          |           |        |          |       |               |                |              |             | 233,000     | 6,731,000  | 3,484,000 |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
|                                                                                                               |           |            |          |           |        |          |       |               |                |              |             |             | 7,380,000  | 4,140,000 |

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| Cost Item                            | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (A)                         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE LLSS                       |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 3.3% B = 0.033 * (A)                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 39.0% C = 0.390 * (A+B)              |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 3.0% D = 0.030 * (A+B+C)             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 1.3% E = 0.013 * (A+B+C)             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 26.3% F = 0.263 * (A+B+C+D+E)        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G)                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| MobilDemob                           |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (I = A+G)                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b> |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (J = H+I)                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

Table B4.3-6 Cost Estimate - Secondary Basins Medium Group - Secondary Basins Subgroup  
Alternative 6: Caps/Covers (Clay/Soil Cap)

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| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$)  |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|------------|
|                                                                                                               |           |            |          | Unit Cost |           |          |       |               |                |              |             | Annual Cost | Total Cost | PW Cost    |
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| HB - Subgrade Preparation Prior to Installing Cap/Cover                                                       | LS        | 1          | --       | 0.06      | /SY       | 430,000  | SY    | 1.000         | 1.000          | 1.000        |             | 28,000      | 28,000     | 28,000     |
| HB - Excavation of Dike Materials                                                                             | LS        | 1          | --       | 3.91      | /BCY      | 100,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 448,000     | 448,000    | 448,000    |
| HB - Backfill with Dike Material                                                                              | LS        | 1          | --       | 3.63      | /BCY      | 100,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 414,000     | 414,000    | 414,000    |
| H - Excavation of Borrow Material                                                                             | LS        | 1          | --       | 1.89      | /BCY      | 38,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 82,000      | 82,000     | 82,000     |
| H - Transportation of Borrow Material to Backfill Area                                                        | LS        | 1          | --       | 0.86      | /BCY-MILE | 38,000   | BCY   | 1.000         | 1.500          | 1.000        |             | 56,000      | 56,000     | 56,000     |
| H - Backfill with Borrow Material                                                                             | LS        | 1          | --       | 1.72      | /BCY      | 38,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 75,000      | 75,000     | 75,000     |
| HB - Installation of Clay/Soil Cap                                                                            | LS        | 1          | --       | 23.30     | /SY       | 430,000  | SY    | 1.000         | 1.000          | 1.000        |             | 11,433,000  | 11,433,000 | 11,433,000 |
| HB - Revegetation of Disturbed Areas                                                                          | LS        | 1          | --       | 0.18      | /SY       | 430,000  | SY    | 1.000         | 1.000          | 1.000        | Disturbance | 97,000      | 97,000     | 97,000     |
| <b>Subtotal (I) = J+K+L+M+N</b>                                                                               |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| Mod/Demob                                                                                                     |           |            |          | 3.3%      |           |          |       |               |                |              |             |             |            |            |
| Indirects, Overhead & Profit                                                                                  |           |            |          | 37.6%     |           |          |       |               |                |              |             |             |            |            |
| Engineering Design                                                                                            |           |            |          | 0.5%      |           |          |       |               |                |              |             |             |            |            |
| Resident Engineering                                                                                          |           |            |          | 1.3%      |           |          |       |               |                |              |             |             |            |            |
| Contingency                                                                                                   |           |            |          | 26.3%     |           |          |       |               |                |              |             |             |            |            |
| <b>Subtotal (J) = J+K+L+M+N</b>                                                                               |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| HB - Installation of Clay/Soil Cap                                                                            | A         | 2          | 30       | 0.80      | /SY-YR    | 430,000  | SY    | 1.000         | 1.000          | 1.000        |             | 363,000     | 11,394,000 | 5,944,000  |
| HB - Site Reviews                                                                                             | A         | 2          | 30       | 5,400.00  | /EA-YR    | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000       | 179,000    | 83,000     |
| <b>Subtotal (P) = J+K+L+M+N</b>                                                                               |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| Indirects, Overhead & Profit                                                                                  |           |            |          | 38.0%     |           |          |       |               |                |              |             |             |            |            |
| Contingency                                                                                                   |           |            |          | 30.0%     |           |          |       |               |                |              |             |             |            |            |
| <b>Subtotal (Q) = J+K+L+M+N</b>                                                                               |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| <b>Subtotal (S) = J+K+L+M+N</b>                                                                               |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+Q) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| <b>Subtotal (U) = H+T</b>                                                                                     |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| <b>Subtotal (U) = H+T</b>                                                                                     |           |            |          |           |           |          |       |               |                |              |             |             |            |            |

[illegible]

**Table B4.3-6g**  
**Cost Estimate - Secondary Basins Medium Group - Secondary Basins Subgroup**  
**Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation**

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$)               |           | Quantity | Units | Volume |         | Other Factor | Description | 1995 (\$)   |            | 1995 (\$) |            |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|-------------------------|-----------|----------|-------|--------|---------|--------------|-------------|-------------|------------|-----------|------------|
|                                                                                                |           |            |          | Unit Cost               | Units     |          |       | Factor | Mileage |              |             | Annual Cost | Total Cost | PW Cost   |            |
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |                         |           |          |       |        |         |              |             |             |            |           |            |
| HB - Soil Excavation                                                                           | A         | 1          | 2        | 3.91                    | /BCY      | 300,000  | BCY   | 1.000  | 1.000   | 1.000        |             | 1,338,000   |            | 1,307,000 |            |
| HB - Transportation of Contaminated Soil to Consolidation Area                                 | A         | 1          | 2        | 1.07                    | /BCY-MILE | 300,000  | BCY   | 1.000  | 1.500   | 1.000        |             | 549,000     |            | 536,000   |            |
| HB - Grade Filling w/Consolidated Soil Prior to Capping                                        | A         | 1          | 2        | 3.63                    | /BCY      | 300,000  | BCY   | 1.000  | 1.000   | 1.000        |             | 1,243,000   |            | 1,213,000 |            |
| HB - Excavation of Borrow Material                                                             | A         | 1          | 2        | 1.89                    | /BCY      | 300,000  | BCY   | 1.000  | 1.000   | 1.000        |             | 647,000     |            | 632,000   |            |
| HB - Transportation of Borrow Material to Bedfill Area                                         | A         | 1          | 2        | 0.86                    | /BCY-MILE | 300,000  | BCY   | 1.000  | 1.500   | 1.000        |             | 442,000     |            | 431,000   |            |
| HB - Backfill with Borrow Material                                                             | A         | 1          | 2        | 1.72                    | /BCY      | 300,000  | BCY   | 1.000  | 1.000   | 1.000        |             | 588,000     |            | 575,000   |            |
| HB - Installation of 6 Inches of Topsoil                                                       | A         | 1          | 2        | 3.24                    | /SY       | 430,000  | SY    | 1.000  | 1.000   | 1.000        |             | 1,590,000   |            | 1,552,000 |            |
| HB - Revegetation of Disturbed Areas                                                           | A         | 1          | 2        | 0.18                    | /SY       | 430,000  | SY    | 1.000  | 1.000   | 1.100        | Disturbance | 97,000      |            | 95,000    |            |
|                                                                                                |           |            |          |                         |           |          |       |        |         |              |             | 8,485,000   |            | 8,341,000 |            |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |                         |           |          |       |        |         |              |             |             |            |           |            |
| Mod/Demob                                                                                      |           |            |          | J = 0.039 * (I)         |           |          |       |        |         |              |             |             |            |           |            |
| Indirects, Overhead & Profit                                                                   |           |            |          | K = 0.390 * (I+J)       |           |          |       |        |         |              |             | 252,000     |            | 248,000   |            |
| Engineering Design                                                                             |           |            |          | L = 0.005 * (I+J+K)     |           |          |       |        |         |              |             | 47,000      |            | 46,000    |            |
| Resident Engineering                                                                           |           |            |          | M = 0.015 * (I+J+K)     |           |          |       |        |         |              |             | 141,000     |            | 137,000   |            |
| Contingency                                                                                    |           |            |          | N = 0.275 * (I+J+K+L+M) |           |          |       |        |         |              |             | 2,631,000   |            | 2,598,000 |            |
| Subtotal (O = J+K+L+M+N)                                                                       |           |            |          |                         |           |          |       |        |         |              |             | 5,701,000   |            | 5,565,000 |            |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |                         |           |          |       |        |         |              |             |             |            |           |            |
| HB - No Action                                                                                 | A         | 2          | 30       | 0.00                    | /SY       | 430,000  | SY    | 1.000  | 1.000   | 1.000        |             | 0           | 0          | 0         |            |
| Subtotal (P)                                                                                   |           |            |          |                         |           |          |       |        |         |              |             | 0           | 0          | 0         |            |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |                         |           |          |       |        |         |              |             |             |            |           |            |
| Indirects, Overhead & Profit                                                                   |           |            |          | Q = 0.390 * (P)         |           |          |       |        |         |              |             | 0           | 0          | 0         |            |
| Contingency                                                                                    |           |            |          | R = 0.300 * (P+Q)       |           |          |       |        |         |              |             | 0           | 0          | 0         |            |
| Subtotal (S)                                                                                   |           |            |          |                         |           |          |       |        |         |              |             | 0           | 0          | 0         |            |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |                         |           |          |       |        |         |              |             | 0           | 12,197,000 |           | 11,906,000 |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |                         |           |          |       |        |         |              |             |             | 12,200,000 |           | 11,900,000 |

Table B4.3-13a Cost Estimate - Secondary Basins Medium Group - Secondary Basins Subgroup  
Alternative 13a: Direct Thermal Desorption (Direct Heating)

| Cost Item                                                    | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2          | --       | 5.72                   | /BCY  | 3,000    | BCY   | 1,000         | 1,000          | 1,000        |             |                          | 20,000                  | 19,000               |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3          | --       | 3.80                   | /BCY  | 3,000    | BCY   | 1,000         | 1,000          | 1,000        |             |                          | 13,000                  | 12,000               |
| <b>Subtotal (A)</b>                                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT CAPITAL COSTS</b>                                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| MOB/Demob                                                    |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                 |           |            |          |                        |       |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
| Engineering Design                                           |           |            |          |                        |       |          |       |               |                |              |             |                          | 13,000                  | 12,000               |
| Resident Engineering                                         |           |            |          |                        |       |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
| Contingency                                                  |           |            |          |                        |       |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
| <b>Subtotal (B = 0.033 * (A))</b>                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (C = 0.380 * (A+B))</b>                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (D = 0.030 * (A+B+C))</b>                        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (E = 0.013 * (A+B+C))</b>                        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (F = 0.263 * (A+B+C+D+E))</b>                    |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (G = B+C+D+E+F)</b>                              |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                      |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| HB - Thermal Desorption (Dry Soil)                           | A         | 1          | 2        | 14.17                  | /BCY  | 300,000  | BCY   | 1,000         | 1,000          | 1,000        |             |                          | 4,851,000               | 4,796,000            |
| <b>Subtotal (A1)</b>                                         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                    |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| MOB/Demob                                                    |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                            |           |            |          |                        |       |          |       |               |                |              |             |                          | 97,000                  | 95,000               |
| Engineering Design                                           |           |            |          |                        |       |          |       |               |                |              |             |                          | 485,000                 | 483,000              |
| Resident Engineering                                         |           |            |          |                        |       |          |       |               |                |              |             |                          | 480,000                 | 478,000              |
| Contingency                                                  |           |            |          |                        |       |          |       |               |                |              |             |                          | 163,000                 | 159,000              |
| <b>Subtotal (B1 = 0.020 * (A1))</b>                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (C1 = 0.100 * (A1+B1))</b>                       |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (D1 = 0.090 * (A1+B1+C1))</b>                    |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (E1 = 0.030 * (A1+B1+C1))</b>                    |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (F1 = 0.300 * (A1+B1+C1+D1+E1))</b>              |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (G1 = B1+C1+D1+E1+F1)</b>                        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (H)</b>                                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (I = H + G + A1 + G1)</b>                        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

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Table B4.3-13a Cost Estimate - Secondary Basins Medium Group - Secondary Basins Subgroup  
Alternative 13a: Direct Thermal Description (Direct Heating)

| Cost Item                                                                | Cost Type       | Start Year                | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)  | 1995 (\$)  | 1995 (\$)  | PW Cost    |
|--------------------------------------------------------------------------|-----------------|---------------------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|------------|------------|------------|------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                 |                 |                           |          |           |           |          |       |               |                |              |             |            |            |            |            |
| HB - Soil Excavation                                                     | LS              | 3                         | --       | 3.91      | /BCY      | 300,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 1,338,000  | 1,338,000  | 1,214,000  | 1,214,000  |
| HB - Transportation of Contaminated Soil to Thermal Description Facility | LS              | 3                         | --       | 1.07      | /BCY-MILE | 300,000  | BCY   | 1.000         | 1.500          | 1.000        | 1.000       | 549,000    | 549,000    | 498,000    | 498,000    |
| HB - Land Treated Soil for Transport to Hazardous Landfill               | LS              | 3                         | --       | 1.55      | /BCY      | 3,000    | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 5,000      | 5,000      | 5,000      | 5,000      |
| HB - Transportation of Particulates to On-Post Hazardous Waste Landfill  | LS              | 3                         | --       | 1.07      | /BCY-MILE | 3,000    | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 4,000      | 4,000      | 3,000      | 3,000      |
| HB - On-Post Hazardous Waste Landfill (Particulates)                     | LS              | 3                         | --       | 4.07      | /BCY      | 3,000    | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 14,000     | 14,000     | 13,000     | 13,000     |
| HB - Land Nonhazardous Treated Soil from Stockpile for Backfill          | LS              | 3                         | --       | 1.28      | /BCY      | 300,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 438,000    | 438,000    | 397,000    | 397,000    |
| HB - Backfill of Treated Soil to Backfill Excavation                     | LS              | 3                         | --       | 0.86      | /BCY-MILE | 300,000  | BCY   | 1.000         | 1.500          | 1.000        | 1.000       | 442,000    | 442,000    | 401,000    | 401,000    |
| HB - Backfill with Treated Soil                                          | LS              | 3                         | --       | 1.72      | /BCY      | 300,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 589,000    | 589,000    | 534,000    | 534,000    |
| HB - Installation of 6 Inches of Topsoil                                 | LS              | 3                         | --       | 3.24      | /SY       | 430,000  | SY    | 1.000         | 1.000          | 1.000        | 1.000       | 1,580,000  | 1,580,000  | 1,442,000  | 1,442,000  |
| HB - Revegetation of Disturbed Areas                                     | LS              | 3                         | --       | 0.18      | /SY       | 430,000  | SY    | 1.000         | 1.000          | 1.000        | 1.000       | 97,000     | 97,000     | 86,000     | 86,000     |
| Subtotal (I)                                                             |                 |                           |          |           |           |          |       |               |                |              |             | 5,067,000  | 5,067,000  | 4,536,000  | 4,536,000  |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                               |                 |                           |          |           |           |          |       |               |                |              |             |            |            |            |            |
| Mold/Demob                                                               | COST CODE: MMMS |                           |          |           |           |          |       |               |                |              |             |            |            |            |            |
| Indirects                                                                | 4.5%            | $J = 0.045 * (I)$         |          |           |           |          |       |               |                |              |             |            |            |            |            |
| Overhead & Profit                                                        | 39.0%           | $K = 0.390 * (I+J)$       |          |           |           |          |       |               |                |              |             |            |            |            |            |
| Engineering Design                                                       | 1.5%            | $L = 0.015 * (I+J+K)$     |          |           |           |          |       |               |                |              |             |            |            |            |            |
| Resident Engineering                                                     | 1.8%            | $M = 0.018 * (I+J+K)$     |          |           |           |          |       |               |                |              |             |            |            |            |            |
| Contingency                                                              | 28.8%           | $N = 0.288 * (I+J+K+L+M)$ |          |           |           |          |       |               |                |              |             |            |            |            |            |
| Subtotal (O) = J+K+L+M+N                                                 |                 |                           |          |           |           |          |       |               |                |              |             | 228,000    | 228,000    | 207,000    | 207,000    |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                     |                 |                           |          |           |           |          |       |               |                |              |             |            |            |            |            |
| HB - Thermal Description (Dry Soil)                                      | LS              | 3                         | --       | 49.13     | /BCY      | 300,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 16,820,000 | 16,820,000 | 15,258,000 | 15,258,000 |
| Subtotal (I1)                                                            |                 |                           |          |           |           |          |       |               |                |              |             | 16,820,000 | 16,820,000 | 15,258,000 | 15,258,000 |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |                 |                           |          |           |           |          |       |               |                |              |             |            |            |            |            |
| Mold/Demob                                                               | COST CODE: D    |                           |          |           |           |          |       |               |                |              |             |            |            |            |            |
| Contractor Markup                                                        | 0.0%            | $J1 = 0.000 * (I1)$       |          |           |           |          |       |               |                |              |             |            |            |            |            |
| Engineering Design                                                       | 10.0%           | $K1 = 0.100 * (I1+J1)$    |          |           |           |          |       |               |                |              |             |            |            |            |            |
| Resident Engineering                                                     | 0.0%            | $L1 = 0.000 * (I1+J1+K1)$ |          |           |           |          |       |               |                |              |             |            |            |            |            |
| Contingency                                                              | 2.0%            | $M1 = 0.020 * (I1+J1+K1)$ |          |           |           |          |       |               |                |              |             |            |            |            |            |
| Subtotal (O1) = J1+K1+L1+M1+N1                                           |                 |                           |          |           |           |          |       |               |                |              |             | 0          | 0          | 0          | 0          |
| Subtotal (O1) = J1+K1+L1+M1+N1                                           |                 |                           |          |           |           |          |       |               |                |              |             | 1,682,000  | 1,682,000  | 1,528,000  | 1,528,000  |
| Subtotal (O1) = J1+K1+L1+M1+N1                                           |                 |                           |          |           |           |          |       |               |                |              |             | 0          | 0          | 0          | 0          |
| Subtotal (O1) = J1+K1+L1+M1+N1                                           |                 |                           |          |           |           |          |       |               |                |              |             | 370,000    | 370,000    | 336,000    | 336,000    |
| Subtotal (O1) = J1+K1+L1+M1+N1                                           |                 |                           |          |           |           |          |       |               |                |              |             | 7,549,000  | 7,549,000  | 6,947,000  | 6,947,000  |
| Subtotal (O1) = J1+K1+L1+M1+N1                                           |                 |                           |          |           |           |          |       |               |                |              |             | 8,601,000  | 8,601,000  | 8,708,000  | 8,708,000  |
| Subtotal (O1) = J1+K1+L1+M1+N1                                           |                 |                           |          |           |           |          |       |               |                |              |             | 36,204,000 | 36,204,000 | 32,838,000 | 32,838,000 |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+I1+O1)</b>                 |                 |                           |          |           |           |          |       |               |                |              |             |            |            |            |            |
| HB-13A.W01                                                               |                 |                           |          |           |           |          |       |               |                |              |             |            |            |            |            |
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| Cost Item                                                                                               | Cost Type | Start Year | End Year | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |         |          |       |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates)                                            |           |            |          |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         | A         | 3          | 30       | /BCY-YR | 3,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 400                      | 12,000                  | 6,000                |
| Subtotal (P)                                                                                            |           |            |          |         |          |       |               |                |              |             | 400                      | 12,000                  | 6,000                |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |         |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                                         |           |            |          |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit 39.0% (P)                                                                  |           |            |          |         |          |       |               |                |              |             |                          |                         |                      |
| Contingency 30.0% (P+Q)                                                                                 |           |            |          |         |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (S = Q+R)                                                                                      |           |            |          |         |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (P)                                                                                            |           |            |          |         |          |       |               |                |              |             | 200                      | 5,000                   | 2,000                |
| Subtotal (S = Q+R)                                                                                      |           |            |          |         |          |       |               |                |              |             | 200                      | 5,000                   | 3,000                |
| Subtotal (S = Q+R)                                                                                      |           |            |          |         |          |       |               |                |              |             | 400                      | 10,000                  | 5,000                |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |         |          |       |               |                |              |             | 1,000                    | 23,000                  | 11,000               |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |         |          |       |               |                |              |             |                          | 44,200,000              | 40,600,000           |

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| Cost Item                                  | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------|-----------|------------|----------|------------------------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT CAPITAL COSTS</b>              |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit               |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                         |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                       |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (A)                               |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>    |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| H - In Situ RF/Microwave Heating - Deep    |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| B - In Situ RF/Microwave Heating - Shallow |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (A1)                              |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>  |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit               |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                         |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                       |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)             |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b> |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>HSR-19A.W01</b>                         |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>SOILS DATA</b>                          |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |



Table BA.3.19a Cost Estimate - Secondary Basins Medium Group - Secondary Basins Subgroup  
Alternative 19a: In Situ Thermal Treatment (RF/Microwave Heating)

| Cost Item                                                   | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                                               | A         | 1          | 30       | 0.00                   | /SY   | 10,000   | SY    | 1,000         | 1,000          | 1,000        |             | 0                        | 0                       | 0                    |
| B - No Action                                               | A         | 6          | 30       | 0.00                   | /SY   | 420,000  | SY    | 1,000         | 1,000          | 1,000        |             | 0                        | 0                       | 0                    |
| Subtotal (P)                                                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Q = 0.390 * (P)                                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| R = 0.300 * (P+Q)                                           |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (S = Q+R)                                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b> |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                                             |           |            |          |                        |       |          |       |               |                |              |             |                          | 1,400,000,000           | 127,000,000          |

TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (OPERATIONS & LONG-TERM ACTIVITIES) (U = H+O+S+T)

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Table B4.4-1 Cost Estimate - Secondary Basins Medium Group - Former Basin F Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| H - No Action                 | LS        | 1          | --       | 0.00                   | /SY   | 370,000  | SY    | 1.000            | 1.000             | 1.000           |             |                          | 0                       | 0                    |
| B - No Action                 | LS        | 1          | --       | 0.00                   | /SY   | 57,000   | SY    | 1.000            | 1.000             | 1.000           |             |                          | 0                       | 0                    |
| INDIRECT CAPITAL COSTS        |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mod/Demob                     |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit  |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design            |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                   |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (A)                  |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| 0                             |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| INDIRECT CAPITAL COSTS        |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mod/Demob                     |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit  |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design            |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                   |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (G =B+C+D+E+F)       |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| 0                             |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| TOTAL CAPITAL COSTS (H = A+G) |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| 0                             |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |

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**Table B4.4-1**  
**Cost Estimate - Secondary Basins Medium Group - Former Basin F Subgroup**  
**Alternative 1: No Additional Action (Provisions of FFA)**

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$) | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$) |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|--------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|-----------|
|                                                                                                               |           |            |          | Unit Cost |        |          |       |               |                |              |             | Annual Cost | Total Cost | PW Cost   |
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| H - No Action                                                                                                 | LS        | 1          | --       | 0.00      | /SY    | 370,000  | SY    | 1.000         | 1.000          | 1.000        |             |             | 0          | 0         |
| B - No Action                                                                                                 | LS        | 1          | --       | 0.00      | /SY    | 57,000   | SY    | 1.000         | 1.000          | 1.000        |             |             | 0          | 0         |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| Mod/Demob                                                                                                     |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| Indirects, Overhead & Profit                                                                                  |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| Engineering Design                                                                                            |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| Resident Engineering                                                                                          |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| Contingency                                                                                                   |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| <b>Subtotal (I) = J+K+L+M</b>                                                                                 |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| <b>0</b>                                                                                                      |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| HIB - Long Term Soil Monitoring, Former Basin F                                                               | A         | 1          | 30       | 77,000.00 | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 98,000      | 2,636,000  | 1,397,000 |
| HIB - Site Reviews                                                                                            | A         | 1          | 30       | 5,400.00  | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000       | 185,000    | 98,000    |
| HIB - Maintenance of Existing Soil Cover                                                                      | A         | 1          | 30       | 0.33      | /SY-YR | 420,000  | SY    | 1.000         | 1.000          | 1.000        |             | 198,000     | 4,745,000  | 2,515,000 |
| <b>Subtotal (O) = J+K+L+M+N</b>                                                                               |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| <b>0</b>                                                                                                      |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| Indirects, Overhead & Profit                                                                                  |           |            |          |           |        |          |       |               |                |              |             |             | 98,000     | 1,584,000 |
| Contingency                                                                                                   |           |            |          |           |        |          |       |               |                |              |             |             | 105,000    | 3,155,000 |
| <b>Subtotal (P) = Q+R</b>                                                                                     |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| <b>204,000</b>                                                                                                |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| <b>Subtotal (S)</b>                                                                                           |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| <b>456,000</b>                                                                                                |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| <b>7,245,000</b>                                                                                              |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| <b>13,700,000</b>                                                                                             |           |            |          |           |        |          |       |               |                |              |             |             |            |           |

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Table B4.4-1a Cost Estimate - Secondary Basins Medium Group - Former Basin F Subgroup  
Alternative 1a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume, No Additional Action (Provisions of FFA)

| Cost Item                                                              | Cost Type                           | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|------------------------------------------------------------------------|-------------------------------------|------------|----------|------------------------|-----------|----------|---------------|----------------|--------------|--------------|--------------------------|-------------------------|----------------------|
| DIRECT O&M COSTS (OPERATIONS)                                          |                                     |            |          |                        |           |          |               |                |              |              |                          |                         |                      |
| H - No Action (Limited)                                                | LS                                  | 1          | --       | 0.00                   | /SY       | 370,000  | 1.000         | 1.000          | 1.000        |              | 0                        | 0                       | 0                    |
| H - Excavation of Cover Overburden                                     | LS                                  | 3          | --       | 1.89                   | /BCY      | 110,000  | 1.000         | 1.000          | 1.000        |              | 237,000                  | 237,000                 | 215,000              |
| H - Soil Excavation                                                    | LS                                  | 3          | --       | 3.91                   | /BCY      | 220,000  | 1.000         | 1.000          | 1.000        |              | 882,000                  | 882,000                 | 860,000              |
| H - Transportation of Contaminated Soil to Thermal Desorption Facility | LS                                  | 3          | --       | 1.07                   | /BCY-MILE | 220,000  | 1.000         | 2.000          | 1.200        | Odor Control | 645,000                  | 645,000                 | 595,000              |
| H - Load Treated Soil for Transport to Hazardous Landfill              | LS                                  | 3          | --       | 1.55                   | /BCY      | 2,200    | 1.000         | 1.000          | 1.000        |              | 4,000                    | 4,000                   | 4,000                |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill | LS                                  | 3          | --       | 1.07                   | /BCY-MILE | 2,200    | 1.000         | 1.000          | 1.000        |              | 3,000                    | 3,000                   | 2,000                |
| H - On-Post Hazardous Waste Landfill (Particulates)                    | LS                                  | 3          | --       | 4.07                   | /BCY      | 2,200    | 1.000         | 1.000          | 1.000        |              | 10,000                   | 10,000                  | 8,000                |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill         | LS                                  | 3          | --       | 1.28                   | /BCY      | 220,000  | 1.000         | 1.000          | 1.000        |              | 321,000                  | 321,000                 | 291,000              |
| H - Transportation of Treated Soil to Backfill Excavation              | LS                                  | 3          | --       | 0.86                   | /BCY-MILE | 220,000  | 1.000         | 2.000          | 1.000        |              | 432,000                  | 432,000                 | 392,000              |
| H - Backfill with Treated Soil                                         | LS                                  | 3          | --       | 1.72                   | /BCY      | 220,000  | 1.000         | 1.000          | 1.000        |              | 432,000                  | 432,000                 | 392,000              |
| H - Backfill of Cover Overburden                                       | LS                                  | 3          | --       | 1.72                   | /BCY      | 110,000  | 1.000         | 1.000          | 1.000        |              | 216,000                  | 216,000                 | 196,000              |
| H - Revegetation of Disturbed Areas                                    | LS                                  | 3          | --       | 0.18                   | /SY       | 110,000  | 1.000         | 1.000          | 1.100        | Disturbance  | 25,000                   | 25,000                  | 23,000               |
| B - No Action                                                          | LS                                  | 1          | --       | 0.00                   | /SY       | 57,000   | 1.000         | 1.000          | 1.000        |              | 0                        | 0                       | 0                    |
| Subtotal (I)                                                           |                                     |            |          |                        |           |          |               |                |              |              |                          | 3,306,000               | 2,959,000            |
| INDIRECT O&M COSTS (OPERATIONS)                                        |                                     |            |          |                        |           |          |               |                |              |              |                          |                         |                      |
| Mob/Demob                                                              | 3.9% J = 0.039 * (I)                |            |          |                        |           |          |               |                |              |              |                          |                         |                      |
| Indirects, Overhead & Profit                                           | 36.0% K = 0.360 * (I+J)             |            |          |                        |           |          |               |                |              |              |                          |                         |                      |
| Engineering Design                                                     | 0.5% L = 0.005 * (I+J+K)            |            |          |                        |           |          |               |                |              |              |                          |                         |                      |
| Resident Engineering                                                   | 1.5% M = 0.015 * (I+J+K)            |            |          |                        |           |          |               |                |              |              |                          |                         |                      |
| Contingency                                                            | 27.5% N = 0.275 * (I+J+K+L+M)       |            |          |                        |           |          |               |                |              |              |                          |                         |                      |
| Subtotal (Q = J+K+L+M+N)                                               |                                     |            |          |                        |           |          |               |                |              |              |                          | 2,902,000               | 2,632,000            |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                              |                                     |            |          |                        |           |          |               |                |              |              |                          |                         |                      |
| H - Thermal Desorption (Dry Soil)                                      | LS                                  | 3          | --       | 49.13                  | /BCY      | 220,000  | 1.000         | 1.000          | 1.000        |              | 12,334,000               | 11,186,000              |                      |
| Subtotal (I1)                                                          |                                     |            |          |                        |           |          |               |                |              |              |                          | 12,334,000              | 11,186,000           |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                            |                                     |            |          |                        |           |          |               |                |              |              |                          |                         |                      |
| Mob/Demob                                                              | 0.0% J1 = 0.000 * (I1)              |            |          |                        |           |          |               |                |              |              |                          |                         |                      |
| Contractor Markup                                                      | 10.0% K1 = 0.100 * (I1+J1)          |            |          |                        |           |          |               |                |              |              |                          |                         |                      |
| Engineering Design                                                     | 0.0% L1 = 0.000 * (I1+J1+K1)        |            |          |                        |           |          |               |                |              |              |                          |                         |                      |
| Resident Engineering                                                   | 2.0% M1 = 0.020 * (I1+J1+K1)        |            |          |                        |           |          |               |                |              |              |                          |                         |                      |
| Contingency                                                            | 40.0% N1 = 0.400 * (I1+J1+K1+L1+M1) |            |          |                        |           |          |               |                |              |              |                          |                         |                      |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                         |                                     |            |          |                        |           |          |               |                |              |              |                          | 0                       | 0                    |
|                                                                        |                                     |            |          |                        |           |          |               |                |              |              |                          | 1,233,000               | 1,118,000            |
|                                                                        |                                     |            |          |                        |           |          |               |                |              |              |                          | 0                       | 0                    |
|                                                                        |                                     |            |          |                        |           |          |               |                |              |              |                          | 271,000                 | 246,000              |
|                                                                        |                                     |            |          |                        |           |          |               |                |              |              |                          | 5,536,000               | 5,021,000            |
| Subtotal (OO = I+O1+O1)                                                |                                     |            |          |                        |           |          |               |                |              |              |                          | 7,040,000               | 6,396,000            |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O1+O1)                            |                                     |            |          |                        |           |          |               |                |              |              |                          | 25,583,000              | 23,205,000           |

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Table B4.4-1a Cost Estimate - Secondary Basins Medium Group - Former Basin F Subgroup  
 Alternative 1a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; No Additional Action (Provisions of FTA)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$)  | 1995 (\$) | PW Cost    |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|---------|----------|-------|---------------|----------------|--------------|-------------|-----------|------------|-----------|------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |           |         |          |       |               |                |              |             |           |            |           |            |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       | 0.13      | /BCY-YR | 2,200    | BCY   | 1,000         | 1,000          | 1,000        |             | 300       | 9,000      |           | 5,000      |
| HB - Long Term Soil Monitoring, Former Basin F                                                          | A         | 3          | 30       | 77,000.00 | /EA-YR  | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 88,000    | 2,480,000  |           | 1,247,000  |
| HB - Maintenance of Existing Soil Cover                                                                 | A         | 3          | 30       | 0.33      | /SY-YR  | 420,000  | SY    | 1,000         | 1,000          | 1,000        |             | 156,000   | 4,428,000  |           | 2,244,000  |
| HB - Site Reviews                                                                                       | A         | 3          | 30       | 5,400.00  | /EA-YR  | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 6,000     | 173,000    |           | 87,000     |
| Subtotal (P)                                                                                            |           |            |          |           |         |          |       |               |                |              |             | 253,000   | 7,071,000  |           | 3,583,000  |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |           |         |          |       |               |                |              |             |           |            |           |            |
| Indirects, Overhead & Profit                                                                            |           |            |          |           |         |          |       |               |                |              |             | 98,000    | 2,756,000  |           | 1,397,000  |
| Contingency                                                                                             |           |            |          |           |         |          |       |               |                |              |             | 105,000   | 2,948,000  |           | 1,494,000  |
| Subtotal (S = Q+R)                                                                                      |           |            |          |           |         |          |       |               |                |              |             | 204,000   | 5,704,000  |           | 2,891,000  |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                                        |           |            |          |           |         |          |       |               |                |              |             | 456,000   | 12,777,000 |           | 6,474,000  |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |           |         |          |       |               |                |              |             |           |            |           |            |
|                                                                                                         |           |            |          |           |         |          |       |               |                |              |             |           | 44,200,000 |           | 33,400,000 |

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Table B4.4-2a Cost Estimate - Secondary Basins Medium Group - Former Basin F Subgroup  
Alternative 2a: Direct Thermal Description (Direct Heating) of Principal Threat Volume; Access Restrictions (Modifications to FFA)

| Cost Item                                                   | Cost Type | Start Year                    | End Year | 1992 (\$) | Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost   |           |  |  |           |
|-------------------------------------------------------------|-----------|-------------------------------|----------|-----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|-----------|-----------|--|--|-----------|
| DIRECT CAPITAL COSTS                                        |           |                               |          |           |           |       |          |       |               |                |              |             |           |           |           |           |           |  |  |           |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | --       | 5.72      | /BCY      | BCY   | 2,200    | BCY   | 1.000         | 1.000          | 1.000        |             | 14,000    | 14,000    |           | 14,000    |           |  |  |           |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                             | --       | 3.80      | /BCY      | BCY   | 2,200    | BCY   | 1.000         | 1.000          | 1.000        |             | 10,000    | 10,000    |           | 9,000     |           |  |  |           |
| H - Public Education                                        | LS        | 1                             | --       | 1,500.00  | /EA       | EA    | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 2,000     | 2,000     |           | 2,000     |           |  |  |           |
| HB - Fences                                                 | LS        | 3                             | --       | 15.00     | /LF       | LF    | 8,100    | LF    | 1.000         | 1.000          | 1.000        |             | 136,000   | 136,000   |           | 126,000   |           |  |  |           |
| Subtotal (A)                                                |           |                               |          |           |           |       |          |       |               |                |              |             | 164,000   |           |           | 150,000   |           |  |  |           |
| INDIRECT CAPITAL COSTS                                      |           |                               |          |           |           |       |          |       |               |                |              |             |           |           |           |           |           |  |  |           |
| COST CODE: LUSS                                             |           |                               |          |           |           |       |          |       |               |                |              |             |           |           |           |           |           |  |  |           |
| Mod/Demob                                                   | 3.3%      | B = 0.033 * (A)               |          |           |           |       |          |       |               |                |              |             |           |           |           |           | 5,000     |  |  | 5,000     |
| Indirects, Overhead & Profit                                | 39.0%     | C = 0.390 * (A+B)             |          |           |           |       |          |       |               |                |              |             |           |           |           |           | 66,000    |  |  | 60,000    |
| Engineering Design                                          | 3.0%      | D = 0.030 * (A+B+C)           |          |           |           |       |          |       |               |                |              |             |           |           |           |           | 7,000     |  |  | 6,000     |
| Resident Engineering                                        | 1.3%      | E = 0.013 * (A+B+C)           |          |           |           |       |          |       |               |                |              |             |           |           |           |           | 3,000     |  |  | 3,000     |
| Contingency                                                 | 26.3%     | F = 0.263 * (A+B+C+D+E)       |          |           |           |       |          |       |               |                |              |             |           |           |           |           | 66,000    |  |  | 56,000    |
| Subtotal (G = B+C+D+E+F)                                    |           |                               |          |           |           |       |          |       |               |                |              |             | 146,000   |           |           | 133,000   |           |  |  |           |
| DIRECT SUBCONTRACT CAPITAL COSTS                            |           |                               |          |           |           |       |          |       |               |                |              |             |           |           |           |           |           |  |  |           |
| H - Thermal Description (Dry Soil)                          | A         | 1                             | 2        | 14.17     | /BCY      | BCY   | 220,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 3,557,000 |           |           | 3,473,000 |           |  |  |           |
| Subtotal (A1)                                               |           |                               |          |           |           |       |          |       |               |                |              |             | 3,557,000 |           |           | 3,473,000 |           |  |  |           |
| INDIRECT SUBCONTRACT CAPITAL COSTS                          |           |                               |          |           |           |       |          |       |               |                |              |             |           |           |           |           |           |  |  |           |
| COST CODE: C                                                |           |                               |          |           |           |       |          |       |               |                |              |             |           |           |           |           |           |  |  |           |
| Mod/Demob                                                   | 2.0%      | B1 = 0.020 * (A1)             |          |           |           |       |          |       |               |                |              |             |           |           |           |           | 71,000    |  |  | 66,000    |
| Contractor Markup                                           | 10.0%     | C1 = 0.100 * (A1+B1)          |          |           |           |       |          |       |               |                |              |             |           |           |           |           | 363,000   |  |  | 354,000   |
| Engineering Design                                          | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |           |           |       |          |       |               |                |              |             |           |           |           |           | 359,000   |  |  | 351,000   |
| Resident Engineering                                        | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |           |           |       |          |       |               |                |              |             |           |           |           |           | 120,000   |  |  | 117,000   |
| Contingency                                                 | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |           |           |       |          |       |               |                |              |             |           |           |           |           | 1,341,000 |  |  | 1,309,000 |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |                               |          |           |           |       |          |       |               |                |              |             | 2,254,000 |           |           | 2,200,000 |           |  |  |           |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                         |           |                               |          |           |           |       |          |       |               |                |              |             | 6,122,000 |           |           | 5,956,000 |           |  |  |           |

Table B4.4-2a Cost Estimate - Secondary Basins Medium Group - Former Basin F Subgroup  
Alternative 2a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Access Restrictions (Modifications to FFA)

| Cost Item                                                              | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost       | Units     | Quantity | Units           | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description   | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|------------------------------------------------------------------------|-----------|------------|----------|------------------------------|-----------|----------|-----------------|------------------|-------------------|-----------------|---------------|--------------------------|-------------------------|----------------------|
| DIRECT O&M COSTS (OPERATIONS)                                          |           |            |          |                              |           |          |                 |                  |                   |                 |               |                          |                         |                      |
| H - Excavation of Cover Overburden                                     | LS        | 3          | --       | 1.89                         | /BCY      | 110,000  | BCY             | 1.000            | 1.000             | 1.000           |               | 237,000                  | 237,000                 | 215,000              |
| H - Soil Excavation                                                    | LS        | 3          | --       | 3.91                         | /BCY      | 220,000  | BCY             | 1.000            | 1.000             | 1.200           | Other Control | 1,178,000                | 1,178,000               | 1,088,000            |
| H - Transportation of Contaminated Soil to Thermal Desorption Facility | LS        | 3          | --       | 1.07                         | /BCY-MILE | 220,000  | BCY             | 1.000            | 1.500             | 1.000           |               | 403,000                  | 403,000                 | 385,000              |
| H - Load Treated Soil for Transport to Hazardous Landfill              | LS        | -3         | --       | 1.55                         | /BCY      | 2,200    | BCY             | 1.000            | 1.000             | 1.000           |               | 4,000                    | 4,000                   | 4,000                |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill | LS        | 3          | --       | 1.07                         | /BCY-MILE | 2,200    | BCY             | 1.000            | 1.000             | 1.000           |               | 3,000                    | 3,000                   | 2,000                |
| H - On-Post Hazardous Waste Landfill (Particulates)                    | LS        | 3          | --       | 4.07                         | /BCY      | 2,200    | BCY             | 1.000            | 1.000             | 1.000           |               | 10,000                   | 10,000                  | 9,000                |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill         | LS        | 3          | --       | 1.28                         | /BCY      | 220,000  | BCY             | 1.000            | 1.000             | 1.000           |               | 321,000                  | 321,000                 | 281,000              |
| H - Transportation of Treated Soil to Backfill Excavation              | LS        | 3          | --       | 0.86                         | /BCY-MILE | 220,000  | BCY             | 1.000            | 1.500             | 1.000           |               | 324,000                  | 324,000                 | 284,000              |
| H - Backfill with Treated Soil                                         | LS        | 3          | --       | 1.72                         | /BCY      | 220,000  | BCY             | 1.000            | 1.000             | 1.000           |               | 432,000                  | 432,000                 | 392,000              |
| H - Backfill of Cover Overburden                                       | LS        | 3          | --       | 1.72                         | /BCY      | 110,000  | BCY             | 1.000            | 1.000             | 1.000           |               | 216,000                  | 216,000                 | 196,000              |
| HB - Habitat Modification                                              | A         | 1          | 3        | 0.17                         | /SY       | 420,000  | SY              | 1.000            | 1.000             | 1.000           |               | 81,000                   | 81,000                  | 77,000               |
| H - Public Education                                                   | A         | 1          | 30       | 500.00                       | /EA-YR    | 1        | EA              | 1.000            | 1.000             | 1.000           |               | 17,000                   | 17,000                  | 9,000                |
| Subtotal (I)                                                           |           |            |          |                              |           |          |                 |                  |                   |                 |               | 3,228,000                | 3,228,000               | 2,923,000            |
| INDIRECT O&M COSTS (OPERATIONS)                                        |           |            |          |                              |           |          |                 |                  |                   |                 |               |                          |                         |                      |
| Mod/Demob                                                              | 3.9%      |            |          | J = 0.039 * (I)              |           |          | COST CODE: LMWS |                  |                   |                 |               |                          |                         |                      |
| Indirects, Overhead & Profit                                           | 37.8%     |            |          | K = 0.378 * (I+J)            |           |          |                 |                  |                   | 125,000         |               |                          |                         |                      |
| Engineering Design                                                     | 1.5%      |            |          | L = 0.015 * (I+J+K)          |           |          |                 |                  |                   | 1,285,000       |               |                          |                         |                      |
| Resident Engineering                                                   | 1.5%      |            |          | M = 0.015 * (I+J+K)          |           |          |                 |                  |                   | 68,000          |               |                          |                         |                      |
| Contingency                                                            | 27.5%     |            |          | N = 0.275 * (I+J+K+L+M)      |           |          |                 |                  |                   | 68,000          |               |                          |                         |                      |
| Subtotal (O = J+K+L+M+N)                                               |           |            |          |                              |           |          |                 |                  |                   |                 |               | 1,307,000                | 1,307,000               | 1,185,000            |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                              |           |            |          |                              |           |          |                 |                  |                   |                 |               |                          |                         |                      |
| H - Thermal Desorption (Dry Soil)                                      | LS        | 3          | --       | 49.13                        | /BCY      | 220,000  | BCY             | 1.000            | 1.000             | 1.000           |               | 12,334,000               | 12,334,000              | 11,188,000           |
| Subtotal (H)                                                           |           |            |          |                              |           |          |                 |                  |                   |                 |               | 12,334,000               | 12,334,000              | 11,188,000           |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                            |           |            |          |                              |           |          |                 |                  |                   |                 |               |                          |                         |                      |
| Mod/Demob                                                              | 0.0%      |            |          | J1 = 0.000 * (H)             |           |          | COST CODE: D    |                  |                   | 0               |               |                          |                         |                      |
| Contractor Markup                                                      | 10.0%     |            |          | K1 = 0.100 * (H+J1)          |           |          |                 |                  |                   | 1,233,000       |               |                          |                         |                      |
| Engineering Design                                                     | 0.0%      |            |          | L1 = 0.000 * (H+J1+K1)       |           |          |                 |                  |                   | 0               |               |                          |                         |                      |
| Resident Engineering                                                   | 2.0%      |            |          | M1 = 0.020 * (H+J1+K1)       |           |          |                 |                  |                   | 271,000         |               |                          |                         |                      |
| Contingency                                                            | 40.0%     |            |          | N1 = 0.400 * (H+J1+K1+L1+M1) |           |          |                 |                  |                   | 5,536,000       |               |                          |                         |                      |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                         |           |            |          |                              |           |          |                 |                  |                   |                 |               | 7,040,000                | 7,040,000               | 6,388,000            |
| TOTAL O&M COSTS (OPERATIONS) (OO = IO+H+O1)                            |           |            |          |                              |           |          |                 |                  |                   |                 |               | 25,437,000               | 25,437,000              | 23,067,000           |

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Table B4.4-2a Cost Estimate - Secondary Basins Medium Group - Former Basin F Subgroup  
Alternative 2a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Access Restrictions (Modifications to FFA)

| Cost Item                                                                               | Cost Type         | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------------------------|-------------------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                      |                   |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill Closure (Particulates)                             | A                 | 3          | 30       | 0.13                   | /BCY-YR | 2,200    | BCY   | 1,000         | 1,000          | 1,000        |             | 300                      | 9,000                   | 5,000                |
| HB - Fences                                                                             | A                 | 3          | 30       | 0.75                   | /LF-YR  | 8,100    | LF    | 1,000         | 1,000          | 1,000        |             | 7,000                    | 194,000                 | 98,000               |
| HB - Habitat Modification                                                               | A                 | 3          | 30       | 0.01                   | /SY-YR  | 420,000  | SY    | 0.830         | 1,000          | 1,000        |             | 2,000                    | 63,000                  | 32,000               |
| HB - Long Term Soil Monitoring Former Basin F                                           | A                 | 3          | 30       | 77,000.00              | /EA-YR  | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 98,000                   | 2,460,000               | 1,247,000            |
| HB - Maintenance of Existing Soil Cover                                                 | A                 | 3          | 30       | 0.33                   | /SY-YR  | 420,000  | SY    | 1,000         | 1,000          | 1,000        |             | 156,000                  | 4,429,000               | 2,244,000            |
| HB - Site Reviews                                                                       | A                 | 3          | 30       | 5,400.00               | /EA-YR  | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 6,000                    | 173,000                 | 87,000               |
| Subtotal (P)                                                                            |                   |            |          |                        |         |          |       |               |                |              |             | 282,000                  | 7,328,000               | 3,714,000            |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                    |                   |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                            | COST CODE: LL5L   |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                             | Q = 0.390 * (P)   |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                         | R = 0.300 * (P+Q) |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (S = Q+R)                                                                      |                   |            |          |                        |         |          |       |               |                |              |             | 102,000                  | 2,856,000               | 1,448,000            |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                        |                   |            |          |                        |         |          |       |               |                |              |             | 108,000                  | 3,056,000               | 1,549,000            |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                        |                   |            |          |                        |         |          |       |               |                |              |             | 211,000                  | 5,914,000               | 2,987,000            |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (OPERATIONS & LONG-TERM ACTIVITIES) (U = H+O+T) |                   |            |          |                        |         |          |       |               |                |              |             | 473,000                  | 13,242,000              | 6,710,000            |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (OPERATIONS & LONG-TERM ACTIVITIES) (U = H+O+T) |                   |            |          |                        |         |          |       |               |                |              |             | 44,800,000               |                         | 35,700,000           |

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Table B4.4-6c Cost Estimate - Secondary Basins Medium Group - Former Basin F Subgroup  
Alternative 6c: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap) with Modifications to Existing System

| Cost Item                                                   | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                        |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | --       | 5.72                   | /BCY  | 2,200    | BCY   | 1.000         | 1.000          | 1.000        |             | 14,000                   | 14,000                  | 14,000               |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 2                             | --       | 3.80                   | /BCY  | 2,200    | BCY   | 1.000         | 1.000          | 1.000        |             | 10,000                   | 10,000                  | 9,000                |
| Subtotal (A)                                                |           |                               |          |                        |       |          |       |               |                |              |             | 24,000                   | 23,000                  |                      |
| INDIRECT CAPITAL COSTS                                      |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSS                                             |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                   | 3.3%      | B = 0.033 * (A)               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                | 38.0%     | C = 0.380 * (A+B)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                          | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                        | 1.3%      | E = 0.013 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                 | 28.3%     | F = 0.283 * (A+B+C+D+E)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                    |           |                               |          |                        |       |          |       |               |                |              |             | 21,000                   | 20,000                  |                      |
| DIRECT SUBCONTRACT CAPITAL COSTS                            |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - Thermal Desorption (Dry Soil)                           | A         | 1                             | 2        | 14.17                  | /BCY  | 220,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 3,557,000                | 3,473,000               |                      |
| Subtotal (A1)                                               |           |                               |          |                        |       |          |       |               |                |              |             | 3,557,000                | 3,473,000               |                      |
| INDIRECT SUBCONTRACT CAPITAL COSTS                          |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: C                                                |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                   | 2.0%      | B1 = 0.020 * (A1)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                           | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                          | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                        | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                 | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |                               |          |                        |       |          |       |               |                |              |             | 2,254,000                | 2,200,000               |                      |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                         |           |                               |          |                        |       |          |       |               |                |              |             | 5,857,000                | 5,716,000               |                      |

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Table B4.4-6c Cost Estimate - Secondary Basins Medium Group - Former Basin F Subgroup  
Alternative 6c: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap) with Modifications to Existing System

| Cost Item                                                              | Cost Type | Start Year | End Year | 1992 (\$) | Units                         | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$)  | 1995 (\$)  | 1995 (\$)  |
|------------------------------------------------------------------------|-----------|------------|----------|-----------|-------------------------------|----------|-------|---------------|----------------|--------------|--------------|------------|------------|------------|
| DIRECT O&M COSTS (OPERATIONS)                                          |           |            |          |           |                               |          |       |               |                |              |              |            |            |            |
| H - Excavation of Cover Overburden                                     | LS        | 3          | --       | 1.89      | /BCY                          | 110,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 237,000    | 215,000    | 215,000    |
| H - Soil Excavation                                                    | LS        | 3          | --       | 3.91      | /BCY                          | 220,000  | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 1,178,000  | 1,088,000  | 1,088,000  |
| H - Transportation of Contaminated Soil to Thermal Desorption Facility | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 220,000  | BCY   | 1.000         | 2.000          | 1.000        |              | 537,000    | 487,000    | 487,000    |
| H - Load Treated Soil for Transport to Hazardous Landfill              | LS        | 3          | --       | 1.55      | /BCY                          | 2,200    | BCY   | 1.000         | 1.000          | 1.000        |              | 4,000      | 4,000      | 4,000      |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 2,200    | BCY   | 1.000         | 1.000          | 1.000        |              | 3,000      | 3,000      | 3,000      |
| H - On-Post Hazardous Waste Landfill (Particulates)                    | LS        | 3          | --       | 4.07      | /BCY                          | 2,200    | BCY   | 1.000         | 1.000          | 1.000        |              | 10,000     | 9,000      | 9,000      |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill         | LS        | 3          | --       | 1.28      | /BCY                          | 220,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 321,000    | 281,000    | 281,000    |
| H - Transportation of Treated Soil to Backfill Excavation              | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 220,000  | BCY   | 1.000         | 2.000          | 1.000        |              | 432,000    | 392,000    | 392,000    |
| H - Backfill with Treated Soil                                         | LS        | 3          | --       | 1.72      | /BCY                          | 220,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 432,000    | 392,000    | 392,000    |
| H - Backfill of Cover Overburden                                       | LS        | 3          | --       | 1.72      | /BCY                          | 110,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 216,000    | 196,000    | 196,000    |
| HB - Subgrade Preparation Prior to Installing Cap/Cover                | LS        | 2          | --       | 0.06      | /SY                           | 420,000  | SY    | 1.000         | 1.000          | 1.000        |              | 29,000     | 27,000     | 27,000     |
| HB - Modification of Existing Soil Cover                               | LS        | 3          | --       | 22.80     | /SY                           | 420,000  | SY    | 1.000         | 1.000          | 1.000        |              | 10,928,000 | 9,912,000  | 9,912,000  |
| HB - Re-vegetation of Disturbed Areas                                  | LS        | 3          | --       | 0.18      | /SY                           | 420,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance  | 95,000     | 86,000     | 86,000     |
| Subtotal (I)                                                           |           |            |          |           |                               |          |       |               |                |              |              | 14,422,000 | 13,082,000 | 13,082,000 |
| INDIRECT O&M COSTS (OPERATIONS)                                        |           |            |          |           |                               |          |       |               |                |              |              |            |            |            |
| Mod/Demob                                                              |           |            |          | 3.9%      | J = 0.039 * (I)               |          |       |               |                |              |              | 559,000    | 507,000    | 507,000    |
| Indirects, Overhead & Profit                                           |           |            |          | 37.6%     | K = 0.376 * (I+J)             |          |       |               |                |              |              | 5,855,000  | 5,130,000  | 5,130,000  |
| Engineering Design                                                     |           |            |          | 0.5%      | L = 0.005 * (I+J+K)           |          |       |               |                |              |              | 103,000    | 94,000     | 94,000     |
| Resident Engineering                                                   |           |            |          | 1.5%      | M = 0.015 * (I+J+K)           |          |       |               |                |              |              | 310,000    | 281,000    | 281,000    |
| Contingency                                                            |           |            |          | 27.5%     | N = 0.275 * (I+J+K+L+M)       |          |       |               |                |              |              | 5,788,000  | 5,251,000  | 5,251,000  |
| Subtotal (O = J+K+L+M+N)                                               |           |            |          |           |                               |          |       |               |                |              |              | 12,415,000 | 11,282,000 | 11,282,000 |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                              |           |            |          |           |                               |          |       |               |                |              |              |            |            |            |
| H - Thermal Desorption (Dry Soil)                                      | LS        | 3          | --       | 49.13     | /BCY                          | 220,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 12,304,000 | 11,188,000 | 11,188,000 |
| Subtotal (II)                                                          |           |            |          |           |                               |          |       |               |                |              |              | 12,304,000 | 11,188,000 | 11,188,000 |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                            |           |            |          |           |                               |          |       |               |                |              |              |            |            |            |
| Mod/Demob                                                              |           |            |          | 0.0%      | J1 = 0.000 * (II)             |          |       |               |                |              |              | 0          | 0          | 0          |
| Contractor Markup                                                      |           |            |          | 10.0%     | K1 = 0.100 * (II+J1)          |          |       |               |                |              |              | 1,233,000  | 1,119,000  | 1,119,000  |
| Engineering Design                                                     |           |            |          | 0.0%      | L1 = 0.000 * (II+J1+K1)       |          |       |               |                |              |              | 0          | 0          | 0          |
| Resident Engineering                                                   |           |            |          | 2.0%      | M1 = 0.020 * (II+J1+K1)       |          |       |               |                |              |              | 271,000    | 246,000    | 246,000    |
| Contingency                                                            |           |            |          | 40.0%     | N1 = 0.400 * (II+J1+K1+L1+M1) |          |       |               |                |              |              | 5,536,000  | 5,021,000  | 5,021,000  |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                         |           |            |          |           |                               |          |       |               |                |              |              | 7,040,000  | 6,396,000  | 6,396,000  |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O+II+O1)                          |           |            |          |           |                               |          |       |               |                |              |              | 46,211,000 | 41,918,000 | 41,918,000 |

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Table B4.4-6c Cost Estimate - Secondary Basins Medium Group - Former Basin F Subgroup  
 Alternative 6c: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap) with Modifications to Existing System

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$) | Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1992 (\$) | Annual Cost | 1995 (\$) | Total Cost | 1995 (\$) | PW Cost    |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|---------|----------|-------|---------------|----------------|--------------|-------------|-----------|-------------|-----------|------------|-----------|------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |           |           |         |          |       |               |                |              |             |           |             |           |            |           |            |
| H - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       |           | 0.13      | /BCY-YR | 2,200    | BCY   | 1,000         | 1,000          | 1,000        |             |           | 300         |           | 9,000      |           | 5,000      |
| HB - Modification of Existing Soil Cover                                                               | A         | 3          | 30       |           | 0.80      | /SY-YR  | 420,000  | SY    | 1,000         | 1,000          | 1,000        |             |           | 363,000     |           | 10,736,000 |           | 5,440,000  |
| HB - Site Reviews                                                                                      | A         | 3          | 30       |           | 5,400.00  | /EA-YR  | 1        | EA    | 1,000         | 1,000          | 1,000        |             |           | 6,000       |           | 173,000    |           | 87,000     |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |           |           |         |          |       |               |                |              |             |           |             |           |            |           |            |
|                                                                                                        |           |            |          |           |           |         |          |       |               |                |              |             |           | 380,000     |           | 10,919,000 |           | 5,532,000  |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |           |           |         |          |       |               |                |              |             |           |             |           |            |           |            |
| Indirects, Overhead & Profit                                                                           |           |            |          |           |           |         |          |       |               |                |              |             |           | 152,000     |           | 4,268,000  |           | 2,158,000  |
| Contingency                                                                                            |           |            |          |           |           |         |          |       |               |                |              |             |           | 163,000     |           | 4,553,000  |           | 2,307,000  |
| <b>Subtotal (S = Q+R)</b>                                                                              |           |            |          |           |           |         |          |       |               |                |              |             |           |             |           |            |           |            |
|                                                                                                        |           |            |          |           |           |         |          |       |               |                |              |             |           | 315,000     |           | 8,811,000  |           | 4,465,000  |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |           |           |         |          |       |               |                |              |             |           |             |           |            |           |            |
|                                                                                                        |           |            |          |           |           |         |          |       |               |                |              |             |           | 705,000     |           | 19,729,000 |           | 9,997,000  |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |           |           |         |          |       |               |                |              |             |           |             |           |            |           |            |
|                                                                                                        |           |            |          |           |           |         |          |       |               |                |              |             |           |             |           | 71,800,000 |           | 57,600,000 |

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Table B4.4-6d Cost Estimate - Secondary Basins Medium Group - Former Basin F Subgroup  
Alternative 6d: Caps/Covers (Clay/Soil Cap) with Modifications to Existing Systems

| Cost Item                            | Cost Type | Start Year | End Year | Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------|-----------|------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>          |           |            |          |           |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (A)                         |           |            |          |           |       |          |       |               |                |              |             |                          |                         |                      |
| INDIRECT CAPITAL COSTS               |           |            |          |           |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                            |           |            |          |           |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit         |           |            |          |           |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                   |           |            |          |           |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                 |           |            |          |           |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                          |           |            |          |           |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)             |           |            |          |           |       |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b> |           |            |          |           |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G)                   |           |            |          |           |       |          |       |               |                |              |             |                          |                         |                      |

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Table B4.4-6d Cost Estimate - Secondary Basins Medium Group - Former Basin F Subgroup  
Alternative 6d: Caps/Covers (Clay/Soil Cap) with Modifications to Existing Systems

| Cost Item                                               | Cost Type  | Start Year | End Year | 1992 (\$) | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)  | 1995 (\$)  | 1995 (\$) | PW Cost    |
|---------------------------------------------------------|------------|------------|----------|-----------|--------|----------|-------|---------------|----------------|--------------|-------------|------------|------------|-----------|------------|
| DIRECT O&M COSTS (OPERATIONS)                           |            |            |          |           |        |          |       |               |                |              |             |            |            |           |            |
| HB - Subgrade Preparation Prior to Installing Cap/Cover | LS         | 1          | --       | 0.06      | /SY    | 420,000  | SY    | 1,000         | 1,000          | 1,000        |             | 29,000     | 29,000     |           | 29,000     |
| HB - Modification of Existing Soil Cover                | LS         | 1          | --       | 22.80     | /SY    | 420,000  | SY    | 1,000         | 1,000          | 1,000        |             | 10,928,000 | 10,928,000 |           | 10,928,000 |
| HB - Revegetation of Disturbed Areas                    | LS         | 1          | --       | 0.18      | /SY    | 420,000  | SY    | 1,000         | 1,000          | 1,100        | Disturbance | 95,000     | 95,000     |           | 95,000     |
| INDIRECT O&M COSTS (OPERATIONS)                         |            |            |          |           |        |          |       |               |                |              |             |            |            |           |            |
| Subtotal (I)                                            | 11,051,000 |            |          |           |        |          |       |               |                |              |             |            |            |           |            |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)               |            |            |          |           |        |          |       |               |                |              |             |            |            |           |            |
| HB - Modification of Existing Soil Cover                | A          | 2          | 30       | 0.80      | /SY-YR | 420,000  | SY    | 1,000         | 1,000          | 1,000        |             | 383,000    | 11,120,000 |           | 5,808,000  |
| HB - Site Reviews                                       | A          | 2          | 30       | 5,400.00  | /EA-YR | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 6,000      | 179,000    |           | 93,000     |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                 |            |            |          |           |        |          |       |               |                |              |             |            |            |           |            |
| Subtotal (O = J+K+L+M+N)                                | 8,140,000  |            |          |           |        |          |       |               |                |              |             |            |            |           |            |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)               |            |            |          |           |        |          |       |               |                |              |             |            |            |           |            |
| Subtotal (P)                                            | 380,000    |            |          |           |        |          |       |               |                |              |             |            |            |           |            |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)               |            |            |          |           |        |          |       |               |                |              |             |            |            |           |            |
| Indirects, Overhead & Profit                            | 152,000    |            |          |           |        |          |       |               |                |              |             |            |            |           |            |
| Contingency                                             | 162,000    |            |          |           |        |          |       |               |                |              |             |            |            |           |            |
| Subtotal (S)                                            |            |            |          |           |        |          |       |               |                |              |             |            |            |           |            |
| 314,000                                                 |            |            |          |           |        |          |       |               |                |              |             |            |            |           |            |
| Subtotal (T = I+O+P+S)                                  |            |            |          |           |        |          |       |               |                |              |             |            |            |           |            |
| 704,000                                                 |            |            |          |           |        |          |       |               |                |              |             |            |            |           |            |
| TOTAL O&M COSTS (U = H+T)                               |            |            |          |           |        |          |       |               |                |              |             |            |            |           |            |
| 40,600,000                                              |            |            |          |           |        |          |       |               |                |              |             |            |            |           |            |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)       |            |            |          |           |        |          |       |               |                |              |             |            |            |           |            |
| 30,900,000                                              |            |            |          |           |        |          |       |               |                |              |             |            |            |           |            |

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| Cost Item                                                    | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |           |           |
|--------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|-----------|-----------|
| DIRECT CAPITAL COSTS                                         |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |           |
| HB - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | --       | 5.72                   | /BCY  | 7,900    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 52,000                  | 48,000               |           |           |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 5                             | --       | 3.80                   | /BCY  | 7,900    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 34,000                  | 28,000               |           |           |
| Subtotal (A)                                                 |           |                               |          |                        |       |          |       |               |                |              |             |                          | 86,000                  | 77,000               |           |           |
| INDIRECT CAPITAL COSTS                                       |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |           |
| COST CODE: LUS5                                              |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |           |
| Mo/Demob                                                     | 3.3%      | B = 0.033 * (A)               |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 3,000     | 3,000     |
| Indirects, Overhead & Profit                                 | 38.0%     | C = 0.380 * (A+B)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 35,000    | 31,000    |
| Engineering Design                                           | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 4,000     | 3,000     |
| Resident Engineering                                         | 1.3%      | E = 0.013 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 2,000     | 1,000     |
| Contingency                                                  | 28.3%     | F = 0.283 * (A+B+C+D+E)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 34,000    | 30,000    |
| Subtotal (G = B+C+D+E+F)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          | 78,000                  | 68,000               |           |           |
| DIRECT SUBCONTRACT CAPITAL COSTS                             |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |           |
| HB - Thermal Desorption (Dry Soil)                           | A         | 1                             | 2        | 14.17                  | /BCY  | 790,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 12,775,000              | 12,470,000           |           |           |
| Subtotal (A1)                                                |           |                               |          |                        |       |          |       |               |                |              |             |                          | 12,775,000              | 12,470,000           |           |           |
| INDIRECT SUBCONTRACT CAPITAL COSTS                           |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |           |
| COST CODE: C                                                 |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |           |
| Mo/Demob                                                     | 2.0%      | B1 = 0.020 * (A1)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 255,000   | 248,000   |
| Contractor Markup                                            | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 1,303,000 | 1,272,000 |
| Engineering Design                                           | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 1,290,000 | 1,259,000 |
| Resident Engineering                                         | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 430,000   | 420,000   |
| Contingency                                                  | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 4,816,000 | 4,701,000 |
| Subtotal (G1 = B1+C1+D1+E1+F1)                               |           |                               |          |                        |       |          |       |               |                |              |             |                          | 8,094,000               | 7,892,000            |           |           |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                          |           |                               |          |                        |       |          |       |               |                |              |             |                          | 21,031,000              | 20,518,000           |           |           |

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Table B4.4-13a Cost Estimate - Secondary Basins Medium Group - Former Basin F Subgroup  
Alternative 13a: Direct Thermal Desorption (Direct Heating)

| Cost Item                                                               | Cost Type       | Start Year                      | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1993 (\$)  | 1993 (\$)  | 1993 (\$) |
|-------------------------------------------------------------------------|-----------------|---------------------------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|--------------|------------|------------|-----------|
|                                                                         |                 |                                 |          | Unit Cost |           |          |       |               |                |              |              | Total Cost | PW Cost    |           |
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                |                 |                                 |          |           |           |          |       |               |                |              |              |            |            |           |
| HB - Excavation of Cover Overburden                                     | LS              | 2                               | --       | 1.89      | /BCY      | 420,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 808,000    | 683,000    |           |
| HB - Soil Excavation                                                    | A               | 3                               | 4        | 3.91      | /BCY      | 790,000  | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 4,230,000  | 3,745,000  |           |
| HB - Transportation of Contaminated Soil to Thermal Desorption Facility | A               | 3                               | 4        | 1.07      | /BCY-MILE | 790,000  | BCY   | 1.000         | 2.000          | 1.000        |              | 1,929,000  | 1,708,000  |           |
| HB - Load Treated Soil for Transport to Hazardous Landfill              | A               | 3                               | 4        | 1.55      | /BCY      | 7,900    | BCY   | 1.000         | 1.000          | 1.000        |              | 14,000     | 12,000     |           |
| HB - Transportation of Particulates to On-Post Hazardous Waste Landfill | A               | 3                               | 4        | 1.07      | /BCY-MILE | 7,900    | BCY   | 1.000         | 1.000          | 1.000        |              | 10,000     | 8,000      |           |
| HB - On-Post Hazardous Waste Landfill (Particulates)                    | A               | 3                               | 4        | 4.07      | /BCY      | 7,900    | BCY   | 1.000         | 1.000          | 1.000        |              | 37,000     | 32,000     |           |
| HB - Load Nonhazardous Treated Soil from Stockpile for Backfill         | A               | 3                               | 4        | 1.28      | /BCY      | 790,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 1,154,000  | 1,022,000  |           |
| HB - Transportation of Treated Soil to Backfill Excavation              | A               | 3                               | 4        | 0.86      | /BCY-MILE | 790,000  | BCY   | 1.000         | 2.000          | 1.000        |              | 1,551,000  | 1,373,000  |           |
| HB - Backfill with Treated Soil                                         | A               | 3                               | 4        | 1.72      | /BCY      | 790,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 1,551,000  | 1,373,000  |           |
| HB - Backfill of Cover Overburden                                       | A               | 3                               | 4        | 1.72      | /BCY      | 420,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 824,000    | 730,000    |           |
| HB - Revegetation of Disturbed Areas                                    | A               | 3                               | 4        | 0.18      | /SY       | 420,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance  | 95,000     | 84,000     |           |
| Subtotal (I)                                                            |                 |                                 |          |           |           |          |       |               |                |              |              | 12,300,000 | 10,951,000 |           |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                              |                 |                                 |          |           |           |          |       |               |                |              |              |            |            |           |
| Mob/Demob                                                               | COST CODE: MLLS |                                 |          |           |           |          |       |               |                |              |              |            |            |           |
| Indirects, Overhead & Profit                                            | 3.0%            | $J = 0.039 * (I)$               |          |           |           |          |       |               |                |              |              |            |            |           |
| Engineering Design                                                      | 37.6%           | $K = 0.376 * (I+J)$             |          |           |           |          |       |               |                |              |              |            |            |           |
| Resident Engineering                                                    | 0.5%            | $L = 0.005 * (I+J+K)$           |          |           |           |          |       |               |                |              |              |            |            |           |
| Contingency                                                             | 1.5%            | $M = 0.015 * (I+J+K)$           |          |           |           |          |       |               |                |              |              |            |            |           |
|                                                                         | 27.5%           | $N = 0.275 * (I+J+K+L+M)$       |          |           |           |          |       |               |                |              |              |            |            |           |
| Subtotal (O = J+K+L+M+N)                                                |                 |                                 |          |           |           |          |       |               |                |              |              | 10,588,000 | 9,428,000  |           |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                    |                 |                                 |          |           |           |          |       |               |                |              |              |            |            |           |
| HB - Thermal Desorption (Dry Soil)                                      | A               | 3                               | 4        | 49.13     | /BCY      | 790,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 44,282,000 | 39,217,000 |           |
| Subtotal (I1)                                                           |                 |                                 |          |           |           |          |       |               |                |              |              | 44,282,000 | 39,217,000 |           |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                  |                 |                                 |          |           |           |          |       |               |                |              |              |            |            |           |
| Mob/Demob                                                               | COST CODE: D    |                                 |          |           |           |          |       |               |                |              |              |            |            |           |
| Contractor Markup                                                       | 0.0%            | $J1 = 0.000 * (I1)$             |          |           |           |          |       |               |                |              |              |            |            |           |
| Engineering Design                                                      | 10.0%           | $K1 = 0.100 * (I1+J1)$          |          |           |           |          |       |               |                |              |              |            |            |           |
| Resident Engineering                                                    | 0.0%            | $L1 = 0.000 * (I1+J1+K1)$       |          |           |           |          |       |               |                |              |              |            |            |           |
| Contingency                                                             | 2.0%            | $M1 = 0.020 * (I1+J1+K1)$       |          |           |           |          |       |               |                |              |              |            |            |           |
|                                                                         | 40.0%           | $N1 = 0.400 * (I1+J1+K1+L1+M1)$ |          |           |           |          |       |               |                |              |              |            |            |           |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                          |                 |                                 |          |           |           |          |       |               |                |              |              | 25,282,000 | 22,385,000 |           |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+I1+O1)</b>                |                 |                                 |          |           |           |          |       |               |                |              |              | 92,462,000 | 81,982,000 |           |

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Table B4.4-13a Cost Estimate - Secondary Basins Medium Group - Former Basin F Subgroup  
Alternative 13a: Direct Thermal Desorption (Direct Heating)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 5          | 30       | 0.13                   | /BCY-YR | 7,900    | BCY   | 1.000         | 1.000          | 1.000        |             | 1,000                    | 30,000                  | 15,000               |
| <b>Subtotal (P)</b>                                                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                            |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| 30.0% Q = 0.390 * (P)                                                                                   |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                             |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| 30.0% R = 0.300 * (P+Q)                                                                                 |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (S = Q+R)</b>                                                                               |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 114,000,000             | 103,000,000          |

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| Cost Item                                  | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------|-----------|------------|----------|------------------------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT CAPITAL COSTS</b>              |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                  | 0.0%      |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Indirects, Overhead & Profit               | 0.0%      |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Engineering Design                         | 0.0%      |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Resident Engineering                       | 0.0%      |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Contingency                                | 0.0%      |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>Subtotal (A)</b>                        |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>    |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| H - In Situ RF/Microwave Heating - Deep    | LS        | 1          | --       | 7,066,000.00           | 1        | UNIT  | 1.000         | 1.000          | 1.000        |             |                          | 8,063,000               | 8,063,000            |
| B - In Situ RF/Microwave Heating - Shallow | LS        | 1          | --       | 7,066,000.00           | 1        | UNIT  | 1.000         | 1.000          | 1.000        |             |                          | 8,063,000               | 8,063,000            |
| <b>Subtotal (B)</b>                        |           |            |          |                        |          |       |               |                |              |             |                          | 16,127,000              | 16,127,000           |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>  |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                  | 2.0%      |            |          |                        |          |       |               |                |              |             |                          | 323,000                 | 323,000              |
| Contractor Markup                          | 8.0%      |            |          |                        |          |       |               |                |              |             |                          | 997,000                 | 997,000              |
| Engineering Design                         | 12.0%     |            |          |                        |          |       |               |                |              |             |                          | 2,092,000               | 2,092,000            |
| Resident Engineering                       | 1.5%      |            |          |                        |          |       |               |                |              |             |                          | 262,000                 | 262,000              |
| Contingency                                | 30.0%     |            |          |                        |          |       |               |                |              |             |                          | 5,937,000               | 5,937,000            |
| <b>Subtotal (C)</b>                        |           |            |          |                        |          |       |               |                |              |             |                          | 9,601,000               | 9,601,000            |
| <b>TOTAL CAPITAL COSTS (H = A+B+C)</b>     |           |            |          |                        |          |       |               |                |              |             |                          | 25,728,000              | 25,728,000           |

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Table B4.4-19a Cost Estimate - Secondary Basins Medium Group - Former Basin F Subgroup  
Alternative 19a: In Situ Thermal Treatment (RF/Microwave Heating)

| Cost Item                                                | Cost Type | Start Year | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)          | 1995 (\$)          |
|----------------------------------------------------------|-----------|------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-------------|--------------------|--------------------|
|                                                          |           |            |          | Unit Cost |       |          |       |               |                |              |             | Annual Cost | Total Cost         | PW Cost            |
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                 |           |            |          |           |       |          |       |               |                |              |             |             |                    |                    |
| HB - Installation of 6 inches of Topsoil                 | A         | 1          | 12       | 3.24      | /SY   | 420,000  | SY    | 1.000         | 1.000          | 1.000        |             | 1,553,000   | 1,553,000          | 1,204,000          |
| HB - Revegetation of Disturbed Areas                     | A         | 1          | 12       | 0.18      | /SY   | 420,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance | 85,000      | 85,000             | 74,000             |
| <b>Subtotal (I)</b>                                      |           |            |          |           |       |          |       |               |                |              |             |             | <b>1,648,000</b>   | <b>1,278,000</b>   |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>               |           |            |          |           |       |          |       |               |                |              |             |             |                    |                    |
| <b>COST CODE: LLSL</b>                                   |           |            |          |           |       |          |       |               |                |              |             |             |                    |                    |
| Mob/Demob                                                |           |            |          |           |       |          |       |               |                |              |             |             | 54,000             | 42,000             |
| Indirects, Overhead & Profit                             |           |            |          |           |       |          |       |               |                |              |             |             | 684,000            | 515,000            |
| Engineering Design                                       |           |            |          |           |       |          |       |               |                |              |             |             | 12,000             | 9,000              |
| Resident Engineering                                     |           |            |          |           |       |          |       |               |                |              |             |             | 41,000             | 32,000             |
| Contingency                                              |           |            |          |           |       |          |       |               |                |              |             |             | 725,000            | 563,000            |
| <b>Subtotal (O = J+K+L+M+N)</b>                          |           |            |          |           |       |          |       |               |                |              |             |             | <b>1,496,000</b>   | <b>1,180,000</b>   |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>     |           |            |          |           |       |          |       |               |                |              |             |             |                    |                    |
| H - In Situ RF/Microwave Heating - Deep                  | A         | 1          | 12       | 198.66    | /BCY  | 700,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 139,062,000 | 139,062,000        | 123,072,000        |
| B - In Situ RF/Microwave Heating - Shallow               | A         | 1          | 12       | 217.67    | /BCY  | 89,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 22,107,000  | 22,107,000         | 17,145,000         |
| <b>Subtotal (I1)</b>                                     |           |            |          |           |       |          |       |               |                |              |             |             | <b>160,800,000</b> | <b>140,217,000</b> |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>   |           |            |          |           |       |          |       |               |                |              |             |             |                    |                    |
| <b>COST CODE: L</b>                                      |           |            |          |           |       |          |       |               |                |              |             |             |                    |                    |
| Mob/Demob                                                |           |            |          |           |       |          |       |               |                |              |             |             | 0                  | 0                  |
| Contractor Markup                                        |           |            |          |           |       |          |       |               |                |              |             |             | 10,848,000         | 8,413,000          |
| Engineering Design                                       |           |            |          |           |       |          |       |               |                |              |             |             | 958,000            | 743,000            |
| Resident Engineering                                     |           |            |          |           |       |          |       |               |                |              |             |             | 1,916,000          | 1,486,000          |
| Contingency                                              |           |            |          |           |       |          |       |               |                |              |             |             | 77,808,000         | 60,344,000         |
| <b>Subtotal (O1 = J1+K1+L1+M1+N1)</b>                    |           |            |          |           |       |          |       |               |                |              |             |             | <b>81,532,000</b>  | <b>70,986,000</b>  |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+I1+O1)</b> |           |            |          |           |       |          |       |               |                |              |             |             | <b>275,478,000</b> | <b>213,641,000</b> |

Table B4.4-19a Cost Estimate - Secondary Basins Medium Group - Former Basin F Subgroup  
Alternative 19a: In Situ Thermal Treatment (RF/Microwave Heating)

| Cost Item                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |             |
|-----------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|-------------|
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                 |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |             |
| H - No Action                                                                           | A         | 13         | 30       | 0.00                   | /SY   | 420,000  | SY    | 1,000            | 1,000             | 1,000           |             | 0                        | 0                       | 0                    |             |
| B - No Action                                                                           | A         | 2          | 30       | 0.00                   | /SY   | 420,000  | SY    | 1,000            | 1,000             | 1,000           |             | 0                        | 0                       | 0                    |             |
| Subtotal (P)                                                                            |           |            |          |                        |       |          |       |                  |                   |                 |             | 0                        | 0                       | 0                    |             |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                               |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |             |
| COST CODE: LLSL                                                                         |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |             |
| Indirects, Overhead & Profit                                                            |           |            |          |                        |       |          |       |                  |                   |                 |             | 0                        | 0                       | 0                    |             |
| Contingency                                                                             |           |            |          |                        |       |          |       |                  |                   |                 |             | 0                        | 0                       | 0                    |             |
| Subtotal (S = Q+R)                                                                      |           |            |          |                        |       |          |       |                  |                   |                 |             | 0                        | 0                       | 0                    |             |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                        |           |            |          |                        |       |          |       |                  |                   |                 |             | 0                        | 0                       | 0                    |             |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (OPERATIONS & LONG-TERM ACTIVITIES) (U = H+O+T) |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         | 301,000,000          | 239,000,000 |





Table B4.5-1

Cost Estimate - Secondary Basins Medium Group - Basin F Exterior Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

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| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity  | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|-----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| H - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 260,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| B - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 2,000,000 | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                                                                     |           |            |          |                        |        |           |       |               |                |              |             |                          | 0                       | 0                    |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |           |       |               |                |              |             |                          | 0                       | 0                    |
| Engineering Design                                                                                            |           |            |          |                        |        |           |       |               |                |              |             |                          | 0                       | 0                    |
| Resident Engineering                                                                                          |           |            |          |                        |        |           |       |               |                |              |             |                          | 0                       | 0                    |
| Contingency                                                                                                   |           |            |          |                        |        |           |       |               |                |              |             |                          | 0                       | 0                    |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| HB - Long Term Soil Monitoring, Basin F Exterior                                                              | A         | 1          | 30       | 8,000.00               | /EA-YR | 1         | EA    | 1.000         | 1.000          | 1.000        |             | 9,000                    | 274,000                 | 145,000              |
| HB - Site Reviews                                                                                             | A         | 1          | 30       | 5,400.00               | /EA-YR | 1         | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 185,000                 | 98,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |           |       |               |                |              |             |                          | 6,000                   | 85,000               |
| Contingency                                                                                                   |           |            |          |                        |        |           |       |               |                |              |             |                          | 6,000                   | 101,000              |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |           |       |               |                |              |             | 15,000                   | 459,000                 | 243,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |        |           |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |           |       |               |                |              |             | 29,000                   | 829,000                 | 439,000              |

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**Table B4.5-2**  
**Cost Estimate - Secondary Basins Medium Group - Basin F Exterior Subgroup**  
**Alternative 2: Access Restrictions (Modifications to FFA)**



Table B4.5-6 Cost Estimate - Secondary Basins Medium Group - Basin F Exterior Subgroup  
Alternative 6: Caps/Covers (Clay/Soil Cap)

| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$) | Quantity | Units | Volume | Mileage | Other | Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |
|-------------------------------|-----------|------------|----------|-----------|----------|-------|--------|---------|-------|--------|-------------|-----------|-----------|-----------|---------|
| DIRECT CAPITAL COSTS          |           |            |          |           |          |       |        |         |       |        |             |           |           |           |         |
| INDIRECT CAPITAL COSTS        |           |            |          |           |          |       |        |         |       |        |             |           |           |           |         |
| Subtotal (A)                  |           |            |          |           |          |       |        |         |       |        |             |           | 0         |           | 0       |
| COST CODE                     |           |            |          |           |          |       |        |         |       |        |             |           |           |           |         |
| 3.3%                          |           |            |          |           |          |       |        |         |       |        |             |           |           |           |         |
| 39.0%                         |           |            |          |           |          |       |        |         |       |        |             |           |           |           |         |
| 3.0%                          |           |            |          |           |          |       |        |         |       |        |             |           |           |           |         |
| 1.3%                          |           |            |          |           |          |       |        |         |       |        |             |           |           |           |         |
| 28.3%                         |           |            |          |           |          |       |        |         |       |        |             |           |           |           |         |
| Subtotal (G = B+C+D+E+F)      |           |            |          |           |          |       |        |         |       |        |             |           | 0         |           | 0       |
| TOTAL CAPITAL COSTS (H = A+G) |           |            |          |           |          |       |        |         |       |        |             |           |           |           |         |
|                               |           |            |          |           |          |       |        |         |       |        |             |           | 0         |           | 0       |

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Table B4.5-6

Cost Estimate - Secondary Basins Medium Group - Basin F Exterior Subgroup  
Alternative 6: Caps/Covers (Clay/Soil Cap)

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| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity  | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|-----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |           |       |                  |                   |                 |             |                          |                         |                      |
| H - Subgrade Preparation Prior to Installing Cap/Cover                                                        | LS        | 1          | --       | 0.06                   | /SY    | 260,000   | SY    | 1.000            | 1.000             | 1.000           |             |                          | 16,000                  | 18,000               |
| H - Installation of Clay/Soil Cap                                                                             | LS        | 1          | --       | 23.30                  | /SY    | 260,000   | SY    | 1.000            | 1.000             | 1.000           |             |                          | 6,013,000               | 6,013,000            |
| H - Revegetation of Disturbed Areas                                                                           | LS        | 3          | --       | 0.18                   | /SY    | 34,000    | BCY   | 1.000            | 1.000             | 1.100           | Disturbance |                          | 6,000                   | 7,000                |
| B - Agricultural Practices                                                                                    | A         | 1          | 2        | 0.20                   | /SY    | 2,000,000 | SY    | 1.000            | 1.000             | 1.000           |             |                          | 459,000                 | 446,000              |
| <b>Subtotal (I) = J+K+L+M+N</b>                                                                               |           |            |          |                        |        |           |       |                  |                   |                 |             |                          |                         |                      |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |           |       |                  |                   |                 |             |                          |                         |                      |
| Mob/Demob                                                                                                     |           |            |          | 3.3%                   |        |           |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          | 37.6%                  |        |           |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design                                                                                            |           |            |          | 0.5%                   |        |           |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering                                                                                          |           |            |          | 1.3%                   |        |           |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                                                                                                   |           |            |          | 28.3%                  |        |           |       |                  |                   |                 |             |                          |                         |                      |
| <b>Subtotal (I) = J+K+L+M+N</b>                                                                               |           |            |          |                        |        |           |       |                  |                   |                 |             |                          |                         |                      |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |           |       |                  |                   |                 |             |                          |                         |                      |
| H - Installation of Clay/Soil Cap                                                                             | A         | 2          | 30       | 0.80                   | /SY-YR | 260,000   | SY    | 1.000            | 1.000             | 1.000           |             | 237,000                  | 6,864,000               | 3,594,000            |
| B - Long Term Soil Monitoring, Basin F Exterior                                                               | A         | 3          | 30       | 7,000.00               | /EA-YR | 1         | EA    | 1.000            | 1.000             | 1.000           |             | 6,000                    | 224,000                 | 113,000              |
| HB - Site Reviews                                                                                             | A         | 3          | 30       | 5,400.00               | /EA-YR | 1         | EA    | 1.000            | 1.000             | 1.000           |             | 6,000                    | 173,000                 | 87,000               |
| <b>Subtotal (I) = J+K+L+M+N</b>                                                                               |           |            |          |                        |        |           |       |                  |                   |                 |             |                          |                         |                      |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |           |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          | 38.0%                  |        |           |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                                                                                                   |           |            |          | 30.0%                  |        |           |       |                  |                   |                 |             |                          |                         |                      |
| <b>Subtotal (I) = J+K+L+M+N</b>                                                                               |           |            |          |                        |        |           |       |                  |                   |                 |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |           |       |                  |                   |                 |             |                          |                         |                      |
| <b>Subtotal (I) = J+K+L+M+N</b>                                                                               |           |            |          |                        |        |           |       |                  |                   |                 |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |        |           |       |                  |                   |                 |             |                          |                         |                      |
| <b>Subtotal (I) = J+K+L+M+N</b>                                                                               |           |            |          |                        |        |           |       |                  |                   |                 |             |                          |                         |                      |
| <b>Subtotal (I) = J+K+L+M+N</b>                                                                               |           |            |          |                        |        |           |       |                  |                   |                 |             |                          |                         |                      |

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**Table B4.5-6g**  
**Cost Estimate - Secondary Basins Medium Group - Basin F Exterior Subgroup**  
**Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation**

[illegible]

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992(\$)<br>Unit Cost | Units     | Quantity  | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |           |        |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------------------|-----------|-----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|-----------|--------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |                       |           |           |       |               |                |              |             |                          |                         |                      |           |        |
| H - Soil Excavation                                                                            | LS        | 1          | --       | 3.91                  | /BCY      | 80,000    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 357,000                 | 357,000              |           |        |
| H - Transportation of Contaminated Soil to Consolidation Area                                  | LS        | 1          | --       | 1.07                  | /BCY-MILE | 80,000    | BCY   | 1.000         | 2.000          | 1.000        |             |                          | 185,000                 | 185,000              |           |        |
| H - Grade Filling w/Consolidated Soil Prior to Capping                                         | LS        | 1          | --       | 3.63                  | /BCY      | 80,000    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 331,000                 | 331,000              |           |        |
| H - Excavation of Borrow Material                                                              | LS        | 1          | --       | 1.89                  | /BCY      | 80,000    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 173,000                 | 173,000              |           |        |
| H - Transportation of Borrow Material to Backfill Area                                         | LS        | 1          | --       | 0.86                  | /BCY-MILE | 80,000    | BCY   | 1.000         | 1.500          | 1.000        |             |                          | 118,000                 | 118,000              |           |        |
| H - Backfill with Borrow Material                                                              | LS        | 1          | --       | 1.72                  | /BCY      | 80,000    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 157,000                 | 157,000              |           |        |
| H - Installation of 6 Inches of Topsoil                                                        | LS        | 1          | --       | 3.24                  | /SY       | 260,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 881,000                 | 881,000              |           |        |
| H - Revegetation of Disturbed Areas                                                            | LS        | 1          | --       | 0.18                  | /SY       | 260,000   | SY    | 1.000         | 1.000          | 1.000        | Disturbance |                          | 59,000                  | 59,000               |           |        |
| B - Agricultural Practices                                                                     | A         | 1          | 2        | 0.20                  | /SY       | 2,000,000 | SY    | 1.000         | 1.000          | 1.000        |             |                          | 458,000                 | 458,000              |           |        |
|                                                                                                |           |            |          |                       |           |           |       |               |                |              |             | 2,808,000                | 2,797,000               |                      |           |        |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |                       |           |           |       |               |                |              |             |                          |                         |                      |           |        |
| Mob/Demob                                                                                      |           |            |          | 3.8%                  |           |           |       |               |                |              |             |                          |                         | 108,000              | 108,000   |        |
| Indirects, Overhead & Profit                                                                   |           |            |          | 38.0%                 |           |           |       |               |                |              |             |                          |                         | 1,137,000            | 1,133,000 |        |
| Engineering Design                                                                             |           |            |          | 0.5%                  |           |           |       |               |                |              |             |                          |                         | 20,000               | 20,000    |        |
| Resident Engineering                                                                           |           |            |          | 1.5%                  |           |           |       |               |                |              |             |                          |                         | 61,000               | 61,000    |        |
| Contingency                                                                                    |           |            |          | 27.5%                 |           |           |       |               |                |              |             |                          |                         | 1,137,000            | 1,133,000 |        |
|                                                                                                |           |            |          |                       |           |           |       |               |                |              |             | 2,465,000                | 2,455,000               |                      |           |        |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |                       |           |           |       |               |                |              |             |                          |                         |                      |           |        |
| H - No Action                                                                                  | A         | 1          | 30       | 0.00                  | /SY       | 260,000   | SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |           |        |
| B - Long Term Soil Monitoring, Basin F Exterior                                                | A         | 3          | 30       | 7,000.00              | /EA-YR    | 1         | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 224,000                 | 113,000              |           |        |
| H - Site Reviews                                                                               | A         | 3          | 30       | 5,400.00              | /EA-YR    | 1         | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 173,000                 | 87,000               |           |        |
|                                                                                                |           |            |          |                       |           |           |       |               |                |              |             | 14,000                   | 398,000                 | 201,000              |           |        |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |                       |           |           |       |               |                |              |             |                          |                         |                      |           |        |
| Indirects, Overhead & Profit                                                                   |           |            |          | 38.0%                 |           |           |       |               |                |              |             |                          |                         | 6,000                | 155,000   | 78,000 |
| Contingency                                                                                    |           |            |          | 30.0%                 |           |           |       |               |                |              |             |                          |                         | 6,000                | 165,000   | 84,000 |
|                                                                                                |           |            |          |                       |           |           |       |               |                |              |             | 11,000                   | 320,000                 | 162,000              |           |        |
|                                                                                                |           |            |          |                       |           |           |       |               |                |              |             | 26,000                   | 5,988,000               | 5,614,000            |           |        |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |                       |           |           |       |               |                |              |             |                          |                         |                      |           |        |
|                                                                                                |           |            |          |                       |           |           |       |               |                |              |             | 5,990,000                | 5,610,000               | 16-Jul-93            |           |        |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = II+T)                                             |           |            |          |                       |           |           |       |               |                |              |             |                          |                         |                      |           |        |
| HBFE-0&G-WOI                                                                                   |           |            |          |                       |           |           |       |               |                |              |             |                          |                         |                      |           |        |
| SOILS DAA                                                                                      |           |            |          |                       |           |           |       |               |                |              |             |                          |                         |                      |           |        |

Table B4.5-13a Cost Estimate - Secondary Basins Medium Group - Basin F Exterior Subgroup  
Alternative 13a: Direct Thermal Description (Direct Heating)

| Cost Item                                                   | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |         |         |
|-------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|---------|---------|
| DIRECT CAPITAL COSTS                                        |           |                               |          |                        |          |       |               |                |              |             |                          |                         |                      |         |         |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | --       | 5.72 /BCY              | 800      | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 5,000                   | 5,000                |         |         |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                             | --       | 3.80 /BCY              | 800      | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 3,000                   | 3,000                |         |         |
| Subtotal (A)                                                |           |                               |          |                        |          |       |               |                |              |             |                          | 8,000                   | 8,000                |         |         |
| INDIRECT CAPITAL COSTS                                      |           |                               |          |                        |          |       |               |                |              |             |                          |                         |                      |         |         |
| COST CODE: LUSS                                             |           |                               |          |                        |          |       |               |                |              |             |                          |                         |                      |         |         |
| Mob/Demob                                                   | 3.3%      | B = 0.033 * (A)               |          |                        |          |       |               |                |              |             |                          |                         |                      | 300     | 300     |
| Indirects, Overhead & Profit                                | 39.0%     | C = 0.390 * (A+B)             |          |                        |          |       |               |                |              |             |                          |                         |                      | 3,000   | 3,000   |
| Engineering Design                                          | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |          |       |               |                |              |             |                          |                         |                      | 400     | 300     |
| Resident Engineering                                        | 1.3%      | E = 0.013 * (A+B+C)           |          |                        |          |       |               |                |              |             |                          |                         |                      | 200     | 100     |
| Contingency                                                 | 28.3%     | F = 0.283 * (A+B+C+D+E)       |          |                        |          |       |               |                |              |             |                          |                         |                      | 3,000   | 3,000   |
| Subtotal (G = B+C+D+E+F)                                    |           |                               |          |                        |          |       |               |                |              |             |                          | 8,000                   | 7,000                |         |         |
| DIRECT SUBCONTRACT CAPITAL COSTS                            |           |                               |          |                        |          |       |               |                |              |             |                          |                         |                      |         |         |
| H - Thermal Description (Dry Soil)                          | A         | 1                             | 2        | 14.17 /BCY             | 80,000   | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 1,294,000               | 1,283,000            |         |         |
| Subtotal (A1)                                               |           |                               |          |                        |          |       |               |                |              |             |                          | 1,294,000               | 1,283,000            |         |         |
| INDIRECT SUBCONTRACT CAPITAL COSTS                          |           |                               |          |                        |          |       |               |                |              |             |                          |                         |                      |         |         |
| COST CODE: C                                                |           |                               |          |                        |          |       |               |                |              |             |                          |                         |                      |         |         |
| Mob/Demob                                                   | 2.0%      | B1 = 0.020 * (A1)             |          |                        |          |       |               |                |              |             |                          |                         |                      | 26,000  | 25,000  |
| Contractor Markup                                           | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |          |       |               |                |              |             |                          |                         |                      | 132,000 | 129,000 |
| Engineering Design                                          | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |                        |          |       |               |                |              |             |                          |                         |                      | 131,000 | 128,000 |
| Resident Engineering                                        | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |                        |          |       |               |                |              |             |                          |                         |                      | 44,000  | 43,000  |
| Contingency                                                 | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |          |       |               |                |              |             |                          |                         |                      | 498,000 | 478,000 |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |                               |          |                        |          |       |               |                |              |             |                          | 820,000                 | 800,000              |         |         |
| TOTAL CAPITAL COSTS (H = A+G; A1+G1)                        |           |                               |          |                        |          |       |               |                |              |             |                          | 2,130,000               | 2,078,000            |         |         |

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| Cost Item                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost        | Units     | Quantity  | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------------------------------|-----------|------------|----------|-------------------------------|-----------|-----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT O&M COSTS (OPERATIONS)                                           |           |            |          |                               |           |           |       |               |                |              |             |                          |                         |                      |
| H - Soil Excavation                                                     | LS        | 3          | --       | 3.91                          | /BCY      | 80,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 397,000                  | 397,000                 | 324,000              |
| H - Transportation of Contaminated Soil to Thermal Description Facility | LS        | 3          | --       | 1.07                          | /BCY-MILE | 80,000    | BCY   | 1.000         | 2.000          | 1.000        |             | 186,000                  | 186,000                 | 177,000              |
| H - Load Treated Soil for Transport to Hazardous Landfill               | LS        | 3          | --       | 1.55                          | /BCY      | 800       | BCY   | 1.000         | 1.000          | 1.000        |             | 1,000                    | 1,000                   | 1,000                |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill  | LS        | 3          | --       | 1.07                          | /BCY-MILE | 800       | BCY   | 1.000         | 0.500          | 1.000        |             | 500                      | 500                     | 400                  |
| H - On-Post Hazardous Waste Landfill (Particulates)                     | LS        | 3          | --       | 4.07                          | /BCY      | 800       | BCY   | 1.000         | 1.000          | 1.000        |             | 4,000                    | 4,000                   | 3,000                |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill          | LS        | 3          | --       | 1.28                          | /BCY      | 80,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 117,000                  | 117,000                 | 108,000              |
| H - Transportation of Treated Soil to Backfill Excavation               | LS        | 3          | --       | 0.86                          | /BCY-MILE | 80,000    | BCY   | 1.000         | 2.000          | 1.000        |             | 157,000                  | 157,000                 | 142,000              |
| H - Backfill with Treated Soil                                          | LS        | 3          | --       | 1.72                          | /BCY      | 80,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 137,000                  | 137,000                 | 128,000              |
| H - Installation of 6 Inches of Topsoil                                 | LS        | 3          | --       | 3.24                          | /SY       | 260,000   | SY    | 1.000         | 1.000          | 1.000        |             | 861,000                  | 861,000                 | 872,000              |
| H - Revegetation of Disturbed Areas                                     | LS        | 3          | --       | 0.18                          | /SY       | 260,000   | SY    | 1.000         | 1.000          | 1.000        |             | 53,000                   | 53,000                  | 48,000               |
| B - Agricultural Practices                                              | A         | 1          | 2        | 0.20                          | /SY       | 2,000,000 | SY    | 1.000         | 1.000          | 1.000        | Disturbance | 502,000                  | 502,000                 | 480,000              |
| Subtotal (I)                                                            |           |            |          |                               |           |           |       |               |                |              |             | 2,508,000                | 2,307,000               |                      |
| INDIRECT O&M COSTS (OPERATIONS)                                         |           |            |          |                               |           |           |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                               |           |            |          | COST CODE: H&M&S              |           |           |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                            |           |            |          | J = 0.051 * (I)               |           |           |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                      |           |            |          | K = 0.403 * (I+J)             |           |           |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                    |           |            |          | L = 0.015 * (I+J+K)           |           |           |       |               |                |              |             |                          |                         |                      |
| Contingency                                                             |           |            |          | M = 0.020 * (I+J+K)           |           |           |       |               |                |              |             |                          |                         |                      |
|                                                                         |           |            |          | N = 0.313 * (I+J+K+L+M)       |           |           |       |               |                |              |             |                          |                         |                      |
| Subtotal (I)                                                            |           |            |          |                               |           |           |       |               |                |              |             | 128,000                  | 118,000                 |                      |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                               |           |            |          |                               |           |           |       |               |                |              |             |                          |                         |                      |
| H - Thermal Description (Dry Soil)                                      | LS        | 3          | --       | 49.13                         | /BCY      | 80,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 4,495,000                | 4,495,000               | 4,098,000            |
| Subtotal (II)                                                           |           |            |          |                               |           |           |       |               |                |              |             | 4,495,000                | 4,098,000               |                      |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                             |           |            |          |                               |           |           |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                               |           |            |          | COST CODE: D                  |           |           |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                                       |           |            |          | J1 = 0.000 * (II)             |           |           |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                      |           |            |          | K1 = 0.100 * (II+J1)          |           |           |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                    |           |            |          | L1 = 0.000 * (II+J1+K1)       |           |           |       |               |                |              |             |                          |                         |                      |
| Contingency                                                             |           |            |          | M1 = 0.020 * (II+J1+K1)       |           |           |       |               |                |              |             |                          |                         |                      |
|                                                                         |           |            |          | N1 = 0.400 * (II+J1+K1+L1+M1) |           |           |       |               |                |              |             |                          |                         |                      |
| Subtotal (II)                                                           |           |            |          |                               |           |           |       |               |                |              |             | 0                        | 0                       |                      |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O+II+OI)                           |           |            |          |                               |           |           |       |               |                |              |             |                          |                         |                      |
| Subtotal (OI = J1+K1+L1+M1+NI)                                          |           |            |          |                               |           |           |       |               |                |              |             | 2,580,000                | 2,322,000               |                      |
|                                                                         |           |            |          |                               |           |           |       |               |                |              |             | 12,084,000               | 11,012,000              |                      |
| HBIFE-11A.WOI<br>COILS.DAA<br>16-Jul-93                                 |           |            |          |                               |           |           |       |               |                |              |             |                          |                         |                      |

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Table B4.5-13a Cost Estimate - Secondary Basins Medium Group - Basin F Exterior Subgroup  
Alternative 13a: Direct Thermal Desorption (Direct Heating)

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| H - On-Peat Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       | 0.13                   | /BCY-YR | 800      | BCY   | 1.000         | 1.000          | 1.000        |             | 100                      | 3,000                   | 2,000                |
| R - Long Term Soil Monitoring, Basin F Exterior                                                        | A         | 3          | 30       | 7,000.00               | /EA-YR  | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 224,000                 | 113,000              |
| B - Site Reviews                                                                                       | A         | 3          | 30       | 5,400.00               | /EA-YR  | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 173,000                 | 87,000               |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                           |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                            |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Q = 0.380 * (P)                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| R = 0.300 * (P+Q)                                                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (S = Q+R)</b>                                                                              |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal</b>                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>14,000</b>                                                                                          |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>202,000</b>                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>6,000</b>                                                                                           |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>156,000</b>                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>6,000</b>                                                                                           |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>167,000</b>                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>12,000</b>                                                                                          |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>322,000</b>                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>163,000</b>                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>28,000</b>                                                                                          |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>722,000</b>                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>368,000</b>                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>14,900,000</b>                                                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>13,500,000</b>                                                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |

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Table B4.5-19b Cost Estimate - Secondary Basins Medium Group - Basin F Exterior Subgroup  
Alternative 19b: In Situ Thermal Treatment (RF/Microwave Heating, Surface Soil Heating)

| Cost Item                                               | Cost Type | Start Year | End Year | Unit Cost | Units | Quantity  | Units | Volume Factor | Mileage Factor | Other Factor | Description | Annual Cost | 1995 (\$)        | 1995 (\$)        | PW Cost          |
|---------------------------------------------------------|-----------|------------|----------|-----------|-------|-----------|-------|---------------|----------------|--------------|-------------|-------------|------------------|------------------|------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                |           |            |          |           |       |           |       |               |                |              |             |             |                  |                  |                  |
| H - Installation of 6 Inches of Topsoil                 | A         | 1          | 5        | 3.24      | /SY   | 260,000   | SY    | 1.000         | 1.000          | 1.000        |             |             | 841,000          | 841,000          | 874,000          |
| H - Revegetation of Disturbed Areas                     | A         | 1          | 5        | 0.18      | /SY   | 260,000   | SY    | 1.000         | 1.000          | 1.000        | Disturbance |             | 50,000           | 53,000           | 53,000           |
| B - Agricultural Practices                              | A         | 1          | 2        | 0.20      | /SY   | 2,000,000 | SY    | 1.000         | 1.000          | 1.000        |             |             | 458,000          | 458,000          | 446,000          |
| <b>Subtotal (I)</b>                                     |           |            |          |           |       |           |       |               |                |              |             |             | <b>1,477,000</b> | <b>1,477,000</b> | <b>1,373,000</b> |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>              |           |            |          |           |       |           |       |               |                |              |             |             |                  |                  |                  |
| Mobil/Demob                                             |           |            |          |           |       |           |       |               |                |              |             |             | 48,000           | 48,000           | 48,000           |
| Indirects, Overhead & Profit                            |           |            |          |           |       |           |       |               |                |              |             |             | 585,000          | 585,000          | 553,000          |
| Engineering Design                                      |           |            |          |           |       |           |       |               |                |              |             |             | 11,000           | 11,000           | 10,000           |
| Resident Engineering                                    |           |            |          |           |       |           |       |               |                |              |             |             | 32,000           | 32,000           | 30,000           |
| Contingency                                             |           |            |          |           |       |           |       |               |                |              |             |             | 594,000          | 594,000          | 553,000          |
| <b>Subtotal (O) = J+K+L+M+N</b>                         |           |            |          |           |       |           |       |               |                |              |             |             | <b>1,270,000</b> | <b>1,270,000</b> | <b>1,180,000</b> |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>    |           |            |          |           |       |           |       |               |                |              |             |             |                  |                  |                  |
| H - In Situ RF/Microwave Heating - Deep                 | LS        | 1          | --       | 198.66    | /RCY  | 2,000     | RCY   | 1.000         | 1.000          | 1.000        |             |             | 453,000          | 453,000          | 453,000          |
| H - In Situ Surface Soil Heating                        | A         | 1          | 5        | 27.30     | /SY   | 75,000    | SY    | 1.000         | 1.000          | 1.000        |             |             | 2,337,000        | 2,337,000        | 2,124,000        |
| <b>Subtotal (H)</b>                                     |           |            |          |           |       |           |       |               |                |              |             |             | <b>2,790,000</b> | <b>2,790,000</b> | <b>2,578,000</b> |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>  |           |            |          |           |       |           |       |               |                |              |             |             |                  |                  |                  |
| Mobil/Demob                                             |           |            |          |           |       |           |       |               |                |              |             |             | 0                | 0                | 0                |
| Contractor Markup                                       |           |            |          |           |       |           |       |               |                |              |             |             | 186,000          | 186,000          | 180,000          |
| Engineering Design                                      |           |            |          |           |       |           |       |               |                |              |             |             | 15,000           | 15,000           | 14,000           |
| Resident Engineering                                    |           |            |          |           |       |           |       |               |                |              |             |             | 60,000           | 60,000           | 56,000           |
| Contingency                                             |           |            |          |           |       |           |       |               |                |              |             |             | 1,224,000        | 1,224,000        | 1,131,000        |
| <b>Subtotal (O1) = J1+K1+L1+M1+N1</b>                   |           |            |          |           |       |           |       |               |                |              |             |             | <b>1,484,000</b> | <b>1,484,000</b> | <b>1,380,000</b> |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+H+O1)</b> |           |            |          |           |       |           |       |               |                |              |             |             | <b>7,040,000</b> | <b>7,040,000</b> | <b>6,521,000</b> |

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Table B4.5-19b

Cost Estimate - Secondary Basins Medium Group - Basin F Exterior Subgroup  
Alternative 19b: In Situ Thermal Treatment (RT/Microwave Heating, Surface Soil Heating)

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| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1993 (\$)<br>Annual Cost | 1993 (\$)<br>Total Cost | 1993 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| H - No Action                                                                                          | A         | 5          | 30       | 0.00                   | /SY    | 260,000  | SY    | 1,000            | 1,000             | 1,000           |             | 0                        | 0                       | 0                    |
| B - Long Term Soil Monitoring, Basin F Exterior                                                        | A         | 2          | 30       | 7,000.00               | /EA-YR | 1        | EA    | 1,000            | 1,000             | 1,000           |             | 6,000                    | 222,000                 | 121,000              |
| R - Site Reviews                                                                                       | A         | 2          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1,000            | 1,000             | 1,000           |             | 6,000                    | 179,000                 | 83,000               |
| Subtotal (P)                                                                                           |           |            |          |                        |        |          |       |                  |                   |                 |             | 14,000                   | 410,000                 | 214,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| COST CODE: LLSL                                                                                        |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                           |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                                                                                            |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Q = 0.380 * (P)                                                                                        |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| R = 0.300 * (P+Q)                                                                                      |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (S = Q+R)                                                                                     |           |            |          |                        |        |          |       |                  |                   |                 |             | 11,000                   | 331,000                 | 173,000              |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                                       |           |            |          |                        |        |          |       |                  |                   |                 |             | 28,000                   | 742,000                 | 387,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |        |          |       |                  |                   |                 |             |                          | 22,100,000              | 21,300,000           |

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Table B4.6-1 Cost Estimate - Sewer Systems Medium Group - Sanitary/Process Water Sewers Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                            | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| H - No Action                        | LS        | 1          | --       | 0.00                   | ASY   | 190,000  | SY    | 1.000            | 1.000             | 1.000           |             |                          | 0                       | 0                    |
| B - No Action                        | LS        | 1          | --       | 0.00                   | ASY   | 19,000   | SY    | 1.000            | 1.000             | 1.000           |             |                          | 0                       | 0                    |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Not/Demob                            |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects - Overhead & Profit        |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design                   |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering                 |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>Subtotal (A)</b>                  |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                      |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 0                       | 0                    |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Not/Demob                            |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects - Overhead & Profit        |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design                   |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering                 |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>Subtotal (B)</b>                  |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                      |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 0                       | 0                    |
| <b>Subtotal (G) = B+C+D+E+F</b>      |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                      |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 0                       | 0                    |
| <b>TOTAL CAPITAL COSTS (H) = A+G</b> |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                      |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 0                       | 0                    |

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Table B4.6-1 Cost Estimate - Sewer Systems Medium Group - Sanitary/Process Water Sewers Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$) | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$) | 1995 (\$) | 1995 (\$) |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|--------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| H - No Action                                                                                  | LS        | 1          | --       | 0.00      | /SV    | 190,000  | SV    | 1,000         | 1,000          | 1,000        |             | 0         | 0         | 0         |
| B - No Action                                                                                  | LS        | 1          | --       | 0.00      | /SV    | 19,000   | SV    | 1,000         | 1,000          | 1,000        |             | 0         | 0         | 0         |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| Subtotal (I) = J+K+L+M+N                                                                       |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| Indirects, Overhead & Profit                                                                   | 3.3%      |            |          |           |        |          |       |               |                |              |             |           |           |           |
| Engineering Design                                                                             | 36.0%     |            |          |           |        |          |       |               |                |              |             |           |           |           |
| Resident Engineering                                                                           | 0.5%      |            |          |           |        |          |       |               |                |              |             |           |           |           |
| Contingency                                                                                    | 1.3%      |            |          |           |        |          |       |               |                |              |             |           |           |           |
| Subtotal (I) = J+K+L+M+N                                                                       |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| HB - Long Term Soil Monitoring, Sanitary Sewers                                                | A         | 1          | 30       | 24,000.00 | /EA-YR | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 32,000    | 859,000   | 508,000   |
| HB - Site Reviews                                                                              | A         | 1          | 30       | 5,400.00  | /EA-YR | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 6,000     | 185,000   | 98,000    |
| Subtotal (I) = J+K+L+M+N                                                                       |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| Indirects, Overhead & Profit                                                                   | 36.0%     |            |          |           |        |          |       |               |                |              |             |           |           |           |
| Contingency                                                                                    | 30.0%     |            |          |           |        |          |       |               |                |              |             |           |           |           |
| Subtotal (I) = J+K+L+M+N                                                                       |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| Subtotal (I) = J+K+L+M+N                                                                       |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| Subtotal (I) = J+K+L+M+N                                                                       |           |            |          |           |        |          |       |               |                |              |             |           |           |           |

| Cost Item                            | Cost Type | Start Year | End Year | 1992 (\$) |       | Quantity | Units | Volume |                | Description | 1993 (\$)   |            | 1993 (\$) | PW Cost |
|--------------------------------------|-----------|------------|----------|-----------|-------|----------|-------|--------|----------------|-------------|-------------|------------|-----------|---------|
|                                      |           |            |          | Unit Cost | Units |          |       | Factor | Mileage Factor |             | Annual Cost | Total Cost |           |         |
| <b>DIRECT CAPITAL COSTS</b>          |           |            |          |           |       |          |       |        |                |             |             |            |           |         |
| H - Public Education                 | LS        | 1          | --       | 1,500.00  | /EA   | 1        | EA    | 1,000  | 1,000          | 1,000       | 2,000       | 2,000      | 2,000     | 0       |
| B - No Action                        | LS        | 1          | --       | 0.00      | /SY   | 19,000   | SY    | 1,000  | 1,000          | 1,000       | 0           | 0          | 0         | 0       |
| <b>Subtotal (A)</b>                  |           |            |          |           |       |          |       |        |                |             |             |            |           |         |
| 2,000 2,000                          |           |            |          |           |       |          |       |        |                |             |             |            |           |         |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |           |       |          |       |        |                |             |             |            |           |         |
| Mod/Demob                            |           |            |          |           |       |          |       |        |                |             |             |            | 100       | 100     |
| Indirects, Overhead & Profit         |           |            |          |           |       |          |       |        |                |             |             |            | 1,000     | 1,000   |
| Engineering Design                   |           |            |          |           |       |          |       |        |                |             |             |            | 100       | 100     |
| Resident Engineering                 |           |            |          |           |       |          |       |        |                |             |             |            | 30        | 30      |
| Contingency                          |           |            |          |           |       |          |       |        |                |             |             |            | 1,000     | 1,000   |
| <b>Subtotal (G -B+C+D+E+F)</b>       |           |            |          |           |       |          |       |        |                |             |             |            |           |         |
| 2,000 2,000                          |           |            |          |           |       |          |       |        |                |             |             |            |           |         |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b> |           |            |          |           |       |          |       |        |                |             |             |            |           |         |
| 3,000 3,000                          |           |            |          |           |       |          |       |        |                |             |             |            |           |         |



Table B4.6-2 Cost Estimate - Sewer Systems Medium Group - Sanitary/Process Water Sewers Subgroup  
Alternative 2: Access Restrictions (Modifications to FFA)

| Cost Item                                                                                                 | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| H - Sewer Signs                                                                                           | LS        | 1          | --       | 0.09                   | /LF    | 124,000  | LF    | 1.000         | 1.000          | 2.000        | Spacing     |                          | 24,000                  | 24,000               |
| H - Plugging of Sewer Lines                                                                               | LS        | 1          | --       | 149.00                 | /CY    | 7,000    | CY    | 1.000         | 1.000          | 1.000        |             |                          | 1,180,000               | 1,180,000            |
| H - Public Education                                                                                      | A         | 1          | 30       | 500.00                 | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             |                          | 17,000                  | 9,000                |
| B - No Action                                                                                             | LS        | 1          | --       | 0.00                   | /SY    | 19,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                                                                 |           |            |          |                        |        |          |       |               |                |              |             |                          | 1,232,000               | 1,224,000            |
| Indirects, Overhead & Profit                                                                              |           |            |          |                        |        |          |       |               |                |              |             |                          | 55,000                  | 55,000               |
| Engineering Design                                                                                        |           |            |          |                        |        |          |       |               |                |              |             |                          | 518,000                 | 515,000              |
| Resident Engineering                                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          | 27,000                  | 27,000               |
| Contingency                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 32,000                  | 31,000               |
|                                                                                                           |           |            |          |                        |        |          |       |               |                |              |             |                          | 536,000                 | 532,000              |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                        |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| H - Sewer Signs                                                                                           | A         | 1          | 30       | 0.0043                 | /LF    | 124,000  | LF    | 1.000         | 1.000          | 2.000        | Spacing     |                          | 37,000                  | 19,000               |
| HB - Long Term Soil Monitoring, Sanitary Sewers                                                           | A         | 1          | 30       | 28,000.00              | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             |                          | 969,000                 | 508,000              |
| HB - Site Reviews                                                                                         | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             |                          | 185,000                 | 98,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                              |           |            |          |                        |        |          |       |               |                |              |             |                          | 39,000                  | 1,180,000            |
| Contingency                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 15,000                  | 480,000              |
|                                                                                                           |           |            |          |                        |        |          |       |               |                |              |             |                          | 16,000                  | 492,000              |
|                                                                                                           |           |            |          |                        |        |          |       |               |                |              |             |                          | 32,000                  | 952,000              |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S)</b> [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                           |           |            |          |                        |        |          |       |               |                |              |             |                          | 71,000                  | 4,532,000            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+S+T)</b>                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                           |           |            |          |                        |        |          |       |               |                |              |             |                          | 4,540,000               | 3,520,000            |

Table B4.6-3 Cost Estimate - Sewer Systems Medium Group - Sanitary/Process Water Sewers Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------|-----------|------------|----------|------------------------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                   |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill         | LS        | 1          | ..       | 5.72                   | 170,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 1,110,000               | 1,110,000            |
| HB - On-Post Hazardous Waste Landfill Closure | LS        | 1          | ..       | 3.80                   | 170,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 737,000                 | 737,000              |
| <b>Subtotal (A)</b>                           |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
|                                               |           |            |          |                        |          |       |               |                |              |             |                          | 1,847,000               | 1,847,000            |
| <b>INDIRECT CAPITAL COSTS</b>                 |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Mobil/Demob                                   |           |            |          |                        |          |       |               |                |              |             |                          | 60,000                  | 60,000               |
| Indirects, Overhead & Profit                  |           |            |          |                        |          |       |               |                |              |             |                          | 744,000                 | 744,000              |
| Engineering Design                            |           |            |          |                        |          |       |               |                |              |             |                          | 60,000                  | 60,000               |
| Resident Engineering                          |           |            |          |                        |          |       |               |                |              |             |                          | 33,000                  | 33,000               |
| Contingency                                   |           |            |          |                        |          |       |               |                |              |             |                          | 725,000                 | 725,000              |
| <b>Subtotal (G = B+C+D+E+F)</b>               |           |            |          |                        |          |       |               |                |              |             |                          | 1,842,000               | 1,842,000            |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b>          |           |            |          |                        |          |       |               |                |              |             |                          | 3,489,000               | 3,489,000            |

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Table B4.6-3 Cost Estimate - Sewer Systems Medium Group - Sanitary/Process Water Sewers Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                                    | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-----------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                     |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| HB - Excavation of Sewer Overburden                                          | LS        | 1          | ..       | 1.51                   | /BCY      | 230,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 368,000                 | 368,000              |
| HB - Removal of Steel/Cast Iron Pipe                                         | LS        | 2          | ..       | 13.81                  | /LF       | 94,600   | LF    | 1.000         | 1.000          | 1.000        |             |                          | 1,491,000               | 1,420,000            |
| HB - Sewer Excavation                                                        | LS        | 2          | ..       | 3.82                   | /BCY      | 170,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 741,000                 | 708,000              |
| HB - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill | LS        | 2          | ..       | 1.07                   | /BCY-MILE | 170,000  | BCY   | 1.010         | 3.000          | 1.000        |             |                          | 628,000                 | 598,000              |
| HB - On-Post Hazardous Waste Landfill                                        | LS        | 2          | ..       | 4.07                   | /BCY      | 170,000  | BCY   | 1.010         | 1.000          | 1.000        |             |                          | 787,000                 | 758,000              |
| HB - Excavation of Borrow Material                                           | LS        | 2          | ..       | 1.89                   | /BCY      | 170,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 367,000                 | 348,000              |
| HB - Transportation of Borrow Material to Backfill Area                      | LS        | 2          | ..       | 0.86                   | /BCY-MILE | 170,000  | BCY   | 1.000         | 1.500          | 1.000        |             |                          | 250,000                 | 238,000              |
| HB - Backfill Sewers with Borrow Material                                    | LS        | 2          | ..       | 1.56                   | /BCY      | 170,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 303,000                 | 288,000              |
| HB - Backfill of Sewer Overburden                                            | LS        | 2          | ..       | 1.56                   | /BCY      | 230,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 408,000                 | 390,000              |
| HB - Revegetation of Disturbed Areas                                         | LS        | 2          | ..       | 0.18                   | /SY       | 210,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance |                          | 47,000                  | 45,000               |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                   |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (I)                                                                 |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| COST CODE MUMS                                                               |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                                    |           |            |          |                        |           |          |       |               |                |              |             |                          | 5,431,000               | 5,181,000            |
| Indirects, Overhead & Profit                                                 |           |            |          |                        |           |          |       |               |                |              |             |                          | 210,000                 | 201,000              |
| Engineering Design                                                           |           |            |          |                        |           |          |       |               |                |              |             |                          | 2,200,000               | 2,103,000            |
| Resident Engineering                                                         |           |            |          |                        |           |          |       |               |                |              |             |                          | 39,000                  | 37,000               |
| Contingency                                                                  |           |            |          |                        |           |          |       |               |                |              |             |                          | 118,000                 | 112,000              |
| Subtotal (O = J+K+L+M)                                                       |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (I) = J+K+L+M+N                                                     |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                           |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill Closure                                | A         | 2          | 30       | 0.13                   | /BCY-YR   | 170,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 25,000                   | 731,000                 | 382,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                         |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (P)                                                                 |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| COST CODE LLSL                                                               |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                 |           |            |          |                        |           |          |       |               |                |              |             | 10,000                   | 285,000                 | 148,000              |
| Contingency                                                                  |           |            |          |                        |           |          |       |               |                |              |             | 11,000                   | 305,000                 | 159,000              |
| Subtotal (P) = Q+R                                                           |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                 |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (S) = J+K+L+M+N                                                     |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S)</b>                                     |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| [Note: Total O&M Annual Cost Only Includes Long Term Activities]             |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                 |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (U) = H+T                                                           |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (U) = H+T                                                           |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |

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| Cost Item                                                     | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |           |
|---------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|-----------|
| DIRECT CAPITAL COSTS                                          |           |                               |          |                        |          |       |               |                |              |             |                          |                         |                      |           |
| HIB - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | -        | 5.72                   | 1,700    | BCY   | 1,000         | 1,000          | 1,000        |             | 11,000                   | 11,000                  | 11,000               |           |
| HIB - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                             | -        | 3.80                   | 1,700    | BCY   | 1,000         | 1,000          | 1,000        |             | 7,000                    | 7,000                   | 7,000                |           |
| Subtotal (A)                                                  |           |                               |          |                        |          |       |               |                |              |             |                          | 18,000                  | 17,000               |           |
| INDIRECT CAPITAL COSTS                                        |           |                               |          |                        |          |       |               |                |              |             |                          |                         |                      |           |
| COST CODE: LLSS                                               |           |                               |          |                        |          |       |               |                |              |             |                          |                         |                      |           |
| Mod/Demob                                                     | 3.3%      | B = 0.033 * (A)               |          |                        |          |       |               |                |              |             |                          |                         | 1,000                | 1,000     |
| Indirects, Overhead & Profit                                  | 39.0%     | C = 0.390 * (A+B)             |          |                        |          |       |               |                |              |             |                          |                         | 7,000                | 7,000     |
| Engineering Design                                            | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |          |       |               |                |              |             |                          |                         | 1,000                | 1,000     |
| Resident Engineering                                          | 1.3%      | E = 0.013 * (A+B+C)           |          |                        |          |       |               |                |              |             |                          |                         | 300                  | 300       |
| Contingency                                                   | 28.3%     | F = 0.283 * (A+B+C+D+E)       |          |                        |          |       |               |                |              |             |                          |                         | 7,000                | 7,000     |
| Subtotal (G = B+C+D+E+F)                                      |           |                               |          |                        |          |       |               |                |              |             |                          | 16,000                  | 15,000               |           |
| DIRECT SUBCONTRACT CAPITAL COSTS                              |           |                               |          |                        |          |       |               |                |              |             |                          |                         |                      |           |
| HIB - Thermal Description (Saturated Soil)                    | A         | 1                             | 2        | 14.17                  | 170,000  | BCY   | 1,000         | 1,000          | 1,000        |             | 2,749,000                | 2,864,000               | 2,864,000            |           |
| Subtotal (A1)                                                 |           |                               |          |                        |          |       |               |                |              |             |                          | 2,749,000               | 2,864,000            |           |
| INDIRECT SUBCONTRACT CAPITAL COSTS                            |           |                               |          |                        |          |       |               |                |              |             |                          |                         |                      |           |
| COST CODE: C                                                  |           |                               |          |                        |          |       |               |                |              |             |                          |                         |                      |           |
| Mod/Demob                                                     | 2.0%      | B1 = 0.020 * (A1)             |          |                        |          |       |               |                |              |             |                          |                         | 55,000               | 54,000    |
| Contractor Markup                                             | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |          |       |               |                |              |             |                          |                         | 280,000              | 274,000   |
| Engineering Design                                            | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |                        |          |       |               |                |              |             |                          |                         | 278,000              | 271,000   |
| Resident Engineering                                          | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |                        |          |       |               |                |              |             |                          |                         | 83,000               | 80,000    |
| Contingency                                                   | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |          |       |               |                |              |             |                          |                         | 1,036,000            | 1,012,000 |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                |           |                               |          |                        |          |       |               |                |              |             |                          | 1,742,000               | 1,700,000            |           |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                           |           |                               |          |                        |          |       |               |                |              |             |                          | 4,526,000               | 4,419,000            |           |
| HSS-13A W01                                                   |           |                               |          |                        |          |       |               |                |              |             |                          | 16-Jan-93               |                      |           |
| SOILS DATA                                                    |           |                               |          |                        |          |       |               |                |              |             |                          |                         |                      |           |

Table BA.6-13a Cost Estimate - Sewer Systems Medium Group - Sanitary/Process Water Sewers Subgroup  
Alternative 13a: Direct Thermal Description (Direct Heating)

| Cost Item                                                                | Cost Type | Start Year                      | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1992 (\$)         | 1995 (\$)         | 1995 (\$)         |
|--------------------------------------------------------------------------|-----------|---------------------------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-------------------|-------------------|-------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                 |           |                                 |          |           |           |          |       |               |                |              |             |                   |                   |                   |
| HB - Excavation of Sewer Overhead                                        | LS        | 3                               | --       | 1.51      | /BCY      | 230,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 386,000           | 369,000           | 369,000           |
| HB - Removal of Steel/Cast Iron Pipe                                     | LS        | 3                               | --       | 13.81     | /LF       | 94,600   | LF    | 1.000         | 1.000          | 1.000        |             | 1,481,000         | 1,352,000         | 1,352,000         |
| HB - Sewer Excavation                                                    | LS        | 3                               | --       | 3.82      | /BCY      | 170,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 741,000           | 672,000           | 672,000           |
| HB - Transportation of Contaminated Soil to Thermal Description Facility | LS        | 3                               | --       | 1.07      | /BCY-MILE | 170,000  | BCY   | 1.010         | 1.000          | 1.000        |             | 628,000           | 570,000           | 570,000           |
| HB - Load Treated Soil for Transport to Hazardous Landfill               | LS        | 3                               | --       | 1.55      | /BCY      | 1,700    | BCY   | 1.010         | 1.000          | 1.000        |             | 3,000             | 3,000             | 3,000             |
| HB - Transportation of Particulates to On-Post Hazardous Waste Landfill  | LS        | 3                               | --       | 1.07      | /BCY-MILE | 1,730    | BCY   | 1.010         | 1.000          | 1.000        |             | 2,000             | 2,000             | 2,000             |
| HB - On-Post Hazardous Waste Landfill (Particulates)                     | LS        | 3                               | --       | 4.07      | /BCY      | 1,700    | BCY   | 1.000         | 1.000          | 1.000        |             | 8,000             | 7,000             | 7,000             |
| HB - Load Nonhazardous Treated Soil from Stockpile for Backfill          | LS        | 3                               | --       | 1.28      | /BCY      | 170,000  | BCY   | 1.010         | 1.000          | 1.000        |             | 752,000           | 682,000           | 682,000           |
| HB - Transportation of Treated Soil to Backfill Excavation               | LS        | 3                               | --       | 0.86      | /BCY-MILE | 170,000  | BCY   | 1.010         | 1.000          | 1.000        |             | 506,000           | 459,000           | 459,000           |
| HB - Backfill of Treated Soil for Sanitary/Process                       | LS        | 3                               | --       | 1.56      | /BCY      | 170,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 303,000           | 275,000           | 275,000           |
| HB - Backfill of Sewer Overhead                                          | LS        | 3                               | --       | 1.56      | /BCY      | 230,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 408,000           | 371,000           | 371,000           |
| HB - Revegetation of Disturbed Areas                                     | LS        | 3                               | --       | 0.18      | /SY       | 210,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance | 47,000            | 43,000            | 43,000            |
| <b>Subtotal (I)</b>                                                      |           |                                 |          |           |           |          |       |               |                |              |             | <b>5,288,000</b>  | <b>4,788,000</b>  | <b>4,788,000</b>  |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                               |           |                                 |          |           |           |          |       |               |                |              |             |                   |                   |                   |
| <b>MOB/DEMOL</b>                                                         |           |                                 |          |           |           |          |       |               |                |              |             |                   |                   |                   |
| <b>COST CODE: MIMS</b>                                                   |           |                                 |          |           |           |          |       |               |                |              |             |                   |                   |                   |
| Indirects, Overhead & Profit                                             | 3.9%      | $J = 0.039 * (I)$               |          |           |           |          |       |               |                |              |             |                   |                   |                   |
| Engineering Design                                                       | 38.0%     | $K = 0.380 * (I+J)$             |          |           |           |          |       |               |                |              |             |                   |                   |                   |
| Resident Engineering                                                     | 0.5%      | $L = 0.005 * (I+J+K)$           |          |           |           |          |       |               |                |              |             |                   |                   |                   |
| Contingency                                                              | 1.5%      | $M = 0.015 * (I+J+K)$           |          |           |           |          |       |               |                |              |             |                   |                   |                   |
|                                                                          | 27.5%     | $N = 0.275 * (I+J+K+L+M)$       |          |           |           |          |       |               |                |              |             |                   |                   |                   |
| <b>Subtotal (O) = J+K+L+M+N</b>                                          |           |                                 |          |           |           |          |       |               |                |              |             | <b>205,000</b>    | <b>186,000</b>    | <b>186,000</b>    |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                     |           |                                 |          |           |           |          |       |               |                |              |             |                   |                   |                   |
| HB - Thermal Description (Saturated Soil)                                | LS        | 3                               | --       | 73.64     | /BCY      | 170,000  | BCY   | 1.010         | 1.000          | 1.000        |             | 14,428,000        | 13,087,000        | 13,087,000        |
| <b>Subtotal (I)</b>                                                      |           |                                 |          |           |           |          |       |               |                |              |             | <b>14,428,000</b> | <b>13,087,000</b> | <b>13,087,000</b> |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |           |                                 |          |           |           |          |       |               |                |              |             |                   |                   |                   |
| <b>COST CODE: D</b>                                                      |           |                                 |          |           |           |          |       |               |                |              |             |                   |                   |                   |
| MOB/DEMOL                                                                | 0.0%      | $J1 = 0.000 * (I1)$             |          |           |           |          |       |               |                |              |             |                   |                   |                   |
| Contractor Markup                                                        | 10.0%     | $K1 = 0.100 * (I1+J1)$          |          |           |           |          |       |               |                |              |             |                   |                   |                   |
| Engineering Design                                                       | 0.0%      | $L1 = 0.000 * (I1+J1+K1)$       |          |           |           |          |       |               |                |              |             |                   |                   |                   |
| Resident Engineering                                                     | 2.0%      | $M1 = 0.020 * (I1+J1+K1)$       |          |           |           |          |       |               |                |              |             |                   |                   |                   |
| Contingency                                                              | 40.0%     | $N1 = 0.400 * (I1+J1+K1+L1+M1)$ |          |           |           |          |       |               |                |              |             |                   |                   |                   |
| <b>Subtotal (O1) = J1+K1+L1+M1+N1</b>                                    |           |                                 |          |           |           |          |       |               |                |              |             | <b>0</b>          | <b>1,443,000</b>  | <b>1,309,000</b>  |
| <b>Subtotal (O1)</b>                                                     |           |                                 |          |           |           |          |       |               |                |              |             | <b>0</b>          | <b>0</b>          | <b>0</b>          |
| <b>Subtotal (O1)</b>                                                     |           |                                 |          |           |           |          |       |               |                |              |             | <b>317,000</b>    | <b>288,000</b>    | <b>288,000</b>    |
| <b>Subtotal (O1)</b>                                                     |           |                                 |          |           |           |          |       |               |                |              |             | <b>6,478,000</b>  | <b>5,874,000</b>  | <b>5,874,000</b>  |
| <b>Subtotal (O1)</b>                                                     |           |                                 |          |           |           |          |       |               |                |              |             | <b>8,236,000</b>  | <b>7,470,000</b>  | <b>7,470,000</b>  |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+I1+O1)</b>                 |           |                                 |          |           |           |          |       |               |                |              |             | <b>32,594,000</b> | <b>29,564,000</b> | <b>29,564,000</b> |

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Table B4.6-13a Cost Estimate - Sewer Systems Medium Group - Sanitary/Process Water Sewers Subgroup  
Alternative 13a: Direct Thermal Desorption (Direct Heating)

| Cost Item                                                    | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |            |
|--------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|------------|
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |            |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates) | A         | 3          | 30       | 0.13                   | /RCY-YR | 1,700    | BCY   | 1.000         | 1.000          | 1.000        |             | 300                      | 7,000                   | 4,000                |            |
|                                                              |           |            |          |                        |         |          |       |               |                |              |             | 300                      | 7,000                   | 4,000                |            |
| Subtotal (P)                                                 |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |            |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |            |
| COST CODE: LLSL                                              |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |            |
| Indirects, Overhead & Profit 38.0% Q = 0.380 * (P)           |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |            |
| Contingency 30.0% R = 0.300 * (P+Q)                          |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |            |
|                                                              |           |            |          |                        |         |          |       |               |                |              |             | 100                      | 3,000                   | 1,000                |            |
|                                                              |           |            |          |                        |         |          |       |               |                |              |             | 100                      | 3,000                   | 1,000                |            |
|                                                              |           |            |          |                        |         |          |       |               |                |              |             | 200                      | 6,000                   | 3,000                |            |
| Subtotal (S = Q+R)                                           |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |            |
|                                                              |           |            |          |                        |         |          |       |               |                |              |             | 500                      | 13,000                  | 6,000                |            |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)             |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |            |
|                                                              |           |            |          |                        |         |          |       |               |                |              |             |                          |                         | 37,100,000           | 34,000,000 |

Table BA.7-1 Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                            | Cost Type | Start Year | End Year | 1992 (\$) | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$) |
|--------------------------------------|-----------|------------|----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|-----------|
|                                      |           |            |          | Unit Cost |          |       |               |                |              |             | Annual Cost | Total Cost | PW Cost   |
| <b>DIRECT CAPITAL COSTS</b>          |           |            |          |           |          |       |               |                |              |             |             |            |           |
| H - No Action                        | LS        | 1          | --       | 0.00      | 100,000  | SY    | 1.000         | 1.000          | 1.000        |             |             | 0          | 0         |
| A - No Action                        | LS        | 1          | --       | 0.00      | 74,000   | SY    | 1.000         | 1.000          | 1.000        |             |             | 0          | 0         |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |           |          |       |               |                |              |             |             |            |           |
| Mob/Demob                            |           |            |          |           |          |       |               |                |              |             |             |            |           |
| Indirects, Overhead & Profit         |           |            |          |           |          |       |               |                |              |             |             |            |           |
| Engineering Design                   |           |            |          |           |          |       |               |                |              |             |             |            |           |
| Resident Engineering                 |           |            |          |           |          |       |               |                |              |             |             |            |           |
| Contingency                          |           |            |          |           |          |       |               |                |              |             |             |            |           |
| <b>Subtotal (A)</b>                  |           |            |          |           |          |       |               |                |              |             |             |            |           |
|                                      |           |            |          |           |          |       |               |                |              |             |             | 0          | 0         |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |           |          |       |               |                |              |             |             |            |           |
| Mob/Demob                            |           |            |          |           |          |       |               |                |              |             |             |            |           |
| Indirects, Overhead & Profit         |           |            |          |           |          |       |               |                |              |             |             |            |           |
| Engineering Design                   |           |            |          |           |          |       |               |                |              |             |             |            |           |
| Resident Engineering                 |           |            |          |           |          |       |               |                |              |             |             |            |           |
| Contingency                          |           |            |          |           |          |       |               |                |              |             |             |            |           |
| <b>Subtotal (B)</b>                  |           |            |          |           |          |       |               |                |              |             |             |            |           |
|                                      |           |            |          |           |          |       |               |                |              |             |             | 0          | 0         |
| <b>Subtotal (G -B+C+D+E+F)</b>       |           |            |          |           |          |       |               |                |              |             |             |            |           |
|                                      |           |            |          |           |          |       |               |                |              |             |             | 0          | 0         |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b> |           |            |          |           |          |       |               |                |              |             |             |            |           |
|                                      |           |            |          |           |          |       |               |                |              |             |             | 0          | 0         |

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Table B4.7-1 Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
Alternative 1: No Additional Action (Provisions of TFA)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Mileage<br>Factor | Other<br>Factor | Description | Annual Cost | 1993 (\$)<br>Total Cost | 1993 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|--------------------------|-----------------|-------------|-------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |       |                          |                 |             |             |                         |                      |
| H - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 100,000  | SY    | 1.000                    | 1.000           | 1.000       |             | 0                       | 0                    |
| A - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 74,000   | SY    | 1.000                    | 1.000           | 1.000       |             | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |       |                          |                 |             |             |                         |                      |
| Mod/Demob                                                                                                     |           |            |          |                        |        |          |       |                          |                 |             |             | 0                       | 0                    |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |                          |                 |             |             | 0                       | 0                    |
| Engineering Design                                                                                            |           |            |          |                        |        |          |       |                          |                 |             |             | 0                       | 0                    |
| Resident Engineering                                                                                          |           |            |          |                        |        |          |       |                          |                 |             |             | 0                       | 0                    |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |                          |                 |             |             | 0                       | 0                    |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |       |                          |                 |             |             |                         |                      |
| H - Long Term Soil Monitoring, Chemical Sewers                                                                | A         | 1          | 30       | 29,000.00              | /EA-YR | 1        | EA    | 1.000                    | 1.000           | 1.000       | 30,000      | 893,000                 | 528,000              |
| HA - Site Reviews                                                                                             | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1.000                    | 1.000           | 1.000       | 6,000       | 185,000                 | 98,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |       |                          |                 |             |             |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |                          |                 |             |             | 15,000                  | 243,000              |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |                          |                 |             |             | 16,000                  | 280,000              |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long Term Activities]</b> |           |            |          |                        |        |          |       |                          |                 |             |             |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |                          |                 |             |             | 71,000                  | 1,128,000            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |        |          |       |                          |                 |             |             |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |                          |                 |             |             | 2,130,000               | 1,130,000            |

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Table BA.7-1a Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
 Alternative 1a: Direct Thermal Description (Direct Heating) of Principal Threat Volume; No Additional Action (Provisions of FFA)

| Cost Item                                                   | Cost Type | Start Year                    | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |         |         |
|-------------------------------------------------------------|-----------|-------------------------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|---------|---------|---------|
| DIRECT CAPITAL COSTS                                        |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |         |         |
| H - No Action (Limited)                                     | LS        | 1                             | --       | 0.00      | /SV   | 100,000  | SV    | 1.000         | 1.000          | 1.000        |             | 0         | 0         | 0         | 0       |         |         |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | --       | 5.72      | /RCY  | 470      | RCY   | 1.000         | 1.000          | 1.000        |             | 3,000     | 3,000     | 3,000     | 3,000   |         |         |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                             | --       | 3.80      | /RCY  | 470      | RCY   | 1.000         | 1.000          | 1.000        |             | 2,000     | 2,000     | 2,000     | 2,000   |         |         |
| Subtotal (A)                                                |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |         |         |
| 5,000                                                       |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |         |         |
| INDIRECT CAPITAL COSTS                                      |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |         |         |
| COST CODE: LLSS                                             |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |         |         |
| Mod/Demob                                                   | 3.3%      | B = 0.033 * (A)               |          |           |       |          |       |               |                |              |             |           |           |           |         | 200     | 200     |
| Indirects, Overhead & Profit                                | 36.0%     | C = 0.360 * (A+B)             |          |           |       |          |       |               |                |              |             |           |           |           |         | 2,000   | 2,000   |
| Engineering Design                                          | 3.0%      | D = 0.030 * (A+B+C)           |          |           |       |          |       |               |                |              |             |           |           |           |         | 200     | 200     |
| Resident Engineering                                        | 1.3%      | E = 0.013 * (A+B+C)           |          |           |       |          |       |               |                |              |             |           |           |           |         | 100     | 100     |
| Contingency                                                 | 26.3%     | F = 0.263 * (A+B+C+D+E)       |          |           |       |          |       |               |                |              |             |           |           |           |         | 2,000   | 2,000   |
| Subtotal (G = B+C+D+E+F)                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |         |         |
| 5,000                                                       |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |         |         |
| DIRECT SUBCONTRACT CAPITAL COSTS                            |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |         |         |
| H - Thermal Description (Saturated Soil)                    | A         | 1                             | 2        | 14.17     | /RCY  | 47,000   | RCY   | 1.000         | 1.000          | 1.000        |             | 760,000   | 760,000   | 742,000   | 742,000 |         |         |
| Subtotal (A1)                                               |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |         |         |
| 760,000                                                     |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |         |         |
| INDIRECT SUBCONTRACT CAPITAL COSTS                          |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |         |         |
| COST CODE: C                                                |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |         |         |
| Mod/Demob                                                   | 2.0%      | B1 = 0.020 * (A1)             |          |           |       |          |       |               |                |              |             |           |           |           |         | 15,000  | 15,000  |
| Contractor Markup                                           | 10.0%     | C1 = 0.100 * (A1+B1)          |          |           |       |          |       |               |                |              |             |           |           |           |         | 76,000  | 76,000  |
| Engineering Design                                          | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |           |       |          |       |               |                |              |             |           |           |           |         | 77,000  | 75,000  |
| Resident Engineering                                        | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |           |       |          |       |               |                |              |             |           |           |           |         | 26,000  | 25,000  |
| Contingency                                                 | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |           |       |          |       |               |                |              |             |           |           |           |         | 267,000 | 260,000 |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |         |         |
| 482,000                                                     |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |         |         |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                         |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |         |         |
| 1,251,000                                                   |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |         |         |

Table B4.7-1a Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
Alternative 1a: Direct Thermal Description (Direct Heating) of Principal Threat Volume; No Additional Action (Provisions of FTA)

| Cost Item                                                              | Cost Type                     | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1992 (\$) | 1993 (\$) | 1995 (\$) |
|------------------------------------------------------------------------|-------------------------------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|--------------|-----------|-----------|-----------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                               |                               |            |          |           |           |          |       |               |                |              |              |           |           |           |
| A - Agent Screening During Excavation                                  | LS                            | 2          | --       | 0.10      | /BCY      | 47,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 5,000     | 5,000     | 5,000     |
| H - No Action (Limited)                                                | LS                            | 1          | --       | 0.00      | /SY       | 100,000  | SY    | 1.000         | 1.000          | 1.000        |              | 0         | 0         | 0         |
| H - Excavation of Sewer Overburden                                     | LS                            | 3          | --       | 1.51      | /BCY      | 120,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 207,000   | 207,000   | 186,000   |
| HA - Removal of Steel/Cast Iron Pipe                                   | LS                            | 3          | --       | 20.68     | /LF       | 13,000   | LF    | 1.000         | 1.000          | 1.200        | Odor Control | 388,000   | 388,000   | 334,000   |
| HA - Excavate Chemical Sewers                                          | LS                            | 3          | --       | 7.25      | /BCY      | 47,000   | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 467,000   | 467,000   | 423,000   |
| HA - Transportation of Chemical Sewers to Thermal Description Unit     | LS                            | 3          | --       | 1.05      | /BCY-MILE | 47,000   | BCY   | 1.010         | 1.500          | 1.000        |              | 85,000    | 85,000    | 77,000    |
| H - Load Treated Soil for Transport to Hazardous Landfill              | LS                            | 3          | --       | 1.55      | /BCY      | 470      | BCY   | 1.010         | 1.000          | 1.000        |              | 1,000     | 1,000     | 1,000     |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill | LS                            | 3          | --       | 1.07      | /BCY-MILE | 470      | BCY   | 1.000         | 1.000          | 1.000        |              | 1,000     | 1,000     | 1,000     |
| H - On-Post Hazardous Waste Landfill (Particulates)                    | LS                            | 3          | --       | 4.07      | /BCY      | 470      | BCY   | 1.000         | 1.000          | 1.000        |              | 2,000     | 2,000     | 2,000     |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill         | LS                            | 3          | --       | 1.28      | /BCY      | 47,000   | BCY   | 1.010         | 1.000          | 1.000        |              | 66,000    | 66,000    | 63,000    |
| H - Transportation of Treated Soil to Backfill Excavation              | LS                            | 3          | --       | 0.86      | /BCY-MILE | 47,000   | BCY   | 1.010         | 1.500          | 1.000        |              | 70,000    | 70,000    | 63,000    |
| HA - Backfill of Treated Soil for Chemical Sewers                      | LS                            | 3          | --       | 1.56      | /BCY      | 47,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 84,000    | 84,000    | 78,000    |
| H - Backfill of Sewer Overburden                                       | LS                            | 3          | --       | 0.18      | /BCY      | 120,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 214,000   | 214,000   | 184,000   |
| H - Revegetation of Disturbed Areas                                    | LS                            | 3          | --       | 0.00      | /SY       | 49,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance  | 11,000    | 11,000    | 10,000    |
| A - No Action                                                          | LS                            | 1          | --       | 0.00      | /SY       | 74,000   | SY    | 1.000         | 1.000          | 1.000        |              | 0         | 0         | 0         |
| <b>Subtotal (I)</b>                                                    |                               |            |          |           |           |          |       |               |                |              |              | 1,593,000 | 1,593,000 | 1,436,000 |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                             |                               |            |          |           |           |          |       |               |                |              |              |           |           |           |
| Mod/Demob                                                              | COST CODE: HWMS               |            |          |           |           |          |       |               |                |              |              |           |           |           |
| Indirects, Overhead & Profit                                           | J = 0.051 * (I)               |            |          |           |           |          |       |               |                |              |              |           |           |           |
| Engineering Design                                                     | K = 0.403 * (I+J)             |            |          |           |           |          |       |               |                |              |              |           |           |           |
| Resident Engineering                                                   | L = 0.015 * (I+J+K)           |            |          |           |           |          |       |               |                |              |              |           |           |           |
| Contingency                                                            | M = 0.020 * (I+J+K+L)         |            |          |           |           |          |       |               |                |              |              |           |           |           |
|                                                                        | N = 0.313 * (I+J+K+L+M)       |            |          |           |           |          |       |               |                |              |              |           |           |           |
| <b>Subtotal (O) = J+K+L+M+N</b>                                        |                               |            |          |           |           |          |       |               |                |              |              | 1,598,000 | 1,598,000 | 1,441,000 |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |                               |            |          |           |           |          |       |               |                |              |              |           |           |           |
| H - Thermal Description (Saturated Soil)                               | LS                            | 3          | --       | 73.64     | /BCY      | 47,000   | BCY   | 1.010         | 1.000          | 1.000        |              | 3,989,000 | 3,989,000 | 3,618,000 |
| <b>Subtotal (I1)</b>                                                   |                               |            |          |           |           |          |       |               |                |              |              | 3,989,000 | 3,989,000 | 3,618,000 |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                 |                               |            |          |           |           |          |       |               |                |              |              |           |           |           |
| Mod/Demob                                                              | COST CODE: D                  |            |          |           |           |          |       |               |                |              |              |           |           |           |
| Contractor Markup                                                      | J1 = 0.000 * (I1)             |            |          |           |           |          |       |               |                |              |              |           |           |           |
| Engineering Design                                                     | K1 = 0.100 * (I1+J1)          |            |          |           |           |          |       |               |                |              |              |           |           |           |
| Resident Engineering                                                   | L1 = 0.000 * (I1+J1+K1)       |            |          |           |           |          |       |               |                |              |              |           |           |           |
| Contingency                                                            | M1 = 0.020 * (I1+J1+K1)       |            |          |           |           |          |       |               |                |              |              |           |           |           |
|                                                                        | N1 = 0.400 * (I1+J1+K1+L1+M1) |            |          |           |           |          |       |               |                |              |              |           |           |           |
| <b>Subtotal (O1) = J1+K1+L1+M1+N1</b>                                  |                               |            |          |           |           |          |       |               |                |              |              | 2,277,000 | 2,277,000 | 2,085,000 |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+I1+O1)</b>               |                               |            |          |           |           |          |       |               |                |              |              | 9,439,000 | 9,439,000 | 8,561,000 |

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Table B4.7-1a Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
 Alternative 1a: Direct Thermal Description (Direct Heating) of Principal Threat Volume; No Additional Action (Provisions of FFA)

| Cost Item                                                    | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>           |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| HA - On-Post Hazardous Waste Landfill Closure (Particulates) | A         | 3          | 30       | 0.13                   | /BCY-YR | 470      | BCY   | 1,000            | 1,000             | 1,000           |             | 100                      | 2,000                   | 1,000                |
| HA - Long Term Soil Monitoring, Chemical Sewers              | A         | 3          | 30       | 29,000.00              | /EA-YR  | 1        | EA    | 1,000            | 1,000             | 1,000           |             | 30,000                   | 827,000                 | 470,000              |
| HA - Site Reviews                                            | A         | 3          | 30       | 5,400.00               | /EA-YR  | 1        | EA    | 1,000            | 1,000             | 1,000           |             | 6,000                    | 173,000                 | 87,000               |
| <b>Subtotal (P)</b>                                          |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                              |           |            |          |                        |         |          |       |                  |                   |                 |             |                          | 38,000                  | 1,101,000            |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>         |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                              |           |            |          |                        |         |          |       |                  |                   |                 |             |                          | 15,000                  | 428,000              |
|                                                              |           |            |          |                        |         |          |       |                  |                   |                 |             |                          | 16,000                  | 459,000              |
|                                                              |           |            |          |                        |         |          |       |                  |                   |                 |             |                          | 32,000                  | 888,000              |
|                                                              |           |            |          |                        |         |          |       |                  |                   |                 |             |                          | 71,000                  | 1,990,000            |
|                                                              |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         | 1,008,000            |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>  |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                              |           |            |          |                        |         |          |       |                  |                   |                 |             |                          | 12,700,000              | 10,800,000           |

**TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (OPERATIONS & LONG-TERM ACTIVITIES) (U = H+OO+T)**

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Table BA.7-2 Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
Alternative 2: Access Restrictions (Modifications to FFA)

| Cost Item                    | Cost Type | Start Year | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) |
|------------------------------|-----------|------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|
| DIRECT CAPITAL COSTS         |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
| H - Public Education         | LS        | 1          | --       | 1,500.00  | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        | 1.000       | 2,000     | 2,000     | 2,000     |
| A - No Action                | LS        | 1          | --       | 0.00      | /SY   | 74,000   | SY    | 1.000         | 1.000          | 1.000        | 1.000       | 0         | 0         | 0         |
| Subtotal (A)                 |           |            |          |           |       |          |       |               |                |              |             |           |           | 2,000     |
| INDIRECT CAPITAL COSTS       |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
| Mob/Demob                    |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
| Indirects, Overhead & Profit |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
| Engineering Design           |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
| Resident Engineering         |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
| Contingency                  |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
| Subtotal (G = B+C+D+E+F)     |           |            |          |           |       |          |       |               |                |              |             |           |           | 2,000     |
| TOTAL CAPITAL COSTS H = A+G  |           |            |          |           |       |          |       |               |                |              |             |           |           | 3,000     |

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Table B4.7-2

Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
Alternative 2: Access Restrictions (Modifications to FFA)

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| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1992 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| H - Plugging of Sewer Lines                                                                                   | LS        | 1          | --       | 149.00                 | /CY    | 970      | CY    | 1.000            | 1.000             | 1.000           |             |                          | 165,000                 | 165,000              |
| H - Sewer Signs                                                                                               | LS        | 3          | --       | 0.09                   | /LF    | 87,000   | LF    | 1.000            | 1.000             | 2.000           | Spacing     |                          | 17,000                  | 16,000               |
| H - Public Education                                                                                          | A         | 1          | 30       | 500.00                 | /EA-YR | 1        | EA    | 1.000            | 1.000             | 1.000           |             |                          | 17,000                  | 9,000                |
| A - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 74,000   | SY    | 1.000            | 1.000             | 1.000           |             |                          | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Mod/Demob                                                                                                     |           |            |          |                        |        |          |       |                  |                   |                 |             |                          | 199,000                 | 199,000              |
| Indirects: Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |                  |                   |                 |             |                          | 9,000                   | 9,000                |
| Engineering Design                                                                                            |           |            |          |                        |        |          |       |                  |                   |                 |             |                          | 84,000                  | 80,000               |
| Resident Engineering                                                                                          |           |            |          |                        |        |          |       |                  |                   |                 |             |                          | 4,000                   | 4,000                |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |                  |                   |                 |             |                          | 5,000                   | 5,000                |
|                                                                                                               |           |            |          |                        |        |          |       |                  |                   |                 |             |                          | 87,000                  | 82,000               |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| H - Sewer Signs                                                                                               | A         | 1          | 30       | 0.00                   | /LF    | 87,000   | LF    | 1.000            | 1.000             | 2.000           | Spacing     |                          | 26,000                  | 14,000               |
| H - Long Term Soil Monitoring, Chemical Sewers                                                                | A         | 1          | 30       | 29,000.00              | /EA-YR | 1        | EA    | 1.000            | 1.000             | 1.000           |             | 33,000                   | 993,000                 | 528,000              |
| HA - Site Reviews                                                                                             | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1.000            | 1.000             | 1.000           |             | 6,000                    | 165,000                 | 88,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects: Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |                  |                   |                 |             |                          | 40,000                  | 1,203,000            |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |                  |                   |                 |             |                          | 16,000                  | 469,000              |
|                                                                                                               |           |            |          |                        |        |          |       |                  |                   |                 |             |                          | 17,000                  | 502,000              |
|                                                                                                               |           |            |          |                        |        |          |       |                  |                   |                 |             |                          | 32,000                  | 871,000              |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |                  |                   |                 |             |                          | 72,000                  | 2,562,000            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |                  |                   |                 |             |                          | 2,570,000               | 1,520,000            |

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Table B4.7-2a Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
Alternative 2a: Direct Thermal Description (Direct Heating) of Principal Threat Volume; Access Restrictions (Modifications to FTA)

| Cost Item                                                   | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------------------|-----------|------------|----------|------------------------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                                 |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2          | --       | 5.72                   | 470      | BCY   | 1.000            | 1.000             | 1.000           |             |                          | 3,000                   | 3,000                |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3          | --       | 3.80                   | 470      | BCY   | 1.000            | 1.000             | 1.000           |             |                          | 2,000                   | 2,000                |
| H - Public Education                                        | LS        | 1          | --       | 1,500.00               | 1        | EA    | 1.000            | 1.000             | 1.000           |             |                          | 2,000                   | 2,000                |
| <b>Subtotal (A)</b>                                         |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>INDIRECT CAPITAL COSTS</b>                               |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>MOB/DEMOLITION</b>                                       |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                |           |            |          |                        |          |       |                  |                   |                 |             |                          | 200                     | 200                  |
| Engineering Design                                          |           |            |          |                        |          |       |                  |                   |                 |             |                          | 3,000                   | 3,000                |
| Resident Engineering                                        |           |            |          |                        |          |       |                  |                   |                 |             |                          | 300                     | 300                  |
| Contingency                                                 |           |            |          |                        |          |       |                  |                   |                 |             |                          | 100                     | 100                  |
| <b>Subtotal (B = 0.033 * (A))</b>                           |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>CONSTRUCTION</b>                                         |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                |           |            |          |                        |          |       |                  |                   |                 |             |                          | 300                     | 300                  |
| Engineering Design                                          |           |            |          |                        |          |       |                  |                   |                 |             |                          | 100                     | 100                  |
| Resident Engineering                                        |           |            |          |                        |          |       |                  |                   |                 |             |                          | 3,000                   | 3,000                |
| Contingency                                                 |           |            |          |                        |          |       |                  |                   |                 |             |                          | 6,000                   | 6,000                |
| <b>Subtotal (C = 0.390 * (A+B))</b>                         |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>OPERATION &amp; MAINTENANCE</b>                          |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                |           |            |          |                        |          |       |                  |                   |                 |             |                          | 300                     | 300                  |
| Engineering Design                                          |           |            |          |                        |          |       |                  |                   |                 |             |                          | 100                     | 100                  |
| Resident Engineering                                        |           |            |          |                        |          |       |                  |                   |                 |             |                          | 3,000                   | 3,000                |
| Contingency                                                 |           |            |          |                        |          |       |                  |                   |                 |             |                          | 6,000                   | 6,000                |
| <b>Subtotal (D = 0.013 * (A+B+C))</b>                       |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>Subtotal (E = 0.263 * (A+B+C+D+E))</b>                   |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>Subtotal (F = 0.263 * (A+B+C+D+E))</b>                   |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>Subtotal (G = B+C+D+E+F)</b>                             |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                     |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| H - Thermal Description (Saturated Soil)                    | A         | 1          | 2        | 14.17                  | 47,000   | BCY   | 1.000            | 1.000             | 1.000           |             |                          | 760,000                 | 742,000              |
| <b>Subtotal (A1)</b>                                        |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                   |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>MOB/DEMOLITION</b>                                       |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                |           |            |          |                        |          |       |                  |                   |                 |             |                          | 15,000                  | 15,000               |
| Engineering Design                                          |           |            |          |                        |          |       |                  |                   |                 |             |                          | 76,000                  | 76,000               |
| Resident Engineering                                        |           |            |          |                        |          |       |                  |                   |                 |             |                          | 77,000                  | 75,000               |
| Contingency                                                 |           |            |          |                        |          |       |                  |                   |                 |             |                          | 26,000                  | 25,000               |
| <b>Subtotal (B1 = 0.020 * (A1))</b>                         |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>CONSTRUCTION</b>                                         |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                |           |            |          |                        |          |       |                  |                   |                 |             |                          | 26,000                  | 25,000               |
| Engineering Design                                          |           |            |          |                        |          |       |                  |                   |                 |             |                          | 267,000                 | 260,000              |
| Resident Engineering                                        |           |            |          |                        |          |       |                  |                   |                 |             |                          | 462,000                 | 470,000              |
| Contingency                                                 |           |            |          |                        |          |       |                  |                   |                 |             |                          | 1,254,000               | 1,224,000            |
| <b>Subtotal (C1 = 0.100 * (A1+B1))</b>                      |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>Subtotal (D1 = 0.090 * (A1+B1+C1))</b>                   |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>Subtotal (E1 = 0.030 * (A1+B1+C1))</b>                   |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>Subtotal (F1 = 0.300 * (A1+B1+C1+D1+E1))</b>             |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>Subtotal (G1 = B1+C1+D1+E1+F1)</b>                       |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>                  |           |            |          |                        |          |       |                  |                   |                 |             |                          |                         |                      |

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Table B4.7-2a Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
Alternative 2a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Access Restrictions (Modifications to FFA)

| Cost Item                                                              | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1993 (\$) | Annual Cost | 1995 (\$) | Total Cost | 1995 (\$) | PW Cost   |  |           |  |
|------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|--------------|-----------|-------------|-----------|------------|-----------|-----------|--|-----------|--|
| DIRECT O&M COSTS (OPERATIONS)                                          |           |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |
| H - Excavation of Sewer Overburden                                     | LS        | 3          | --       | 1.51      | /RCY      | 47,000   | RCY   | 1.000         | 1.000          | 1.000        |              | 81,000    |             | 81,000    |            | 73,000    |           |  |           |  |
| HA - Removal of Steel/Cast Iron Pipe                                   | LS        | 3          | --       | 20.68     | /LF       | 47,000   | RCY   | 1.000         | 1.000          | 1.200        | Odor Control | 1,331,000 |             | 1,331,000 |            | 1,207,000 |           |  |           |  |
| HA - Excavate Chemical Sewers                                          | LS        | 3          | --       | 7.25      | /RCY      | 47,000   | RCY   | 1.000         | 1.000          | 1.200        | Odor Control | 487,000   |             | 487,000   |            | 423,000   |           |  |           |  |
| HA - Transportation of Chemical Sewers to Thermal Desorption Unit      | LS        | 3          | --       | 1.05      | /RCY-MILE | 47,000   | RCY   | 1.010         | 2.000          | 1.000        |              | 114,000   |             | 114,000   |            | 103,000   |           |  |           |  |
| H - Load Treated Soil for Transport to Hazardous Landfill              | LS        | 3          | --       | 1.55      | /RCY      | 47,000   | RCY   | 1.000         | 1.000          | 1.000        |              | 83,000    |             | 83,000    |            | 75,000    |           |  |           |  |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill | LS        | 3          | --       | 1.07      | /RCY-MILE | 470      | RCY   | 1.000         | 2.000          | 1.000        |              | 1,000     |             | 1,000     |            | 1,000     |           |  |           |  |
| H - On-Post Hazardous Waste Landfill (Particulates)                    | LS        | 3          | --       | 4.07      | /RCY      | 470      | RCY   | 1.000         | 1.000          | 1.000        |              | 2,000     |             | 2,000     |            | 2,000     |           |  |           |  |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill         | LS        | 3          | --       | 1.28      | /RCY      | 470      | RCY   | 1.000         | 1.000          | 1.000        |              | 1,000     |             | 1,000     |            | 1,000     |           |  |           |  |
| H - Transportation of Treated Soil to Backfill Excavation              | LS        | 3          | --       | 0.86      | /RCY-MILE | 47,000   | RCY   | 1.000         | 2.000          | 1.000        |              | 82,000    |             | 82,000    |            | 84,000    |           |  |           |  |
| HA - Backfill of Treated Soil for Chemical Sewers                      | LS        | 3          | --       | 1.56      | /RCY      | 47,000   | RCY   | 1.010         | 1.000          | 1.000        |              | 85,000    |             | 85,000    |            | 77,000    |           |  |           |  |
| H - Backfill of Sewer Overburden                                       | LS        | 3          | --       | 1.56      | /RCY      | 120,000  | RCY   | 1.000         | 1.000          | 1.000        |              | 214,000   |             | 214,000   |            | 194,000   |           |  |           |  |
| H - Revegetation of Disturbed Areas                                    | LS        | 3          | --       | 0.18      | /SY       | 49,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance  | 11,000    |             | 11,000    |            | 10,000    |           |  |           |  |
| H - Plugging of Sewer Lines                                            | LS        | 1          | --       | 149.00    | /CY       | 970      | CY    | 1.000         | 1.000          | 1.000        |              | 165,000   |             | 165,000   |            | 165,000   |           |  |           |  |
| H - Sewer Signs                                                        | LS        | 1          | --       | 0.09      | /LF       | 87,000   | LF    | 1.000         | 1.000          | 1.000        |              | 9,000     |             | 9,000     |            | 9,000     |           |  |           |  |
| H - Public Education                                                   | A         | 1          | 30       | 500.00    | /EA-YR    | 1        | EA    | 1.000         | 1.000          | 1.000        |              | 17,000    |             | 17,000    |            | 9,000     |           |  |           |  |
| A - No Action                                                          | LS        | 1          | --       | 0.00      | /SY       | 74,000   | SY    | 1.000         | 1.000          | 1.000        |              | 0         |             | 0         |            | 0         |           |  |           |  |
| Subtotal (I)                                                           |           |            |          |           |           |          |       |               |                |              |              |           | 2,672,000   |           | 2,433,000  |           |           |  |           |  |
| INDIRECT O&M COSTS (OPERATIONS)                                        |           |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |
| COST CODE: HAMS                                                        |           |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |
| Mobil/Demob                                                            | 5.1%      |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |
| Indirects, Overhead & Profit                                           | 40.3%     |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |
| Engineering Design                                                     | 1.5%      |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |
| Resident Engineering                                                   | 2.0%      |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |
| Contingency                                                            | 31.3%     |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |
| N = 0.313 * (I+J+K+L+M)                                                |           |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |
| Subtotal (O) = J+K+L+M+N                                               |           |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |
|                                                                        |           |            |          |           |           |          |       |               |                |              |              |           | 137,000     |           | 125,000    |           |           |  |           |  |
|                                                                        |           |            |          |           |           |          |       |               |                |              |              |           | 1,130,000   |           | 1,029,000  |           |           |  |           |  |
|                                                                        |           |            |          |           |           |          |       |               |                |              |              |           | 59,000      |           | 54,000     |           |           |  |           |  |
|                                                                        |           |            |          |           |           |          |       |               |                |              |              |           | 79,000      |           | 72,000     |           |           |  |           |  |
|                                                                        |           |            |          |           |           |          |       |               |                |              |              |           | 1,274,000   |           | 1,160,000  |           |           |  |           |  |
| Subtotal (I1)                                                          |           |            |          |           |           |          |       |               |                |              |              |           | 2,679,000   |           | 2,440,000  |           |           |  |           |  |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                              |           |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |
| H - Thermal Desorption (Saturated Soil)                                | LS        | 3          | --       | 73.64     | /RCY      | 47,000   | RCY   | 1.010         | 1.000          | 1.000        |              | 3,988,000 |             | 3,988,000 |            | 3,618,000 |           |  |           |  |
| Subtotal (I1)                                                          |           |            |          |           |           |          |       |               |                |              |              |           | 3,988,000   |           | 3,618,000  |           |           |  |           |  |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                            |           |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |
| COST CODE: D                                                           |           |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |
| Mobil/Demob                                                            | 0.0%      |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |
| Contractor Markup                                                      | 10.0%     |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |
| Engineering Design                                                     | 0.0%      |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |
| Resident Engineering                                                   | 2.0%      |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |
| Contingency                                                            | 40.0%     |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |
| J1 = 0.000 * (I1)                                                      |           |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           | 0         |  | 0         |  |
| K1 = 0.100 * (I1+J1)                                                   |           |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           | 388,000   |  | 362,000   |  |
| L1 = 0.000 * (I1+J1+K1)                                                |           |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           | 0         |  | 0         |  |
| M1 = 0.020 * (I1+J1+K1)                                                |           |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           | 88,000    |  | 80,000    |  |
| N1 = 0.400 * (I1+J1+K1+L1+M1)                                          |           |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           | 1,790,000 |  | 1,624,000 |  |
| Subtotal (O1) = J1+K1+L1+M1+N1                                         |           |            |          |           |           |          |       |               |                |              |              |           | 2,277,000   |           | 2,085,000  |           |           |  |           |  |
|                                                                        |           |            |          |           |           |          |       |               |                |              |              |           | 11,617,000  |           | 10,556,000 |           |           |  |           |  |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O+I1+O1)                          |           |            |          |           |           |          |       |               |                |              |              |           |             |           |            |           |           |  |           |  |

TOTAL O&M COSTS (OPERATIONS) [OO = I+O+I1+O1]  
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Table BA.7-2a Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
Alternative 2a: Direct Thermal Desorption (Direct Heating) of Principal Thermal Volume; Access Restrictions (Modifications to PFA)

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| H - On-Peat Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       | 0.13                   | /BCY-YR | 470      | BCY   | 1.000         | 1.000          | 1.000        |             | 100                      | 2,000                   | 1,000                |
| H - Sewer Signs                                                                                        | A         | 1          | 30       | 0.00                   | /LF     | 87,000   | LF    | 1.000         | 1.000          | 1.000        |             | 400                      | 13,000                  | 7,000                |
| H - Long Term Soil Monitoring, Chemical Sewers                                                         | A         | 3          | 30       | 29,000.00              | /EA-YR  | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 33,000                   | 827,000                 | 470,000              |
| HA - Site Reviews                                                                                      | A         | 3          | 30       | 5,400.00               | /EA-YR  | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 173,000                 | 87,000               |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             | 40,000                   | 1,114,000               | 595,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                           |           |            |          |                        |         |          |       |               |                |              |             | 18,000                   | 434,000                 | 220,000              |
| Contingency                                                                                            |           |            |          |                        |         |          |       |               |                |              |             | 17,000                   | 465,000                 | 238,000              |
| <b>Subtotal (S = Q+R)</b>                                                                              |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             | 32,000                   | 899,000                 | 458,000              |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             | 72,000                   | 2,013,000               | 1,021,000            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          | 14,900,000              | 12,800,000           |

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Table B4.7-3a  
Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
Alternative 3a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Landfill (On-Post Landfill)

| Cost Item                                                   | Cost Type | Start Year              | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Milage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------------------|-----------|-------------------------|----------|------------------------|-------|----------|-------|---------------|---------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                        |           |                         |          |                        |       |          |       |               |               |              |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                       | --       | 5.72                   | /BCY  | 470      | BCY   | 1.000         | 1.000         | 1.000        |             | 3,000                    | 3,000                   | 3,000                |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                       | --       | 3.80                   | /BCY  | 470      | BCY   | 1.000         | 1.000         | 1.000        |             | 2,000                    | 2,000                   | 2,000                |
| H - On-Post Hazardous Waste Landfill                        | LS        | 2                       | --       | 5.72                   | /BCY  | 35,000   | BCY   | 1.000         | 1.000         | 1.000        |             | 228,000                  | 228,000                 | 218,000              |
| A - On-Post Hazardous Waste Landfill Closure                | LS        | 3                       | --       | 3.80                   | /BCY  | 35,000   | BCY   | 1.000         | 1.000         | 1.000        |             | 152,000                  | 152,000                 | 136,000              |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                       | --       | 5.72                   | /BCY  | 6        | BCY   | 1.000         | 1.000         | 1.000        |             | 40                       | 40                      | 40                   |
| A - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                       | --       | 3.80                   | /BCY  | 6        | BCY   | 1.000         | 1.000         | 1.000        |             | 30                       | 30                      | 20                   |
| Subtotal (A)                                                |           |                         |          |                        |       |          |       |               |               |              |             | 385,000                  | 380,000                 |                      |
| INDIRECT CAPITAL COSTS                                      |           |                         |          |                        |       |          |       |               |               |              |             |                          |                         |                      |
| Mod/Demob                                                   | 3.3%      | COST CODE: LLSS         |          |                        |       |          |       |               |               |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                | 38.0%     | B = 0.033 * (A)         |          |                        |       |          |       |               |               |              |             |                          |                         |                      |
| Engineering Design                                          | 3.0%      | C = 0.380 * (A+B)       |          |                        |       |          |       |               |               |              |             |                          |                         |                      |
| Resident Engineering                                        | 1.3%      | D = 0.030 * (A+B+C)     |          |                        |       |          |       |               |               |              |             |                          |                         |                      |
| Contingency                                                 | 28.3%     | E = 0.013 * (A+B+C)     |          |                        |       |          |       |               |               |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                    |           |                         |          |                        |       |          |       |               |               |              |             | 151,000                  | 141,000                 |                      |
| Subtotal (G = B+C+D+E+F)                                    |           |                         |          |                        |       |          |       |               |               |              |             | 343,000                  | 320,000                 |                      |
| DIRECT SUBCONTRACT CAPITAL COSTS                            |           |                         |          |                        |       |          |       |               |               |              |             |                          |                         |                      |
| H - Thermal Description (Saturated Soil)                    | A         | 1                       | 2        | 14.17                  | /BCY  | 47,000   | BCY   | 1.000         | 1.000         | 1.000        |             | 780,000                  | 742,000                 | 742,000              |
| A - Incineration                                            | A         | 1                       | 2        | 36.37                  | /BCY  | 640      | BCY   | 1.000         | 1.000         | 1.000        |             | 27,000                   | 26,000                  | 26,000               |
| Subtotal (A1)                                               |           |                         |          |                        |       |          |       |               |               |              |             | 787,000                  | 768,000                 |                      |
| INDIRECT SUBCONTRACT CAPITAL COSTS                          |           |                         |          |                        |       |          |       |               |               |              |             |                          |                         |                      |
| Mod/Demob                                                   | 2.0%      | COST CODE: C            |          |                        |       |          |       |               |               |              |             |                          |                         |                      |
| Contractor Markup                                           | 10.0%     | B1 = 0.020 * (A1)       |          |                        |       |          |       |               |               |              |             |                          |                         |                      |
| Engineering Design                                          | 8.0%      | C1 = 0.100 * (A1+B1)    |          |                        |       |          |       |               |               |              |             |                          |                         |                      |
| Resident Engineering                                        | 3.0%      | D1 = 0.080 * (A1+B1+C1) |          |                        |       |          |       |               |               |              |             |                          |                         |                      |
| Contingency                                                 | 30.0%     | E1 = 0.030 * (A1+B1+C1) |          |                        |       |          |       |               |               |              |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |                         |          |                        |       |          |       |               |               |              |             | 688,000                  | 687,000                 |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |                         |          |                        |       |          |       |               |               |              |             | 2,013,000                | 1,835,000               |                      |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                         |           |                         |          |                        |       |          |       |               |               |              |             |                          |                         |                      |
| HCS-09A.W01                                                 |           |                         |          |                        |       |          |       |               |               |              |             |                          |                         |                      |
| SOILS DAA                                                   |           |                         |          |                        |       |          |       |               |               |              |             |                          |                         |                      |
| 16-Jan-93                                                   |           |                         |          |                        |       |          |       |               |               |              |             |                          |                         |                      |

| Cost Item                                                                   | Cost Type | Start Year | End Year | 1992 (\$) | Units                         | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1993 (\$)   | 1993 (\$)  | 1993 (\$) |
|-----------------------------------------------------------------------------|-----------|------------|----------|-----------|-------------------------------|----------|-------|---------------|----------------|--------------|--------------|-------------|------------|-----------|
|                                                                             |           |            |          | Unit Cost |                               |          |       |               |                |              |              | Annual Cost | Total Cost | PW Cost   |
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                    |           |            |          |           |                               |          |       |               |                |              |              |             |            |           |
| H - Excavation of Sewer Overburden                                          | LS        | 3          | --       | 1.51      | /RCY                          | 340,000  | RCY   | 1.000         | 1.000          | 1.000        |              | 598,000     |            | 531,000   |
| HA - Removal of Steel/Cast Iron Pipe                                        | LS        | 3          | --       | 20.68     | /LF                           | 15,100   | LF    | 1.000         | 1.000          | 1.200        | Odor Control | 428,000     |            | 398,000   |
| HA - Excavate Chemical Sewers                                               | LS        | 3          | --       | 7.25      | /RCY                          | 82,000   | RCY   | 1.000         | 1.000          | 1.200        | Odor Control | 814,000     |            | 738,000   |
| HA - Transportation of Chemical Sewers to Thermal Desorption Unit           | LS        | 3          | --       | 1.05      | /RCY-MILE                     | 47,000   | RCY   | 1.010         | 0.500          | 1.000        |              | 28,000      |            | 26,000    |
| H - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3          | --       | 1.55      | /RCY                          | 470      | RCY   | 1.000         | 1.000          | 1.000        |              | 1,000       |            | 1,000     |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill      | LS        | 3          | --       | 1.07      | /RCY-MILE                     | 470      | RCY   | 1.000         | 1.000          | 1.000        |              | 1,000       |            | 1,000     |
| H - On-Post Hazardous Waste Landfill (Particulates)                         | LS        | 3          | --       | 4.07      | /RCY                          | 470      | RCY   | 1.000         | 1.000          | 1.000        |              | 2,000       |            | 2,000     |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill              | LS        | 3          | --       | 1.28      | /RCY                          | 47,000   | RCY   | 1.010         | 1.000          | 1.000        |              | 68,000      |            | 63,000    |
| H - Transportation of Treated Soil to Backfill Excavation                   | LS        | 3          | --       | 0.86      | /RCY-MILE                     | 47,000   | RCY   | 1.010         | 0.500          | 1.000        |              | 23,000      |            | 21,000    |
| H - Backfill of Treated Soil for Chemical Sewers                            | LS        | 3          | --       | 1.56      | /RCY                          | 47,000   | RCY   | 1.010         | 1.000          | 1.000        |              | 85,000      |            | 77,000    |
| H - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill | LS        | 3          | --       | 1.07      | /RCY-MILE                     | 35,000   | RCY   | 1.010         | 1.500          | 1.000        |              | 56,000      |            | 50,000    |
| H - On-Post Hazardous Waste Landfill                                        | LS        | 3          | --       | 4.07      | /RCY                          | 35,000   | RCY   | 1.010         | 1.000          | 1.000        |              | 164,000     |            | 148,000   |
| H - Excavation of Borrow Material                                           | LS        | 3          | --       | 1.89      | /RCY                          | 35,000   | RCY   | 1.000         | 1.000          | 1.000        |              | 75,000      |            | 68,000    |
| H - Transportation of Borrow Material to Backfill Area                      | LS        | 3          | --       | 0.86      | /RCY-MILE                     | 35,000   | RCY   | 1.000         | 1.500          | 1.000        |              | 52,000      |            | 47,000    |
| H - Backfill with Borrow Material                                           | LS        | 3          | --       | 1.72      | /RCY                          | 35,000   | RCY   | 1.000         | 1.000          | 1.000        |              | 68,000      |            | 62,000    |
| H - Backfill of Sewer Overburden                                            | LS        | 3          | --       | 1.56      | /RCY                          | 340,000  | RCY   | 1.000         | 1.000          | 1.000        |              | 605,000     |            | 549,000   |
| H - Revegetation of Disturbed Areas                                         | LS        | 3          | --       | 0.18      | /SY                           | 100,000  | SY    | 1.000         | 1.000          | 1.000        | Disturbance  | 23,000      |            | 20,000    |
| A - Agent Screening During Excavation                                       | LS        | 3          | --       | 0.10      | /RCY                          | 64,000   | RCY   | 1.000         | 1.000          | 1.000        |              | 7,000       |            | 7,000     |
| A - Excavation of Soil with Agent                                           | LS        | 3          | --       | 4.55      | /RCY                          | 640      | RCY   | 1.000         | 1.000          | 1.200        | Odor Control | 4,000       |            | 4,000     |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility    | LS        | 3          | --       | 1.07      | /RCY-MILE                     | 640      | RCY   | 1.000         | 1.500          | 1.000        |              | 1,000       |            | 1,000     |
| A - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3          | --       | 1.55      | /RCY                          | 6        | RCY   | 1.000         | 1.000          | 1.000        |              | 10          |            | 10        |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill      | LS        | 3          | --       | 1.07      | /RCY-MILE                     | 6        | RCY   | 1.000         | 1.000          | 1.000        |              | 10          |            | 10        |
| A - On-Post Hazardous Waste Landfill (Particulates)                         | LS        | 3          | --       | 4.07      | /RCY                          | 6        | RCY   | 1.000         | 1.000          | 1.000        |              | 30          |            | 30        |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill              | LS        | 3          | --       | 1.28      | /RCY                          | 640      | RCY   | 1.000         | 1.000          | 1.000        |              | 1,000       |            | 1,000     |
| A - Transportation of Treated Soil to Backfill Excavation                   | LS        | 3          | --       | 0.86      | /RCY-MILE                     | 640      | RCY   | 1.000         | 1.500          | 1.000        |              | 1,000       |            | 1,000     |
| A - Backfill with Treated Soil                                              | LS        | 3          | --       | 1.72      | /RCY                          | 640      | RCY   | 1.000         | 1.000          | 1.000        |              | 1,000       |            | 1,000     |
| <b>Subtotal (I)</b>                                                         |           |            |          |           |                               |          |       |               |                |              |              |             |            |           |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |            |          |           |                               |          |       |               |                |              |              |             |            |           |
| Mob/Demob                                                                   |           |            |          | 5.1%      | J = 0.051 * (I)               |          |       |               |                |              |              | 159,000     |            | 144,000   |
| Indirects, Overhead & Profit                                                |           |            |          | 40.3%     | K = 0.403 * (I+J)             |          |       |               |                |              |              | 1,314,000   |            | 1,192,000 |
| Engineering Design                                                          |           |            |          | 1.5%      | L = 0.015 * (I+J+K)           |          |       |               |                |              |              | 68,000      |            | 62,000    |
| Resident Engineering                                                        |           |            |          | 2.0%      | M = 0.020 * (I+J+K+L)         |          |       |               |                |              |              | 82,000      |            | 73,000    |
| Contingency                                                                 |           |            |          | 31.3%     | N = 0.313 * (I+J+K+L+M)       |          |       |               |                |              |              | 1,481,000   |            | 1,343,000 |
| <b>Subtotal (O) = J+K+L+M+N</b>                                             |           |            |          |           |                               |          |       |               |                |              |              |             |            |           |
| <b>Subtotal (O) = 3,114,000</b>                                             |           |            |          |           |                               |          |       |               |                |              |              |             |            |           |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                        |           |            |          |           |                               |          |       |               |                |              |              |             |            |           |
| H - Thermal Desorption (Saturated Soil)                                     | LS        | 3          | --       | 73.64     | /RCY                          | 47,000   | RCY   | 1.010         | 1.000          | 1.000        |              | 3,888,000   |            | 3,618,000 |
| A - Incineration                                                            | LS        | 3          | --       | 96.24     | /RCY                          | 640      | RCY   | 1.000         | 1.000          | 1.000        |              | 70,000      |            | 64,000    |
| <b>Subtotal (I1)</b>                                                        |           |            |          |           |                               |          |       |               |                |              |              |             |            |           |
| <b>Subtotal (I1) = 4,059,000</b>                                            |           |            |          |           |                               |          |       |               |                |              |              |             |            |           |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |            |          |           |                               |          |       |               |                |              |              |             |            |           |
| Mob/Demob                                                                   |           |            |          | 0.0%      | J1 = 0.000 * (I1)             |          |       |               |                |              |              | 0           |            | 0         |
| Contractor Markup                                                           |           |            |          | 10.0%     | K1 = 0.100 * (I1+J1)          |          |       |               |                |              |              | 408,000     |            | 368,000   |
| Engineering Design                                                          |           |            |          | 0.0%      | L1 = 0.000 * (I1+J1+K1)       |          |       |               |                |              |              | 0           |            | 0         |
| Resident Engineering                                                        |           |            |          | 2.0%      | M1 = 0.020 * (I1+J1+K1+L1)    |          |       |               |                |              |              | 89,000      |            | 81,000    |
| Contingency                                                                 |           |            |          | 40.0%     | N1 = 0.400 * (I1+J1+K1+L1+M1) |          |       |               |                |              |              | 1,822,000   |            | 1,653,000 |
| <b>Subtotal (O1) = J1+K1+L1+M1+N1</b>                                       |           |            |          |           |                               |          |       |               |                |              |              |             |            |           |
| <b>Subtotal (O1) = 2,317,000</b>                                            |           |            |          |           |                               |          |       |               |                |              |              |             |            |           |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) = I+O+I1+O1</b>                         |           |            |          |           |                               |          |       |               |                |              |              |             |            |           |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) = 11,424,000</b>                        |           |            |          |           |                               |          |       |               |                |              |              |             |            |           |

Table B4.7.3a

Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
Alternative 3a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Landfill (On-Post Landfill)

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| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 3          | 30       | 0.13                   | /RCY-YR | 470      | RCY   | 1.000            | 1.000             | 1.000           |             | 100                      | 2,000                   | 1,000                |
| H - On-Post Hazardous Waste Landfill Closure                                                            | A         | 3          | 30       | 0.13                   | /RCY-YR | 31,000   | RCY   | 1.000            | 1.000             | 1.000           |             | 5,000                    | 129,000                 | 65,000               |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 3          | 30       | 0.13                   | /RCY-YR | 6        | RCY   | 1.000            | 1.000             | 1.000           |             | 1                        | 20                      | 10                   |
| <b>Subtotal (P)</b>                                                                                     |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |                  |                   |                 |             | 5,000                    | 131,000                 | 66,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| COST CODE: LLSL                                                                                         |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects: Overhead & Profit                                                                            |           |            |          |                        |         |          |       |                  |                   |                 |             | 2,000                    | 51,000                  | 26,000               |
| Contingency                                                                                             |           |            |          |                        |         |          |       |                  |                   |                 |             | 2,000                    | 55,000                  | 28,000               |
|                                                                                                         |           |            |          |                        |         |          |       |                  |                   |                 |             | 4,000                    | 106,000                 | 53,000               |
| <b>Subtotal (S = Q+R)</b>                                                                               |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |                  |                   |                 |             | 8,000                    | 228,000                 | 120,000              |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |                  |                   |                 |             |                          | 14,800,000              | 13,500,000           |

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Table B4.7-8a Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
Alternative 8a: Direct Soil Washing (Solvent Washing)

| Cost Item                                    | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |         |         |
|----------------------------------------------|-----------|-------------------------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|---------|---------|
| DIRECT CAPITAL COSTS                         |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |         |         |
| A - On-Post Hazardous Waste Landfill         | LS        | 1                             | --       | 5.72                   | /RCY  | 640      | RCY   | 1.000         | 1.000          | 1.000        |             |                          | 4,000                   | 4,000                |         |         |
| A - On-Post Hazardous Waste Landfill Closure | LS        | 2                             | --       | 3.80                   | /RCY  | 640      | RCY   | 1.000         | 1.000          | 1.000        |             |                          | 3,000                   | 3,000                |         |         |
| Subtotal (A)                                 |           |                               |          |                        |       |          |       |               |                |              |             |                          | 7,000                   | 7,000                |         |         |
| INDIRECT CAPITAL COSTS                       |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |         |         |
| COST CODE: LLSS                              |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |         |         |
| Mod/Demob                                    | 3.3%      | B = 0.033 * (A)               |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 200     | 200     |
| Indirects, Overhead & Profit                 | 38.0%     | C = 0.380 * (A+B)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 3,000   | 3,000   |
| Engineering Design                           | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 300     | 300     |
| Resident Engineering                         | 1.3%      | E = 0.013 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 100     | 100     |
| Contingency                                  | 28.3%     | F = 0.283 * (A+B+C+D+E)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 3,000   | 3,000   |
| Subtotal (B = B+C+D+E+F)                     |           |                               |          |                        |       |          |       |               |                |              |             |                          | 6,000                   | 6,000                |         |         |
| DIRECT SUBCONTRACT CAPITAL COSTS             |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |         |         |
| H - Solvent Washing                          | LS        | 1                             | --       | 28.55                  | /RCY  | 31,000   | RCY   | 1.000         | 1.000          | 1.000        |             |                          | 1,010,000               | 1,010,000            |         |         |
| A - Solvent/Caustic Washing of Agent Soil    | LS        | 1                             | --       | 32.55                  | /RCY  | 640      | RCY   | 1.000         | 1.000          | 1.000        |             |                          | 24,000                  | 24,000               |         |         |
| Subtotal (A1)                                |           |                               |          |                        |       |          |       |               |                |              |             |                          | 1,034,000               | 1,034,000            |         |         |
| INDIRECT SUBCONTRACT CAPITAL COSTS           |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |         |         |
| COST CODE: F                                 |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |         |         |
| Mod/Demob                                    | 5.0%      | B1 = 0.050 * (A1)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 52,000  | 52,000  |
| Contractor Markup                            | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 108,000 | 108,000 |
| Engineering Design                           | 4.5%      | D1 = 0.045 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 54,000  | 54,000  |
| Resident Engineering                         | 2.0%      | E1 = 0.020 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 24,000  | 24,000  |
| Contingency                                  | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |               |                |              |             |                          |                         |                      | 381,000 | 381,000 |
| Subtotal (G1 = B1+C1+D1+E1+F1)               |           |                               |          |                        |       |          |       |               |                |              |             |                          | 619,000                 | 619,000              |         |         |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)          |           |                               |          |                        |       |          |       |               |                |              |             |                          | 1,666,000               | 1,666,000            |         |         |

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Table B4.7-8a Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
Alternative 8a: Direct Soil Washing (Solvent Washing)

| Cost Item                                                                   | Cost Type | Start Year | End Year | 1992 (\$) | Units                        | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$)   | 1995 (\$)  | 1995 (\$)  |
|-----------------------------------------------------------------------------|-----------|------------|----------|-----------|------------------------------|----------|-------|---------------|----------------|--------------|--------------|-------------|------------|------------|
|                                                                             |           |            |          | Unit Cost |                              |          |       |               |                |              |              | Annual Cost | Total Cost | PW Cost    |
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                    |           |            |          |           |                              |          |       |               |                |              |              |             |            |            |
| H - Excavation of Sewer Overhead                                            | LS        | 1          | --       | 1.51      | /BCY                         | 340,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 506,000     | 506,000    | 506,000    |
| HA - Removal of Steel/Cast Iron Pipe                                        | LS        | 1          | --       | 20.68     | /LF                          | 15,100   | LF    | 1.000         | 1.000          | 1.200        | Odor Control | 428,000     | 428,000    | 428,000    |
| HA - Excavate Chemical Sewers                                               | LS        | 1          | --       | 7.25      | /BCY                         | 82,000   | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 814,000     | 814,000    | 814,000    |
| HA - Transportation of Chemical Sewers to Soil Washing Unit                 | LS        | 1          | --       | 1.05      | /BCY-MILE                    | 82,000   | BCY   | 1.010         | 1.500          | 1.000        |              | 148,000     | 148,000    | 148,000    |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill              | LS        | 1          | --       | 1.28      | /BCY                         | 82,000   | BCY   | 1.010         | 1.000          | 1.000        |              | 121,000     | 121,000    | 121,000    |
| H - Transportation of Treated Soil to Backfill Excavation                   | LS        | 1          | --       | 0.86      | /BCY-MILE                    | 82,000   | BCY   | 1.010         | 1.500          | 1.000        |              | 122,000     | 122,000    | 122,000    |
| HA - Backfill of Treated Soil for Chemical Sewers                           | LS        | 1          | --       | 1.56      | /BCY                         | 82,000   | BCY   | 1.010         | 1.000          | 1.000        |              | 147,000     | 147,000    | 147,000    |
| H - Backfill of Sewer Overhead                                              | LS        | 1          | --       | 1.56      | /BCY                         | 310,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 605,000     | 605,000    | 605,000    |
| H - Revegetation of Disturbed Areas                                         | LS        | 1          | --       | 0.18      | /SY                          | 100,000  | SY    | 1.000         | 1.000          | 1.000        | Disturbance  | 23,000      | 23,000     | 23,000     |
| A - Agent Screening During Excavation                                       | LS        | 1          | --       | 0.10      | /BCY                         | 64,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 7,000       | 7,000      | 7,000      |
| A - Excavation of Soil with Agent                                           | LS        | 1          | --       | 4.55      | /BCY                         | 640      | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 4,000       | 4,000      | 4,000      |
| A - Transportation of Contaminated Soil to Soil Washing Unit                | LS        | 1          | --       | 1.07      | /BCY-MILE                    | 640      | BCY   | 1.000         | 1.500          | 1.000        |              | 1,000       | 1,000      | 1,000      |
| A - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 1          | --       | 1.55      | /BCY                         | 640      | BCY   | 1.000         | 1.000          | 1.000        |              | 1,000       | 1,000      | 1,000      |
| A - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill | LS        | 1          | --       | 1.07      | /BCY-MILE                    | 640      | BCY   | 1.000         | 1.000          | 1.000        |              | 1,000       | 1,000      | 1,000      |
| A - On-Post Hazardous Waste Landfill                                        | LS        | 1          | --       | 4.07      | /BCY                         | 640      | BCY   | 1.000         | 1.000          | 1.000        |              | 3,000       | 3,000      | 3,000      |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill              | LS        | 1          | --       | 1.28      | /BCY                         | 640      | BCY   | 1.000         | 1.500          | 1.000        |              | 1,000       | 1,000      | 1,000      |
| A - Transportation of Treated Soil to Backfill Excavation                   | LS        | 1          | --       | 0.86      | /BCY-MILE                    | 640      | BCY   | 1.000         | 1.500          | 1.000        |              | 1,000       | 1,000      | 1,000      |
| A - Backfill with Treated Soil                                              | LS        | 1          | --       | 1.72      | /BCY                         | 640      | BCY   | 1.000         | 1.000          | 1.000        |              | 1,000       | 1,000      | 1,000      |
| <b>Subtotal (I)</b>                                                         |           |            |          |           |                              |          |       |               |                |              |              |             |            |            |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |            |          |           |                              |          |       |               |                |              |              |             |            |            |
| Mob/Demob                                                                   |           |            |          | 5.1%      | J = 0.051 * (I)              |          |       |               |                |              |              |             | 155,000    | 155,000    |
| Indirects, Overhead & Profit                                                |           |            |          | 40.3%     | K = 0.403 * (I+J)            |          |       |               |                |              |              |             | 1,276,000  | 1,276,000  |
| Engineering Design                                                          |           |            |          | 1.5%      | L = 0.015 * (I+J+K)          |          |       |               |                |              |              |             | 67,000     | 67,000     |
| Resident Engineering                                                        |           |            |          | 2.0%      | M = 0.020 * (I+J+K)          |          |       |               |                |              |              |             | 89,000     | 89,000     |
| Contingency                                                                 |           |            |          | 31.3%     | N = 0.313 * (I+J+K+L+M)      |          |       |               |                |              |              |             | 1,438,000  | 1,438,000  |
| <b>Subtotal (O) = J+K+L+M+N</b>                                             |           |            |          |           |                              |          |       |               |                |              |              |             |            |            |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                        |           |            |          |           |                              |          |       |               |                |              |              |             |            |            |
| H - Solvent Washing                                                         | LS        | 1          | --       | 118.53    | /BCY                         | 82,000   | BCY   | 1.010         | 1.000          | 1.000        |              | 11,202,000  | 11,202,000 | 11,202,000 |
| A - Solvent/Caustic Washing of Agent Soil                                   | LS        | 1          | --       | 248.53    | /BCY                         | 640      | BCY   | 1.000         | 1.000          | 1.000        |              | 162,000     | 162,000    | 162,000    |
| <b>Subtotal (H)</b>                                                         |           |            |          |           |                              |          |       |               |                |              |              |             |            |            |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |            |          |           |                              |          |       |               |                |              |              |             |            |            |
| Mob/Demob                                                                   |           |            |          | 5.0%      | J1 = 0.050 * (H)             |          |       |               |                |              |              |             | 569,000    | 569,000    |
| Contractor Markup                                                           |           |            |          | 10.0%     | K1 = 0.100 * (H+J1)          |          |       |               |                |              |              |             | 1,195,000  | 1,195,000  |
| Engineering Design                                                          |           |            |          | 0.0%      | L1 = 0.000 * (H+J1+K1)       |          |       |               |                |              |              |             | 0          | 0          |
| Resident Engineering                                                        |           |            |          | 2.0%      | M1 = 0.020 * (H+J1+K1)       |          |       |               |                |              |              |             | 283,000    | 283,000    |
| Contingency                                                                 |           |            |          | 30.0%     | N1 = 0.300 * (H+J1+K1+L1+M1) |          |       |               |                |              |              |             | 4,023,000  | 4,023,000  |
| <b>Subtotal (O1) = J1+K1+L1+M1+N1</b>                                       |           |            |          |           |                              |          |       |               |                |              |              |             |            |            |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO) = (I+O1+O11)</b>                   |           |            |          |           |                              |          |       |               |                |              |              |             |            |            |
| <b>Subtotal (OO) = 23,475,000</b>                                           |           |            |          |           |                              |          |       |               |                |              |              |             |            |            |

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Table B4.7-8a Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
Alternative 8a: Direct Soil Washing (Solvent Washing)

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1993 (\$)<br>Annual Cost | 1993 (\$)<br>Total Cost | 1993 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| A - On-Peat Hazardous Waste Landfill Closure                                                           | A         | 2          | 30       | 0.13                   | /BCY-YR | 640      | BCY   | 1.000            | 1.000             | 1.000           |             | 100                      | 3,000                   | 1,000                |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |                  |                   |                 |             | 100                      | 3,000                   | 1,000                |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| COST CODE: L1.SL                                                                                       |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                           |           |            |          |                        |         |          |       |                  |                   |                 |             | 40                       | 1,000                   | 1,000                |
| Contingency                                                                                            |           |            |          |                        |         |          |       |                  |                   |                 |             | 40                       | 1,000                   | 1,000                |
| <b>Subtotal (S = Q+R)</b>                                                                              |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |                  |                   |                 |             | 100                      | 2,000                   | 1,000                |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |                  |                   |                 |             | 200                      | 5,000                   | 3,000                |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |                  |                   |                 |             |                          | 25,100,000              | 25,100,000           |

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Table BA.7-13a Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
Alternative 13a: Direct Thermal Description (Direct Heating)

| Cost Item                                                   | Cost Type | Start Year                    | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)  | 1995 (\$)      | 1995 (\$)      |
|-------------------------------------------------------------|-----------|-------------------------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|------------|----------------|----------------|
|                                                             |           |                               |          | Unit Cost |       |          |       |               |                |              |             | Total Cost | PW Cost        |                |
| <b>DIRECT CAPITAL COSTS</b>                                 |           |                               |          |           |       |          |       |               |                |              |             |            |                |                |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 2                             | --       | 5.72      | /RCY  | 820      | RCY   | 1.000         | 1.000          | 1.000        | 1.000       | 5,000      | 5,000          | 5,000          |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                             | --       | 3.80      | /RCY  | 820      | RCY   | 1.000         | 1.000          | 1.000        | 1.000       | 4,000      | 3,000          | 3,000          |
| A - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 2                             | --       | 5.72      | /RCY  | 6        | RCY   | 1.000         | 1.000          | 1.000        | 1.000       | 40         | 40             | 40             |
| A - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                             | --       | 3.80      | /RCY  | 6        | RCY   | 1.000         | 1.000          | 1.000        | 1.000       | 30         | 20             | 20             |
| <b>Subtotal (A)</b>                                         |           |                               |          |           |       |          |       |               |                |              |             |            | <b>8,000</b>   | <b>8,000</b>   |
| <b>INDIRECT CAPITAL COSTS</b>                               |           |                               |          |           |       |          |       |               |                |              |             |            |                |                |
| <b>MOB/DEMOL</b>                                            |           |                               |          |           |       |          |       |               |                |              |             |            |                |                |
| Indirects, Overhead & Profit                                | 3.3%      | B = 0.033 * (A)               |          |           |       |          |       |               |                |              |             |            |                |                |
| Engineering Design                                          | 39.0%     | C = 0.390 * (A+B)             |          |           |       |          |       |               |                |              |             |            |                |                |
| Resident Engineering                                        | 3.0%      | D = 0.030 * (A+B+C)           |          |           |       |          |       |               |                |              |             |            |                |                |
| Contingency                                                 | 1.3%      | E = 0.013 * (A+B+C)           |          |           |       |          |       |               |                |              |             |            |                |                |
|                                                             | 26.3%     | F = 0.263 * (A+B+C+D+E)       |          |           |       |          |       |               |                |              |             |            |                |                |
| <b>Subtotal (G = B+C+D+E+F)</b>                             |           |                               |          |           |       |          |       |               |                |              |             |            | <b>8,000</b>   | <b>7,000</b>   |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                     |           |                               |          |           |       |          |       |               |                |              |             |            |                |                |
| H - Thermal Description (Saturated Soil)                    | A         | 1                             | 2        | 14.17     | /RCY  | 31,000   | RCY   | 1.000         | 1.000          | 1.000        | 1.000       | 501,000    | 488,000        | 488,000        |
| A - Incineration                                            | A         | 1                             | 2        | 36.37     | /RCY  | 640      | RCY   | 1.000         | 1.000          | 1.000        | 1.000       | 27,000     | 26,000         | 26,000         |
| <b>Subtotal (A1)</b>                                        |           |                               |          |           |       |          |       |               |                |              |             |            | <b>528,000</b> | <b>515,000</b> |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                   |           |                               |          |           |       |          |       |               |                |              |             |            |                |                |
| <b>MOB/DEMOL</b>                                            |           |                               |          |           |       |          |       |               |                |              |             |            |                |                |
| Contractor Markup                                           | 2.0%      | B1 = 0.020 * (A1)             |          |           |       |          |       |               |                |              |             |            |                |                |
| Engineering Design                                          | 10.0%     | C1 = 0.100 * (A1+B1)          |          |           |       |          |       |               |                |              |             |            |                |                |
| Resident Engineering                                        | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |           |       |          |       |               |                |              |             |            |                |                |
| Contingency                                                 | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |           |       |          |       |               |                |              |             |            |                |                |
|                                                             | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |           |       |          |       |               |                |              |             |            |                |                |
| <b>Subtotal (G1 = B1+C1+D1+E1+F1)</b>                       |           |                               |          |           |       |          |       |               |                |              |             |            | <b>304,000</b> | <b>288,000</b> |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>                  |           |                               |          |           |       |          |       |               |                |              |             |            | <b>879,000</b> | <b>858,000</b> |
| <b>HCS-13A.W01</b>                                          |           |                               |          |           |       |          |       |               |                |              |             |            |                |                |
| <b>SOILS DAA</b>                                            |           |                               |          |           |       |          |       |               |                |              |             |            |                |                |

Table BA.7-13a Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
Alternative 13a: Direct Thermal Description (Direct Heating)

| Cost Item                                                                | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1993 (\$)<br>Annual Cost | 1993 (\$)<br>Total Cost | 1993 (\$)<br>PW Cost |
|--------------------------------------------------------------------------|-----------|------------|----------|------------------------|----------|-------|---------------|----------------|--------------|--------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                 |           |            |          |                        |          |       |               |                |              |              |                          |                         |                      |
| H - Excavation of Sewer Overburden                                       | LS        | 3          | --       | 1.51                   | 340,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 598,000                  | 598,000                 | 531,000              |
| HA - Removal of Steel/Cast Iron Pipe                                     | LS        | 3          | --       | 20.68                  | 15,100   | LF    | 1.000         | 1.000          | 1.200        | Odor Control | 428,000                  | 428,000                 | 388,000              |
| HA - Excavate Chemical Sewers                                            | LS        | 3          | --       | 7.25                   | 82,000   | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 814,000                  | 814,000                 | 736,000              |
| HA - Transportation of Chemical Sewers to Thermal Description Unit       | LS        | 3          | --       | 1.05                   | 82,000   | BCY   | 1.010         | 1.500          | 1.000        |              | 149,000                  | 149,000                 | 135,000              |
| H - Load Treated Soil for Transport to Hazardous Landfill                | LS        | 3          | --       | 1.55                   | 820      | BCY   | 1.000         | 1.000          | 1.000        |              | 1,000                    | 1,000                   | 1,000                |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill   | LS        | 3          | --       | 1.07                   | 820      | BCY   | 1.000         | 1.000          | 1.000        |              | 1,000                    | 1,000                   | 1,000                |
| H - On-Post Hazardous Waste Landfill (Particulates)                      | LS        | 3          | --       | 4.07                   | 820      | BCY   | 1.000         | 1.000          | 1.000        |              | 4,000                    | 4,000                   | 3,000                |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill           | LS        | 3          | --       | 1.28                   | 82,000   | BCY   | 1.010         | 1.500          | 1.000        |              | 181,000                  | 181,000                 | 165,000              |
| H - Transportation of Treated Soil to Backfill Excavation                | LS        | 3          | --       | 0.86                   | 82,000   | BCY   | 1.010         | 1.500          | 1.000        |              | 122,000                  | 122,000                 | 111,000              |
| HA - Backfill of Treated Soil for Chemical Sewers                        | LS        | 3          | --       | 1.56                   | 82,000   | BCY   | 1.010         | 1.500          | 1.000        |              | 147,000                  | 147,000                 | 134,000              |
| H - Backfill of Sewer Overburden                                         | LS        | 3          | --       | 1.56                   | 340,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 805,000                  | 805,000                 | 548,000              |
| H - Revegetation of Disturbed Areas                                      | LS        | 3          | --       | 0.18                   | 100,000  | SY    | 1.000         | 1.000          | 1.000        | Disturbance  | 23,000                   | 23,000                  | 20,000               |
| A - Agent Screening During Excavation                                    | LS        | 2          | --       | 0.10                   | 64,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 7,000                    | 7,000                   | 7,000                |
| A - Excavation of Soil with Agent                                        | LS        | 3          | --       | 4.55                   | 640      | BCY   | 1.000         | 1.500          | 1.000        | Odor Control | 4,000                    | 4,000                   | 4,000                |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility | LS        | 3          | --       | 1.07                   | 640      | BCY   | 1.000         | 1.000          | 1.000        |              | 1,000                    | 1,000                   | 1,000                |
| A - Load Treated Soil for Transport to Hazardous Landfill                | LS        | 3          | --       | 1.55                   | 640      | BCY   | 1.000         | 1.000          | 1.000        |              | 10                       | 10                      | 10                   |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill   | LS        | 3          | --       | 1.07                   | 640      | BCY   | 1.000         | 1.000          | 1.000        |              | 10                       | 10                      | 10                   |
| A - On-Post Hazardous Waste Landfill (Particulates)                      | LS        | 3          | --       | 4.07                   | 640      | BCY   | 1.000         | 1.000          | 1.000        |              | 30                       | 30                      | 30                   |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill           | LS        | 3          | --       | 1.28                   | 640      | BCY   | 1.000         | 1.500          | 1.000        |              | 1,000                    | 1,000                   | 1,000                |
| A - Transportation of Treated Soil to Backfill Excavation                | LS        | 3          | --       | 0.86                   | 640      | BCY   | 1.000         | 1.500          | 1.000        |              | 1,000                    | 1,000                   | 1,000                |
| A - Backfill with Treated Soil                                           | LS        | 3          | --       | 1.72                   | 640      | BCY   | 1.000         | 1.000          | 1.000        |              | 1,000                    | 1,000                   | 1,000                |
| <b>Subtotal (I)</b>                                                      |           |            |          |                        |          |       |               |                |              |              |                          |                         |                      |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                               |           |            |          |                        |          |       |               |                |              |              |                          |                         |                      |
| Mod/Demob                                                                |           |            |          |                        |          |       |               |                |              |              |                          |                         |                      |
| Indirects, Overhead & Profit                                             |           |            |          | 5.1%                   |          |       |               |                |              |              |                          | 158,000                 | 143,000              |
| Engineering Design                                                       |           |            |          | 40.3%                  |          |       |               |                |              |              |                          | 1,302,000               | 1,181,000            |
| Resident Engineering                                                     |           |            |          | 1.5%                   |          |       |               |                |              |              |                          | 88,000                  | 82,000               |
| Contingency                                                              |           |            |          | 2.0%                   |          |       |               |                |              |              |                          | 91,000                  | 82,000               |
|                                                                          |           |            |          | 31.3%                  |          |       |               |                |              |              |                          | 1,469,000               | 1,331,000            |
| <b>Subtotal (O = J+K+L+M+N)</b>                                          |           |            |          |                        |          |       |               |                |              |              |                          |                         |                      |
| <b>Subtotal (I)</b>                                                      |           |            |          |                        |          |       |               |                |              |              |                          |                         |                      |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                     |           |            |          |                        |          |       |               |                |              |              |                          |                         |                      |
| H - Thermal Description (Saturated Soil)                                 | LS        | 3          | --       | 73.64                  | 82,000   | BCY   | 1.010         | 1.000          | 1.000        |              | 6,980,000                | 6,980,000               | 6,313,000            |
| A - Incineration                                                         | LS        | 3          | --       | 96.24                  | 640      | BCY   | 1.000         | 1.000          | 1.000        |              | 70,000                   | 70,000                  | 64,000               |
| <b>Subtotal (H)</b>                                                      |           |            |          |                        |          |       |               |                |              |              |                          |                         |                      |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |                        |          |       |               |                |              |              |                          |                         |                      |
| Mod/Demob                                                                |           |            |          |                        |          |       |               |                |              |              |                          |                         |                      |
| Contractor Markup                                                        |           |            |          | 0.0%                   |          |       |               |                |              |              |                          | 0                       | 0                    |
| Engineering Design                                                       |           |            |          | 10.0%                  |          |       |               |                |              |              |                          | 703,000                 | 638,000              |
| Resident Engineering                                                     |           |            |          | 0.0%                   |          |       |               |                |              |              |                          | 0                       | 0                    |
| Contingency                                                              |           |            |          | 2.0%                   |          |       |               |                |              |              |                          | 155,000                 | 140,000              |
|                                                                          |           |            |          | 40.0%                  |          |       |               |                |              |              |                          | 3,155,000               | 2,862,000            |
| <b>Subtotal (O) = J+K+L+M+N+I)</b>                                       |           |            |          |                        |          |       |               |                |              |              |                          |                         |                      |
| <b>Subtotal (O) = J+K+L+M+N+I)</b>                                       |           |            |          |                        |          |       |               |                |              |              |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (CO = I+O+H+O1)</b>                  |           |            |          |                        |          |       |               |                |              |              |                          |                         |                      |
|                                                                          |           |            |          |                        |          |       |               |                |              |              |                          | 17,207,000              | 15,808,000           |

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Table B4.7-13a Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
Alternative 13a: Direct Thermal Desorption (Direct Heating)

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$) | Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | Annual Cost | 1995 (\$)  | 1995 (\$)  | PW Cost    |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|---------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|------------|------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |           |           |         |          |       |               |                |              |             |             |            |            |            |
| H - On Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       |           | 0.13      | /BCY-YR | 820      | BCY   | 1.000         | 1.000          | 1.000        |             | 100         | 3,000      | 3,000      | 2,000      |
| A - On Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       |           | 0.13      | /BCY-YR | 6        | BCY   | 1.000         | 1.000          | 1.000        |             | 1           | 20         | 20         | 10         |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |           |           |         |          |       |               |                |              |             |             |            |            |            |
|                                                                                                        |           |            |          |           |           |         |          |       |               |                |              |             | 100         | 3,000      | 3,000      | 2,000      |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |           |           |         |          |       |               |                |              |             |             |            |            |            |
| COST CODE: 11SL                                                                                        |           |            |          |           |           |         |          |       |               |                |              |             |             |            |            |            |
| Indirects, Overhead & Profit                                                                           |           |            |          |           |           |         |          |       |               |                |              |             | 50          | 1,000      | 1,000      | 1,000      |
| Contingency                                                                                            |           |            |          |           |           |         |          |       |               |                |              |             | 100         | 1,000      | 1,000      | 1,000      |
| <b>Subtotal (S = Q+R)</b>                                                                              |           |            |          |           |           |         |          |       |               |                |              |             |             |            |            |            |
|                                                                                                        |           |            |          |           |           |         |          |       |               |                |              |             | 100         | 3,000      | 3,000      | 1,000      |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (I = P+S)</b>                                            |           |            |          |           |           |         |          |       |               |                |              |             |             |            |            |            |
|                                                                                                        |           |            |          |           |           |         |          |       |               |                |              |             | 200         | 6,000      | 6,000      | 3,000      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+I)</b> |           |            |          |           |           |         |          |       |               |                |              |             |             |            |            |            |
|                                                                                                        |           |            |          |           |           |         |          |       |               |                |              |             |             | 18,100,000 | 18,100,000 | 16,500,000 |

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Table B4.8-1 Cost Estimate - Disposal Trenches Medium Group - Complex Trenches Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                 | LS        | 1          | --       | 0.00                   | /SY   | 190,000  | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| B - No Action                 | LS        | 1          | --       | 0.00                   | /SY   | 160,000  | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| A - No Action                 | LS        | 1          | --       | 0.00                   | /SY   | 370,000  | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| U - No Action                 | LS        | 1          | --       | 0.00                   | /SY   | 370,000  | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| INDIRECT CAPITAL COSTS        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                     |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (A)                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 0                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G) = B+C+D+E+F      |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 0                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| TOTAL CAPITAL COSTS (H) = A+G |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 0                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

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Table B4.8-1 Cost Estimate - Disposal Trenches Medium Group - Complex Trenches Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| H - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 190,000  | SY    | 1.000            | 1.000             | 1.000           |             |                          | 0                       | 0                    |
| B - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 160,000  | SY    | 1.000            | 1.000             | 1.000           |             |                          | 0                       | 0                    |
| A - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 370,000  | SY    | 1.000            | 1.000             | 1.000           |             |                          | 0                       | 0                    |
| U - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 370,000  | SY    | 1.000            | 1.000             | 1.000           |             |                          | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Mod/Demob                                                                                                     |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design                                                                                            |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering                                                                                          |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| HB - Long Term Srel Monitoring, Complex Disposal Trenches                                                     | A         | 1          | 30       | 75,000.00              | /EA-YR | 1        | EA    | 1.000            | 1.000             | 1.000           |             | 86,000                   | 2,568,000               | 1,361,000            |
| HB AU - Site Reviews                                                                                          | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1.000            | 1.000             | 1.000           |             | 6,000                    | 165,000                 | 98,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |                  |                   |                 |             | 82,000                   | 2,752,000               | 1,459,000            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |                  |                   |                 |             | 166,000                  | 4,974,000               | 2,636,000            |
|                                                                                                               |           |            |          |                        |        |          |       |                  |                   |                 |             | 4,970,000                | 2,640,000               |                      |

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Table B4.8-5b Cost Estimate - Disposal Trenches Medium Group - Complex Trenches Subgroup  
Alternative 5b: Caps/Covers (Clay/Soil Cap); Vertical Barriers (Slurry Walls) with Consolidation

| Cost Item                                                             | Cost Type        | Start Year                    | End Year | 1992 (\$)  | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |         |         |  |
|-----------------------------------------------------------------------|------------------|-------------------------------|----------|------------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|---------|---------|---------|--|
| DIRECT CAPITAL COSTS                                                  |                  |                               |          |            |       |          |       |               |                |              |             |           |           |           |         |         |         |  |
| H - Long-Term Dewatering, Complex Trenches                            | LS               | 2                             | --       | 280,740.00 | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 320,000   |           | 305,000   |         |         |         |  |
| A - On-Post Hazardous Waste Landfill (Particulates)                   | LS               | 2                             | --       | 5.72       | /BCY  | 7        | BCY   | 1.000         | 1.000          | 1.000        |             | 50        |           | 40        |         |         |         |  |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS               | 4                             | --       | 3.80       | /BCY  | 7        | BCY   | 1.000         | 1.000          | 1.000        |             | 30        |           | 30        |         |         |         |  |
| U - On-Post Solid Waste Landfill                                      | LS               | 2                             | --       | 4.32       | /BCY  | 91,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 448,000   |           | 427,000   |         |         |         |  |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS               | 4                             | --       | 3.70       | /BCY  | 91,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 364,000   |           | 332,000   |         |         |         |  |
| Subtotal (A)                                                          |                  |                               |          |            |       |          |       |               |                |              |             |           | 1,153,000 | 1,084,000 |         |         |         |  |
| INDIRECT CAPITAL COSTS                                                |                  |                               |          |            |       |          |       |               |                |              |             |           |           |           |         |         |         |  |
| Mod/Demob                                                             | COST CODE: M/SSS |                               |          |            |       |          |       |               |                |              |             |           |           |           |         |         |         |  |
| Indirects, Overhead & Profit                                          | 4.5%             | B = 0.045 * (A)               |          |            |       |          |       |               |                |              |             |           |           |           |         | 52,000  | 48,000  |  |
| Engineering Design                                                    | 40.3%            | C = 0.403 * (A+B)             |          |            |       |          |       |               |                |              |             |           |           |           |         | 485,000 | 448,000 |  |
| Resident Engineering                                                  | 4.5%             | D = 0.045 * (A+B+C)           |          |            |       |          |       |               |                |              |             |           |           |           |         | 76,000  | 70,000  |  |
| Contingency                                                           | 1.8%             | E = 0.018 * (A+B+C)           |          |            |       |          |       |               |                |              |             |           |           |           |         | 30,000  | 27,000  |  |
|                                                                       | 28.6%            | F = 0.286 * (A+B+C+D+E)       |          |            |       |          |       |               |                |              |             |           |           |           |         | 516,000 | 477,000 |  |
| Subtotal (B = B+C+D+E+F)                                              |                  |                               |          |            |       |          |       |               |                |              |             |           | 1,159,000 | 1,070,000 |         |         |         |  |
| DIRECT SUBCONTRACT CAPITAL COSTS                                      |                  |                               |          |            |       |          |       |               |                |              |             |           |           |           |         |         |         |  |
| A - Incineration                                                      | A                | 1                             | 2        | 36.37      | /BCY  | 170      | BCY   | 1.000         | 1.000          | 1.000        |             | 7,000     | 7,000     |           |         |         |         |  |
| Subtotal (A1)                                                         |                  |                               |          |            |       |          |       |               |                |              |             |           | 7,000     | 7,000     |         |         |         |  |
| INDIRECT SUBCONTRACT CAPITAL COSTS                                    |                  |                               |          |            |       |          |       |               |                |              |             |           |           |           |         |         |         |  |
| Mod/Demob                                                             | COST CODE: C     |                               |          |            |       |          |       |               |                |              |             |           |           |           |         | 100     | 100     |  |
| Contractor Markup                                                     | 2.0%             | B1 = 0.020 * (A1)             |          |            |       |          |       |               |                |              |             |           |           |           |         | 1,000   | 1,000   |  |
| Engineering Design                                                    | 10.0%            | C1 = 0.100 * (A1+B1)          |          |            |       |          |       |               |                |              |             |           |           |           |         | 1,000   | 1,000   |  |
| Resident Engineering                                                  | 9.0%             | D1 = 0.090 * (A1+B1+C1)       |          |            |       |          |       |               |                |              |             |           |           |           |         | 200     | 200     |  |
| Contingency                                                           | 3.0%             | E1 = 0.030 * (A1+B1+C1)       |          |            |       |          |       |               |                |              |             |           |           |           |         | 3,000   | 3,000   |  |
|                                                                       | 30.0%            | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |            |       |          |       |               |                |              |             |           |           |           |         | 4,000   | 4,000   |  |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                        |                  |                               |          |            |       |          |       |               |                |              |             |           | 2,324,000 | 2,145,000 |         |         |         |  |
| TOTAL CAPITAL COSTS (A1 + A2 + A3 + G1)                               |                  |                               |          |            |       |          |       |               |                |              |             |           |           |           |         |         |         |  |

Table B4.8-5b Cost Estimate - Disposal Trenches Medium Group - Complex Trenches Subgroup  
Alternative 3b: Caps/Covers (Clay/Soil Cap): Vertical Barriers (Slurry Walls) with Consolidation

| Cost Item                                                                   | Cost Type | Start Year | End Year | Unit Cost | Quantity | Units | Volume Factor | Milage Factor | Other Factor | Description | 1993 (\$)  | 1993 (\$)  | 1993 (\$) |
|-----------------------------------------------------------------------------|-----------|------------|----------|-----------|----------|-------|---------------|---------------|--------------|-------------|------------|------------|-----------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                    |           |            |          |           |          |       |               |               |              |             |            |            |           |
| H - Slurry Wall (20 - 65 R Deep)                                            | A         | 3          | 4        | 47.22     | 27,100   | SV    | 1.000         | 1.000         | 1.000        |             | 1,460,000  | 1,283,000  |           |
| HB - Soil Excavation                                                        | A         | 3          | 4        | 3.91      | 70,000   | BCY   | 1.000         | 1.000         | 1.000        |             | 375,000    | 332,000    |           |
| HR - Grade Filling w/Consolidated Soil Prior to Capping                     | A         | 3          | 4        | 3.63      | 70,000   | BCY   | 1.000         | 1.000         | 1.000        |             | 290,000    | 257,000    |           |
| LS - Subgrade Preparation Prior to Installing Cap/Cover                     | LS        | 2          | --       | 0.06      | 130,000  | SV    | 1.000         | 1.000         | 1.000        |             | 8,000      | 8,000      |           |
| HI - Grade Filling w/Excav Soil from Slurry Trench Prior to Capping         | A         | 3          | 4        | 3.63      | 27,100   | BCY   | 1.000         | 1.000         | 1.000        |             | 112,000    | 98,000     |           |
| HAU - Installation of Clay/Soil Cap                                         | A         | 3          | 4        | 23.30     | 130,000  | SV    | 1.000         | 1.000         | 1.000        |             | 3,457,000  | 3,081,000  |           |
| HB - Installation of 6 Inches of Topsoil                                    | A         | 3          | 4        | 3.24      | 240,000  | SV    | 1.000         | 1.000         | 1.000        |             | 897,000    | 798,000    |           |
| HR - Revegetation of Disturbed Areas                                        | A         | 3          | 4        | 0.18      | 350,000  | SV    | 1.000         | 1.000         | 1.000        |             | 79,000     | 70,000     |           |
| A - Drilling and Aggrt Screening Prior to Excavation                        | LS        | 3          | --       | 4.89      | 280,000  | SV    | 1.000         | 1.000         | 1.000        |             | 1,562,000  | 1,417,000  |           |
| A - Excavation of Soil with Aggrt                                           | A         | 3          | 4        | 4.55      | 1,700    | BCY   | 1.000         | 1.000         | 1.000        |             | 11,000     | 9,000      |           |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility    | A         | 3          | 4        | 1.07      | 1,700    | BCY   | 1.000         | 1.000         | 1.000        |             | 2,000      | 2,000      |           |
| A - Load Treated Soil for Transport to Hazardous Landfill                   | A         | 3          | 4        | 1.55      | 7        | BCY   | 1.000         | 1.000         | 1.000        |             | 10         | 10         |           |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill      | A         | 3          | 4        | 4.07      | 7        | BCY   | 1.000         | 1.000         | 1.000        |             | 30         | 30         |           |
| A - On-Post Hazardous Waste Landfill (Particulates)                         | A         | 3          | 4        | 1.28      | 1,700    | BCY   | 1.000         | 1.000         | 1.000        |             | 2,000      | 2,000      |           |
| A - Load Nonhazardous Treated Soil to Backfill for Backfill                 | A         | 3          | 4        | 0.86      | 1,700    | BCY   | 1.000         | 1.000         | 1.000        |             | 2,000      | 1,000      |           |
| A - Transportation of Treated Soil to Backfill Excavation                   | A         | 3          | 4        | 1.72      | 1,700    | BCY   | 1.000         | 1.000         | 1.000        |             | 3,000      | 3,000      |           |
| A - Backfill with Treated Soil                                              | LS        | 3          | --       | 0.85      | 280,000  | SV    | 1.000         | 1.000         | 1.000        |             | 272,000    | 258,000    |           |
| U - UXO Clearance by Geophysics                                             | A         | 3          | 4        | 70.57     | 1,700    | BCY   | 1.000         | 1.000         | 1.000        |             | 137,000    | 121,000    |           |
| U - Removal of Soil with UXO                                                | A         | 3          | 4        | 3.91      | 17,000   | BCY   | 1.000         | 1.000         | 1.000        |             | 99,000     | 87,000     |           |
| U - Excavation of Debris from Surface Soil                                  | A         | 3          | 4        | 0.71      | 17,000   | BCY   | 1.000         | 0.750         | 1.000        |             | 13,000     | 12,000     |           |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill | A         | 3          | 4        | 4.07      | 17,000   | BCY   | 1.000         | 1.000         | 1.000        |             | 78,000     | 70,000     |           |
| U - On-Post Solid Waste Landfill                                            | A         | 3          | 4        |           |          |       |               |               |              |             |            |            |           |
| <b>Subtotal (f)</b>                                                         |           |            |          |           |          |       |               |               |              |             | 8,651,000  | 7,890,000  |           |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |            |          |           |          |       |               |               |              |             |            |            |           |
| Mob/Demob                                                                   |           |            |          | 5.1%      |          |       |               |               |              |             | 454,000    | 404,000    |           |
| Indirects                                                                   |           |            |          | 40.3%     |          |       |               |               |              |             | 3,745,000  | 3,338,000  |           |
| Engineering Design                                                          |           |            |          | 1.5%      |          |       |               |               |              |             | 198,000    | 174,000    |           |
| Resident Engineering                                                        |           |            |          | 2.0%      |          |       |               |               |              |             | 261,000    | 233,000    |           |
| Contingency                                                                 |           |            |          | 31.5%     |          |       |               |               |              |             | 4,221,000  | 3,762,000  |           |
| <b>Subtotal (D = J+K+L+M+N)</b>                                             |           |            |          |           |          |       |               |               |              |             | 8,877,000  | 7,812,000  |           |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                        |           |            |          |           |          |       |               |               |              |             |            |            |           |
| A - Incineration                                                            | A         | 3          | 4        | 96.24     | 1,700    | BCY   | 1.000         | 1.000         | 1.000        |             | 187,000    | 165,000    |           |
| U - Packaging and Transportation of Agent UXO to Army Off-Post UXO Facility | A         | 3          | 4        | 2,200.00  | 1,700    | BCY   | 1.000         | 1.000         | 1.000        |             | 4,268,000  | 3,779,000  |           |
| <b>Subtotal (f)</b>                                                         |           |            |          |           |          |       |               |               |              |             | 4,455,000  | 3,944,000  |           |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |            |          |           |          |       |               |               |              |             |            |            |           |
| Mob/Demob                                                                   |           |            |          | 0.0%      |          |       |               |               |              |             | 0          | 0          |           |
| Contractor Markup                                                           |           |            |          | 10.0%     |          |       |               |               |              |             | 445,000    | 394,000    |           |
| Engineering Design                                                          |           |            |          | 0.0%      |          |       |               |               |              |             | 0          | 0          |           |
| Resident Engineering                                                        |           |            |          | 2.0%      |          |       |               |               |              |             | 98,000     | 87,000     |           |
| Contingency                                                                 |           |            |          | 40.0%     |          |       |               |               |              |             | 1,999,000  | 1,770,000  |           |
| <b>Subtotal (O1 = J1+K1+L1+M1+N1)</b>                                       |           |            |          |           |          |       |               |               |              |             | 2,543,000  | 2,251,000  |           |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) [OO = f+O+H+OT]</b>                     |           |            |          |           |          |       |               |               |              |             | 24,726,000 | 21,998,000 |           |

Table B4.8-5b Cost Estimate - Disposal Trenches Medium Group - Complex Trenches Subgroup  
Alternative 5b: Caps/Covers (Clay/Soil Cap); Vertical Barriers (Slurry Walls) with Consolidation

| Cost Item                                                             | Cost Type         | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1993 (\$)<br>Total Cost | 1993 (\$)<br>PW Cost |
|-----------------------------------------------------------------------|-------------------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                               |                   |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| HAU - Installation of Clay/Soil Cap                                   | A                 | 4          | 30       | 0.80                   | /SY-YR  | 130,000  | SV    | 1,000         | 1,000          | 1,000        |             | 119,000                  | 3,204,000               | 1,578,000            |
| H - Long-Term Dewatering, Complex Trenches                            | A                 | 4          | 30       | 50,214.00              | /EA-YR  | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 57,000                   | 1,547,000               | 781,000              |
| HB - Site Reviews                                                     | A                 | 4          | 30       | 5,400.00               | /EA-YR  | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 6,000                    | 168,000                 | 82,000               |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | A                 | 4          | 30       | 0.13                   | /RCY-YR | 7        | RCY   | 1,000         | 1,000          | 1,000        |             | 1                        | 30                      | 10                   |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | A                 | 4          | 30       | 0.13                   | /RCY-YR | 17,000   | RCY   | 1,000         | 1,000          | 1,000        |             | 3,000                    | 88,000                  | 33,000               |
| Subtotal (P)                                                          |                   |            |          |                        |         |          |       |               |                |              |             | 185,000                  | 4,898,000               | 2,453,000            |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                             |                   |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                          | COST CODE: LLSL   |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                           | Q = 0.390 * (P)   |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                       | R = 0.300 * (P+Q) |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (S = Q+R)                                                    |                   |            |          |                        |         |          |       |               |                |              |             | 72,000                   | 1,945,000               | 857,000              |
|                                                                       |                   |            |          |                        |         |          |       |               |                |              |             | 77,000                   | 2,079,000               | 1,023,000            |
|                                                                       |                   |            |          |                        |         |          |       |               |                |              |             | 149,000                  | 4,024,000               | 1,879,000            |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                      |                   |            |          |                        |         |          |       |               |                |              |             | 334,000                  | 9,010,000               | 4,432,000            |

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Table B4.8-14 Cost Estimate - Disposal Trenches Medium Group - Complex Trenches Subgroup  
Alternative 14: Incineration/Pyrolysis (Rotary Kiln); Landfill (On-Post Landfill)

| Cost Item                                                            | Cost | Start | End | 1992 (\$)     | Units | Quantity | Unit | Volume | Mileage | Other | Description | Annual Cost | 1993 (\$)  | 1993 (\$)  | 1993 (\$)  |
|----------------------------------------------------------------------|------|-------|-----|---------------|-------|----------|------|--------|---------|-------|-------------|-------------|------------|------------|------------|
| <b>DIRECT CAPITAL COSTS</b>                                          |      |       |     |               |       |          |      |        |         |       |             |             |            |            |            |
| H - Excavation Dewatering, Complex Trenches                          | LS   | 1     | --  | 186,463.00    | /EA   | 1        | EA   | 1,000  | 1,000   | 1,000 | 1,000       | 213,000     | 213,000    | 213,000    | 213,000    |
| H - Complex Trench Excavation Including Vapor Controls               | LS   | 2     | --  | 12,396,000.00 | /EA   | 1        | EA   | 1,000  | 1,000   | 1,000 | 1,000       | 14,148,000  | 14,148,000 | 14,148,000 | 14,148,000 |
| H - On-Post Hazardous Waste Landfill                                 | LS   | 2     | --  | 5.72          | /BCY  | 470,000  | BCY  | 1,000  | 1,000   | 1,000 | 1,000       | 3,068,000   | 3,068,000  | 3,068,000  | 3,068,000  |
| H - On-Post Hazardous Waste Landfill Closure                         | LS   | 8     | --  | 3.80          | /BCY  | 470,000  | BCY  | 1,000  | 1,000   | 1,000 | 1,000       | 2,038,000   | 2,038,000  | 2,038,000  | 2,038,000  |
| B - On-Post Hazardous Waste Landfill (Particulates)                  | LS   | 2     | --  | 5.72          | /BCY  | 390      | BCY  | 1,000  | 1,000   | 1,000 | 1,000       | 3,000       | 3,000      | 3,000      | 3,000      |
| B - On-Post Hazardous Waste Landfill Closure (Particulates)          | LS   | 8     | --  | 3.80          | /BCY  | 390      | BCY  | 1,000  | 1,000   | 1,000 | 1,000       | 2,000       | 2,000      | 2,000      | 2,000      |
| A - On-Post Hazardous Waste Landfill (Particulates)                  | LS   | 2     | --  | 5.72          | /BCY  | 12       | BCY  | 1,000  | 1,000   | 1,000 | 1,000       | 100         | 100        | 100        | 100        |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)          | LS   | 8     | --  | 3.80          | /BCY  | 12       | BCY  | 1,000  | 1,000   | 1,000 | 1,000       | 100         | 100        | 100        | 100        |
| U - On-Post Solid Waste Landfill                                     | LS   | 2     | --  | 4.32          | /BCY  | 120,000  | BCY  | 1,000  | 1,000   | 1,000 | 1,000       | 563,000     | 563,000    | 563,000    | 563,000    |
| U - On-Post Solid Waste Landfill Closure and Post Closure Activities | LS   | 8     | --  | 3.70          | /BCY  | 120,000  | BCY  | 1,000  | 1,000   | 1,000 | 1,000       | 507,000     | 507,000    | 507,000    | 507,000    |
| <b>Subtotal (A)</b>                                                  |      |       |     |               |       |          |      |        |         |       |             |             | 20,587,000 | 20,587,000 | 20,587,000 |
| <b>INDIRECT CAPITAL COSTS</b>                                        |      |       |     |               |       |          |      |        |         |       |             |             |            |            |            |
| Indirects, Overhead & Profit                                         |      |       |     |               |       |          |      |        |         |       |             |             | 787,000    | 787,000    | 787,000    |
| Engineering Design                                                   |      |       |     |               |       |          |      |        |         |       |             |             | 7,799,000  | 7,799,000  | 7,799,000  |
| Resident Engineering                                                 |      |       |     |               |       |          |      |        |         |       |             |             | 1,312,000  | 1,312,000  | 1,312,000  |
| Contingency                                                          |      |       |     |               |       |          |      |        |         |       |             |             | 437,000    | 437,000    | 437,000    |
| <b>Subtotal (B)</b>                                                  |      |       |     |               |       |          |      |        |         |       |             |             | 8,501,000  | 8,501,000  | 8,501,000  |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                              |      |       |     |               |       |          |      |        |         |       |             |             |            |            |            |
| H - Incineration                                                     | A    | 1     | 2   | 36.37         | /BCY  | 470,000  | BCY  | 1,000  | 1,000   | 1,000 | 1,000       | 19,507,000  | 19,507,000 | 19,507,000 | 19,507,000 |
| B - Thermal Description (Dry Soil)                                   | A    | 1     | 2   | 14.17         | /BCY  | 39,000   | BCY  | 1,000  | 1,000   | 1,000 | 1,000       | 631,000     | 631,000    | 631,000    | 631,000    |
| A - Incineration                                                     | A    | 1     | 2   | 36.37         | /BCY  | 1,200    | BCY  | 1,000  | 1,000   | 1,000 | 1,000       | 50,000      | 50,000     | 50,000     | 50,000     |
| <b>Subtotal (A1)</b>                                                 |      |       |     |               |       |          |      |        |         |       |             |             | 20,187,000 | 20,187,000 | 20,187,000 |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                            |      |       |     |               |       |          |      |        |         |       |             |             |            |            |            |
| Indirects                                                            |      |       |     |               |       |          |      |        |         |       |             |             | 404,000    | 404,000    | 404,000    |
| Contractor Markup                                                    |      |       |     |               |       |          |      |        |         |       |             |             | 2,059,000  | 2,059,000  | 2,059,000  |
| Engineering Design                                                   |      |       |     |               |       |          |      |        |         |       |             |             | 2,039,000  | 2,039,000  | 2,039,000  |
| Resident Engineering                                                 |      |       |     |               |       |          |      |        |         |       |             |             | 680,000    | 680,000    | 680,000    |
| Contingency                                                          |      |       |     |               |       |          |      |        |         |       |             |             | 7,810,000  | 7,810,000  | 7,810,000  |
| <b>Subtotal (B1)</b>                                                 |      |       |     |               |       |          |      |        |         |       |             |             | 12,791,000 | 12,791,000 | 12,791,000 |
| <b>TOTAL CAPITAL COSTS (H + A + G + A1 + B1)</b>                     |      |       |     |               |       |          |      |        |         |       |             |             | 72,392,000 | 72,392,000 | 72,392,000 |

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Table B4.8-14 Cost Estimate - Disposal Trenches Medium Group - Complex Trenches Subgroup  
Alternative 14: Incineration/Pyrolysis (Rotary Kiln); Landfill (On-Post Landfill)

| Cost Item                                                                | Code | Start Year | End Year | Unit Cost  | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description                 | Annual Cost | 1995 (\$)   | 1995 (\$) | PW Cost     |
|--------------------------------------------------------------------------|------|------------|----------|------------|-----------|-------|----------|-------|---------------|----------------|--------------|-----------------------------|-------------|-------------|-----------|-------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                 |      |            |          |            |           |       |          |       |               |                |              |                             |             |             |           |             |
| H - Excavation Dewatering, Complex Trenches                              | A    | 1          | 8        | 310,752.00 | /EA-YR    |       | 1        | EA    | 1.000         | 1.000          | 1.200        |                             | 3,404,000   | 3,404,000   |           | 2,868,000   |
| H - Complex Trench Excavation Including Vapor Controls                   | A    | 3          | 8        | 107.35     | /BCY      |       | 470,000  | BCY   | 1.000         | 1.000          | 1.560        | Older Control, Productivity | 69,620,000  | 69,620,000  |           | 72,365,000  |
| H - Transportation of Contaminated Soil to On-Post Incineration Facility | A    | 3          | 8        | 1.07       | /BCY-MILE |       | 470,000  | BCY   | 1.000         | 1.000          | 1.300        | Productivity                | 746,000     | 746,000     |           | 601,000     |
| H - Land Treated Soil for Transport to Hazardous Landfill                | A    | 3          | 8        | 1.55       | /BCY      |       | 470,000  | BCY   | 1.000         | 1.000          | 1.000        |                             | 631,000     | 631,000     |           | 670,000     |
| H - Transportation of Contaminated Soil to On-Post Hazardous Waste L     | A    | 3          | 8        | 1.07       | /BCY-MILE |       | 470,000  | BCY   | 1.000         | 0.500          | 1.300        | Productivity                | 373,000     | 373,000     |           | 301,000     |
| H - On-Post Hazardous Waste Landfill                                     | A    | 3          | 8        | 4.07       | /BCY      |       | 470,000  | BCY   | 1.000         | 1.000          | 1.000        |                             | 2,183,000   | 2,183,000   |           | 1,759,000   |
| H - Excavation of Borrow Material                                        | A    | 3          | 8        | 1.89       | /BCY      |       | 470,000  | BCY   | 1.000         | 1.000          | 1.000        |                             | 1,014,000   | 1,014,000   |           | 817,000     |
| H - Transportation of Borrow Material to Backfill Area                   | A    | 3          | 8        | 0.86       | /BCY-MILE |       | 470,000  | BCY   | 1.000         | 1.000          | 1.000        |                             | 682,000     | 682,000     |           | 557,000     |
| H - Backfill with Borrow Material                                        | A    | 3          | 8        | 1.72       | /BCY      |       | 470,000  | BCY   | 1.000         | 1.000          | 1.000        | Older Control               | 823,000     | 823,000     |           | 743,000     |
| B - Soil Excavation                                                      | A    | 3          | 8        | 3.91       | /BCY      |       | 39,000   | BCY   | 1.000         | 1.000          | 1.200        |                             | 209,000     | 209,000     |           | 168,000     |
| B - Transportation of Contaminated Soil to Thermal Desorption Facility   | A    | 3          | 8        | 1.07       | /BCY-MILE |       | 39,000   | BCY   | 1.000         | 1.500          | 1.000        |                             | 71,000      | 71,000      |           | 56,000      |
| B - Load Treated Soil for Transport to Hazardous Landfill                | A    | 3          | 8        | 1.55       | /BCY      |       | 39,000   | BCY   | 1.000         | 1.000          | 1.000        |                             | 1,000       | 1,000       |           | 400         |
| B - Transportation of Particulates to On-Post Hazardous Waste Landfill   | A    | 3          | 8        | 1.07       | /BCY-MILE |       | 39,000   | BCY   | 1.000         | 1.000          | 1.000        |                             | 2,000       | 2,000       |           | 1,000       |
| B - On-Post Hazardous Waste Landfill (Particulates)                      | A    | 3          | 8        | 4.07       | /BCY      |       | 39,000   | BCY   | 1.000         | 1.000          | 1.000        |                             | 57,000      | 57,000      |           | 46,000      |
| B - Load Nonhazardous Treated Soil from Stockpile for Backfill           | A    | 3          | 8        | 0.86       | /BCY-MILE |       | 39,000   | BCY   | 1.000         | 1.000          | 1.000        |                             | 36,000      | 36,000      |           | 31,000      |
| B - Transportation of Treated Soil to Backfill Excavation                | A    | 3          | 8        | 1.72       | /BCY      |       | 39,000   | BCY   | 1.000         | 1.000          | 1.000        |                             | 77,000      | 77,000      |           | 62,000      |
| B - Backfill with Treated Soil                                           | A    | 3          | 8        | 3.24       | /SY       |       | 330,000  | SY    | 1.000         | 1.000          | 1.000        | Disturbance                 | 1,284,000   | 1,284,000   |           | 1,043,000   |
| HB - Installation of 6 inches of Topsoil                                 | A    | 3          | 8        | 0.18       | /SY       |       | 330,000  | SY    | 1.000         | 1.000          | 1.000        |                             | 78,000      | 78,000      |           | 64,000      |
| HR - Revegetation of Disturbed Areas                                     | A    | 3          | 8        | 0.10       | /SY       |       | 330,000  | SY    | 1.000         | 1.000          | 1.000        |                             | 54,000      | 54,000      |           | 43,000      |
| A - Agent Seeding During Excavation                                      | A    | 3          | 8        | 4.55       | /BCY      |       | 470,000  | BCY   | 1.000         | 1.000          | 1.000        | Older Control               | 7,000       | 7,000       |           | 6,000       |
| A - Excavation of Soil with Agent                                        | A    | 3          | 8        | 1.07       | /BCY-MILE |       | 1,200    | BCY   | 1.000         | 1.000          | 1.000        |                             | 1,000       | 1,000       |           | 20          |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility | A    | 3          | 8        | 1.55       | /BCY      |       | 12       | BCY   | 1.000         | 1.000          | 1.000        |                             | 10          | 10          |           | 40          |
| A - Load Treated Soil for Transport to Hazardous Landfill                | A    | 3          | 8        | 4.07       | /BCY      |       | 12       | BCY   | 1.000         | 1.000          | 1.000        |                             | 2,000       | 2,000       |           | 1,000       |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill   | A    | 3          | 8        | 1.28       | /BCY      |       | 1,200    | BCY   | 1.000         | 1.000          | 1.000        |                             | 1,000       | 1,000       |           | 1,000       |
| A - On-Post Hazardous Waste Landfill (Particulates)                      | A    | 3          | 8        | 0.86       | /BCY-MILE |       | 1,200    | BCY   | 1.000         | 1.000          | 1.000        |                             | 2,000       | 2,000       |           | 2,000       |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill           | A    | 3          | 8        | 1.72       | /BCY      |       | 1,200    | BCY   | 1.000         | 1.000          | 1.000        |                             | 369,000     | 369,000     |           | 297,000     |
| A - Backfill with Treated Soil                                           | A    | 3          | 8        | 0.85       | /SY       |       | 370,000  | SY    | 1.000         | 1.000          | 1.000        |                             | 87,000      | 87,000      |           | 78,000      |
| U - UXO Clearance by Geophysics                                          | A    | 3          | 8        | 70.57      | /BCY      |       | 1,200    | BCY   | 1.000         | 1.000          | 1.000        |                             | 696,000     | 696,000     |           | 561,000     |
| U - Removal of Soil with UXO                                             | A    | 3          | 8        | 3.91       | /BCY      |       | 120,000  | BCY   | 1.000         | 1.000          | 1.300        | Productivity                | 95,000      | 95,000      |           | 78,000      |
| U - Excavation of Debris from Surface Soil                               | A    | 3          | 8        | 0.71       | /BCY-MILE |       | 120,000  | BCY   | 1.000         | 0.750          | 1.300        |                             | 557,000     | 557,000     |           | 449,000     |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste La    | A    | 3          | 8        | 4.07       | /BCY      |       | 120,000  | BCY   | 1.000         | 1.000          | 1.000        |                             | 103,688,000 | 103,688,000 |           | 83,689,000  |
| U - On-Post Solid Waste Landfill                                         | A    | 3          | 8        |            |           |       |          |       |               |                |              |                             | 5,314,000   | 5,314,000   |           | 4,289,000   |
|                                                                          |      |            |          |            |           |       |          |       |               |                |              |                             | 42,510,000  | 42,510,000  |           | 34,311,000  |
|                                                                          |      |            |          |            |           |       |          |       |               |                |              |                             | 2,273,000   | 2,273,000   |           | 1,834,000   |
|                                                                          |      |            |          |            |           |       |          |       |               |                |              |                             | 3,408,000   | 3,408,000   |           | 2,752,000   |
|                                                                          |      |            |          |            |           |       |          |       |               |                |              |                             | 51,087,000  | 51,087,000  |           | 41,234,000  |
| <b>Subtotal (I)</b>                                                      |      |            |          |            |           |       |          |       |               |                |              |                             | 104,592,000 | 104,592,000 |           | 84,421,000  |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                               |      |            |          |            |           |       |          |       |               |                |              |                             |             |             |           |             |
| Mod/Demob                                                                |      |            |          |            |           |       |          |       |               |                |              |                             |             |             |           |             |
| Indirects - Overhead & Profit                                            |      |            |          |            |           |       |          |       |               |                |              |                             |             |             |           |             |
| Engineering Design                                                       |      |            |          |            |           |       |          |       |               |                |              |                             |             |             |           |             |
| Resident Engineering                                                     |      |            |          |            |           |       |          |       |               |                |              |                             |             |             |           |             |
| Contingency                                                              |      |            |          |            |           |       |          |       |               |                |              |                             |             |             |           |             |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                     |      |            |          |            |           |       |          |       |               |                |              |                             |             |             |           |             |
| H - Incineration                                                         | A    | 3          | 8        | 96.24      | /BCY      |       | 470,000  | BCY   | 1.000         | 1.000          | 1.000        |                             | 51,618,000  | 51,618,000  |           | 41,567,000  |
| B - Thermal Desorption (Dry Soil)                                        | A    | 3          | 8        | 49.13      | /BCY      |       | 39,000   | BCY   | 1.000         | 1.000          | 1.000        |                             | 2,187,000   | 2,187,000   |           | 1,762,000   |
| A - Incineration                                                         | A    | 3          | 8        | 96.24      | /BCY      |       | 1,200    | BCY   | 1.000         | 1.000          | 1.000        |                             | 132,000     | 132,000     |           | 106,000     |
| U - Packaging and Transportation of Agent UXO to Army Off-Post UX        | A    | 3          | 8        | 2,200.00   | /BCY      |       | 1,200    | BCY   | 1.000         | 1.000          | 1.000        |                             | 3,013,000   | 3,013,000   |           | 2,427,000   |
| <b>Subtotal (II)</b>                                                     |      |            |          |            |           |       |          |       |               |                |              |                             | 56,949,000  | 56,949,000  |           | 45,862,000  |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |      |            |          |            |           |       |          |       |               |                |              |                             |             |             |           |             |
| Mod/Demob                                                                |      |            |          |            |           |       |          |       |               |                |              |                             |             |             |           |             |
| Contractor Markup                                                        |      |            |          |            |           |       |          |       |               |                |              |                             |             |             |           |             |
| Engineering Design                                                       |      |            |          |            |           |       |          |       |               |                |              |                             |             |             |           |             |
| Resident Engineering                                                     |      |            |          |            |           |       |          |       |               |                |              |                             |             |             |           |             |
| Contingency                                                              |      |            |          |            |           |       |          |       |               |                |              |                             |             |             |           |             |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (I+II)</b>                           |      |            |          |            |           |       |          |       |               |                |              |                             | 297,734,000 | 297,734,000 |           | 240,181,000 |



| Cost Item                                                                               | Cost Type | Start Year | End Year | 1992 (\$) |           | Units | Quantity | Units | Volume Mileage |        | Description | 1995 (\$)   |             | PW Cost     |
|-----------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|-------|----------|-------|----------------|--------|-------------|-------------|-------------|-------------|
|                                                                                         |           |            |          | Unit Cost | Unit Cost |       |          |       | Factor         | Factor |             | Annual Cost | Total Cost  |             |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                 |           |            |          |           |           |       |          |       |                |        |             |             |             |             |
| H - On-Post Hazardous Waste Landfill Closure                                            | A         | 8          | 30       | 0.13      | /BCY-YR   |       | 470,000  | BCY   | 1,000          | 1,000  | 1,000       | 70,000      | 1,804,000   | 702,000     |
| B - On-Post Hazardous Waste Landfill Closure (Participations)                           | A         | 8          | 30       | 0.13      | /BCY-YR   |       | 300      | BCY   | 1,000          | 1,000  | 1,000       | 100         | 1,000       | 1,000       |
| A - On-Post Hazardous Waste Landfill Closure (Participations)                           | A         | 8          | 30       | 0.13      | /BCY-YR   |       | 12       | BCY   | 1,000          | 1,000  | 1,000       | 2           | 40          | 20          |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                   | A         | 8          | 30       | 0.13      | /BCY-YR   |       | 120,000  | BCY   | 1,000          | 1,000  | 1,000       | 18,000      | 408,000     | 178,000     |
| Subtotal (P)                                                                            |           |            |          |           |           |       |          |       |                |        |             | 88,000      | 2,015,000   | 882,000     |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                               |           |            |          |           |           |       |          |       |                |        |             |             |             |             |
| COST CODE: U,LSL                                                                        |           |            |          |           |           |       |          |       |                |        |             |             |             |             |
| Indirects, Overhead & Profit 38.0% (P)                                                  |           |            |          |           |           |       |          |       |                |        |             |             |             |             |
| Contingency 30.0% (P-Q)                                                                 |           |            |          |           |           |       |          |       |                |        |             |             |             |             |
| Subtotal (S = Q+P)                                                                      |           |            |          |           |           |       |          |       |                |        |             | 34,000      | 788,000     | 344,000     |
|                                                                                         |           |            |          |           |           |       |          |       |                |        |             | 37,000      | 840,000     | 368,000     |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                        |           |            |          |           |           |       |          |       |                |        |             | 71,000      | 1,628,000   | 711,000     |
|                                                                                         |           |            |          |           |           |       |          |       |                |        |             | 158,000     | 3,640,000   | 1,593,000   |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (OPERATIONS & LONG-TERM ACTIVITIES) (U = H+O+T) |           |            |          |           |           |       |          |       |                |        |             |             |             |             |
|                                                                                         |           |            |          |           |           |       |          |       |                |        |             |             | 374,000,000 | 310,000,000 |

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| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------|-----------|------------|----------|------------------------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS          |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                 | LS        | 1          | --       | 0.00                   | 32,000   | SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| Subtotal (A)                  |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |
| INDIRECT CAPITAL COSTS        |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                     |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit  |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design            |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering          |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Contingency                   |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G -B+C+D+E+F)       |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |
| TOTAL CAPITAL COSTS (H + A+G) |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |

Table B4.9-1 Cost Estimate - Disposal Trenches Medium Group - Shell Trenches Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                                                                                                 | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                  |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| H - No Action                                                                                             | LS        | 1          | --       | 0.00                   | SV     | 32,000   | SV    | 1,000            | 1,000             | 1,000           | 1,000       | 0                        | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (I)                                                                                              |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| COST CODE                                                                                                 |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| J = 0.033 * (I)                                                                                           |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| K = 0.390 * (I+J)                                                                                         |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| L = 0.005 * (I+J+K)                                                                                       |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| M = 0.013 * (I+J+K+L)                                                                                     |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| N = 0.283 * (I+J+K+L+M)                                                                                   |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (O = J+K+L+M+N)                                                                                  |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                        |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| H - Maintenance of Existing Soil Cover                                                                    | A         | 1          | 30       | 0.33                   | SV-YR  | 32,000   | SV    | 1,000            | 1,000             | 1,000           | 1,000       | 12,000                   | 362,000                 | 192,000              |
| H - Site Reviews                                                                                          | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1,000            | 1,000             | 1,000           | 1,000       | 6,000                    | 185,000                 | 96,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (P)                                                                                              |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| COST CODE                                                                                                 |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Q = 0.390 * (P)                                                                                           |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| R = 0.300 * (P+Q)                                                                                         |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                              |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                                                                                               |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (S)                                                                                              |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S)</b> [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                              |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
| HST-01, W01                                                                                               |           |            |          |                        |        |          |       |                  |                   |                 |             |                          |                         |                      |
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Table B4.9.3a Cost Estimate - Disposal Trenches Medium Group - Shell Trenches Subgroup  
Alternative 5a: Caps/Covers (Clay/Soil Cap); Vertical Barriers (Slurry Walls) with Modifications to Existing System

| Cost Item                                | Cost Type | Start Year | End Year | 1997 (\$)  | Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |
|------------------------------------------|-----------|------------|----------|------------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|---------|
| DIRECT CAPITAL COSTS                     |           |            |          |            |           |       |          |       |               |                |              |             |           |           |           |         |
| H - Long-Term Dewatering, Shell Trenches | LS        | 1          | --       | 161,808.00 | /EA       |       | 1        |       | 1.000         | 1.000          | 1.000        |             | 165,000   |           | 165,000   | 165,000 |
| Subtotal (A)                             |           |            |          |            |           |       |          |       |               |                |              |             |           |           |           |         |
| INDIRECT CAPITAL COSTS                   |           |            |          |            |           |       |          |       |               |                |              |             |           |           |           |         |
| Mod/Demob                                |           |            |          |            |           |       |          |       |               |                |              |             |           |           |           |         |
| Indirects - Overhead & Profit            |           |            |          |            |           |       |          |       |               |                |              |             |           |           |           |         |
| Engineering Design                       |           |            |          |            |           |       |          |       |               |                |              |             |           |           |           |         |
| Resident Engineering                     |           |            |          |            |           |       |          |       |               |                |              |             |           |           |           |         |
| Contingency                              |           |            |          |            |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal (B) = 0.045 * (A)               |           |            |          |            |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal (C) = 0.403 * (A+B)             |           |            |          |            |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal (D) = 0.045 * (A+B+C)           |           |            |          |            |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal (E) = 0.018 * (A+B+C)           |           |            |          |            |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal (F) = 0.288 * (A+B+C+D+E)       |           |            |          |            |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal (G) = 0.288 * (A+B+C+D+E+F)     |           |            |          |            |           |       |          |       |               |                |              |             |           |           |           |         |
| TOTAL CAPITAL COSTS (H) = A+G            |           |            |          |            |           |       |          |       |               |                |              |             |           |           |           |         |
|                                          |           |            |          |            |           |       |          |       |               |                |              |             | 370,000   |           | 370,000   |         |

Table B4.9-5a Cost Estimate - Disposal Trenches Medium Group - Shell Trenches Subgroup  
Alternative 5a: Caps/Covers (Clay/Soil Cap); Vertical Barriers (Slurry Walls) with Modifications to Existing System

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1992 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| H - Slurry Wall (20 - 65 ft Deep)                                                                             | LS        | 1          | --       | 47.22                  | /SY    | 6,700    | SY    | 1.000         | 1.000          | 1.000        |             |                          | 381,000                 | 381,000              |
| H - Grade Filling w/Excav Soil from Slurry Trench Prior to Capping                                            | LS        | 1          | --       | 3.63                   | /BCY   | 6,700    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 26,000                  | 26,000               |
| H - Subgrade Preparation Prior to Installing Cap/Cover                                                        | LS        | 1          | --       | 0.06                   | /SY    | 32,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 2,000                   | 2,000                |
| H - Modification of Existing Soil Cover                                                                       | LS        | 1          | --       | 22.80                  | /SY    | 32,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 833,000                 | 833,000              |
| H - Revegetation of Disturbed Areas                                                                           | LS        | 1          | --       | 0.18                   | /SY    | 32,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance |                          | 7,000                   | 7,000                |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                                                                     |           |            |          |                        |        |          |       |               |                |              |             |                          | 1,231,000               | 1,231,000            |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 48,000                  | 48,000               |
| Engineering Design                                                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          | 515,000                 | 515,000              |
| Resident Engineering                                                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          | 9,000                   | 9,000                |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          | 27,000                  | 27,000               |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 503,000                 | 503,000              |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| H - Modification of Existing Soil Cover                                                                       | A         | 2          | 30       | 0.80                   | /SY-YR | 32,000   | SY    | 1.000         | 1.000          | 1.000        |             | 29,000                   | 847,000                 | 442,000              |
| H - Long-Term Dewatering, Shell Trenches                                                                      | A         | 2          | 30       | 91.61                  | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 107,000                  | 3,086,000               | 1,817,000            |
| H - Site Reviews                                                                                              | A         | 2          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 8,000                    | 179,000                 | 83,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 142,000                 | 4,124,000            |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          | 55,000                  | 1,808,000            |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 58,000                  | 1,720,000            |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 115,000                 | 3,328,000            |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 257,000                 | 9,784,000            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 10,200,000              | 6,590,000            |

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Table B4.9-14 Cost Estimate - Disposal Trenches Medium Group - Shell Trenches Subgroup  
Alternative 14: Incineration/Pyrolysis (Rotary Kiln); Landfill (On-Post Landfill)

| Cost Item                                            | Cost Type | Start Year | End Year | 1992 (\$)    | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)         | 1995 (\$)         | 1995 (\$) |
|------------------------------------------------------|-----------|------------|----------|--------------|-------|----------|-------|---------------|----------------|--------------|-------------|-------------------|-------------------|-----------|
|                                                      |           |            |          | Unit Cost    |       |          |       |               |                |              |             | Total Cost        | PW Cost           |           |
| <b>DIRECT CAPITAL COSTS</b>                          |           |            |          |              |       |          |       |               |                |              |             |                   |                   |           |
| H - Excavation Dewatering, Shell Trenches            | LS        | 1          | --       | 172,685.00   | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 187,000           | 197,000           |           |
| H - Shell Trench Excavation Including Vapor Controls | LS        | 2          | --       | 9,988,750.00 | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 11,389,000        | 10,856,000        |           |
| H - On-Post Hazardous Waste Landfill                 | LS        | 2          | --       | 5.72         | /RCY  | 100,000  | RCY   | 1.000         | 1.000          | 1.000        |             | 653,000           | 622,000           |           |
| H - On-Post Hazardous Waste Landfill Closure         | LS        | 2          | --       | 3.80         | /RCY  | 100,000  | RCY   | 1.000         | 1.000          | 1.000        |             | 434,000           | 413,000           |           |
| <b>Subtotal (A)</b>                                  |           |            |          |              |       |          |       |               |                |              |             | <b>12,662,000</b> | <b>12,088,000</b> |           |
| <b>INDIRECT CAPITAL COSTS</b>                        |           |            |          |              |       |          |       |               |                |              |             |                   |                   |           |
| <b>MOD/Demob</b>                                     |           |            |          |              |       |          |       |               |                |              |             |                   |                   |           |
| <b>COSS CODE: LMMS</b>                               |           |            |          |              |       |          |       |               |                |              |             |                   |                   |           |
| Indirects, Overhead & Profit                         |           |            |          |              |       |          |       |               |                |              |             | 481,000           | 468,000           |           |
| Engineering Design                                   |           |            |          |              |       |          |       |               |                |              |             | 4,973,000         | 4,740,000         |           |
| Resident Engineering                                 |           |            |          |              |       |          |       |               |                |              |             | 817,000           | 778,000           |           |
| Contingency                                          |           |            |          |              |       |          |       |               |                |              |             | 272,000           | 259,000           |           |
|                                                      |           |            |          |              |       |          |       |               |                |              |             | 5,280,000         | 5,042,000         |           |
| <b>Subtotal (B = B+C+D+E+F)</b>                      |           |            |          |              |       |          |       |               |                |              |             | <b>11,843,000</b> | <b>11,288,000</b> |           |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>              |           |            |          |              |       |          |       |               |                |              |             |                   |                   |           |
| H - Incineration                                     | A         | 1          | 2        | 36.37        | /RCY  | 100,000  | RCY   | 1.000         | 1.000          | 1.000        |             | 4,150,000         | 4,052,000         |           |
| <b>Subtotal (A1)</b>                                 |           |            |          |              |       |          |       |               |                |              |             | <b>4,150,000</b>  | <b>4,052,000</b>  |           |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>            |           |            |          |              |       |          |       |               |                |              |             |                   |                   |           |
| <b>COSS CODE: C</b>                                  |           |            |          |              |       |          |       |               |                |              |             |                   |                   |           |
| Mod/Demob                                            |           |            |          |              |       |          |       |               |                |              |             | 83,000            | 81,000            |           |
| Contractor Markup                                    |           |            |          |              |       |          |       |               |                |              |             | 423,000           | 413,000           |           |
| Engineering Design                                   |           |            |          |              |       |          |       |               |                |              |             | 419,000           | 408,000           |           |
| Resident Engineering                                 |           |            |          |              |       |          |       |               |                |              |             | 140,000           | 138,000           |           |
| Contingency                                          |           |            |          |              |       |          |       |               |                |              |             | 1,566,000         | 1,527,000         |           |
| <b>Subtotal (G1 = B1+C1+D1+E1+F1)</b>                |           |            |          |              |       |          |       |               |                |              |             | <b>2,630,000</b>  | <b>2,567,000</b>  |           |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>           |           |            |          |              |       |          |       |               |                |              |             | <b>31,308,000</b> | <b>29,994,000</b> |           |

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Table B4.9-14 Cost Estimate - Disposal Trenches Medium Group - Shell Trenches Subgroup  
Alternative 14: Incineration/Pyrolysis (Rotary Kiln); Landfill (On-Post Landfill)

| Cost Item                                                                   | Cost Type | Start Year | End Year | 1992 (\$)  | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$)  | 1995 (\$)  | 1995 (\$)  |
|-----------------------------------------------------------------------------|-----------|------------|----------|------------|-----------|----------|-------|---------------|----------------|--------------|--------------|------------|------------|------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                    |           |            |          |            |           |          |       |               |                |              |              |            |            |            |
| H - Excavation Dewatering Shell Trenches                                    | A         | 1          | 3        | 452,612.00 | /EA-YR    | 1        | EA    | 1.000         | 1.000          | 1.000        |              | 1,550,000  | 1,550,000  | 1,477,000  |
| H - Excavation of Cover Overburden                                          | LS        | 2          | -        | 1.89       | /BCY      | 31,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 67,000     | 67,000     | 64,000     |
| H - Shell Trench Excavation Including Vapor Controls                        | LS        | 3          | -        | 88.42      | /BCY      | 100,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 10,000,000 | 10,000,000 | 9,152,000  |
| H - Transportation of Contaminated Soil to On-Post Incineration Facility    | LS        | 3          | -        | 1.07       | /BCY-MILE | 100,000  | BCY   | 1.000         | 1.000          | 1.300        | Productivity | 159,000    | 159,000    | 144,000    |
| H - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3          | -        | 1.55       | /BCY      | 100,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 177,000    | 177,000    | 160,000    |
| H - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill | LS        | 3          | -        | 1.07       | /BCY-MILE | 100,000  | BCY   | 1.000         | 1.000          | 1.300        | Productivity | 159,000    | 159,000    | 144,000    |
| H - On-Post Hazardous Waste Landfill                                        | LS        | 3          | -        | 4.07       | /BCY      | 100,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 464,000    | 464,000    | 421,000    |
| H - Excavation of Borrow Material                                           | LS        | 3          | -        | 1.89       | /BCY      | 100,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 216,000    | 216,000    | 196,000    |
| H - Transportation of Borrow Material to Backfill Area                      | LS        | 3          | -        | 0.86       | /BCY-MILE | 100,000  | BCY   | 1.000         | 1.500          | 1.000        |              | 147,000    | 147,000    | 134,000    |
| H - Backfill with Borrow Material                                           | LS        | 3          | -        | 1.72       | /BCY      | 100,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 198,000    | 198,000    | 178,000    |
| H - Backfill of Cover Overburden                                            | LS        | 3          | -        | 1.72       | /BCY      | 31,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 61,000     | 61,000     | 55,000     |
| H - Revegetation of Disturbed Areas                                         | LS        | 3          | -        | 0.18       | /SY       | 32,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance  | 7,000      | 7,000      | 7,000      |
| <b>Subtotal (I)</b>                                                         |           |            |          |            |           |          |       |               |                |              |              | 13,283,000 | 13,283,000 | 12,131,000 |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |            |          |            |           |          |       |               |                |              |              |            |            |            |
| Mobile/Demob                                                                |           |            |          |            |           |          |       |               |                |              |              | 681,000    | 681,000    | 622,000    |
| Indirects, Overhead & Profit                                                |           |            |          |            |           |          |       |               |                |              |              | 5,450,000  | 5,450,000  | 4,974,000  |
| Engineering Design                                                          |           |            |          |            |           |          |       |               |                |              |              | 291,000    | 291,000    | 266,000    |
| Resident Engineering                                                        |           |            |          |            |           |          |       |               |                |              |              | 398,000    | 398,000    | 355,000    |
| Contingency                                                                 |           |            |          |            |           |          |       |               |                |              |              | 6,282,000  | 6,282,000  | 5,733,000  |
| <b>Subtotal (O) = J+K+L+M+N</b>                                             |           |            |          |            |           |          |       |               |                |              |              | 13,083,000 | 13,083,000 | 11,849,000 |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                        |           |            |          |            |           |          |       |               |                |              |              |            |            |            |
| H - Incineration                                                            | LS        | 3          | -        | 96.24      | /BCY      | 100,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 10,983,000 | 10,983,000 | 9,882,000  |
| <b>Subtotal (I1)</b>                                                        |           |            |          |            |           |          |       |               |                |              |              | 10,983,000 | 10,983,000 | 9,882,000  |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |            |          |            |           |          |       |               |                |              |              |            |            |            |
| Mobile/Demob                                                                |           |            |          |            |           |          |       |               |                |              |              | 0          | 0          | 0          |
| Contractor Markup                                                           |           |            |          |            |           |          |       |               |                |              |              | 1,098,000  | 1,098,000  | 998,000    |
| Engineering Design                                                          |           |            |          |            |           |          |       |               |                |              |              | 0          | 0          | 0          |
| Resident Engineering                                                        |           |            |          |            |           |          |       |               |                |              |              | 242,000    | 242,000    | 218,000    |
| Contingency                                                                 |           |            |          |            |           |          |       |               |                |              |              | 4,929,000  | 4,929,000  | 4,471,000  |
| <b>Subtotal (O1) = J1+K1+L1+M1+N1</b>                                       |           |            |          |            |           |          |       |               |                |              |              | 6,269,000  | 6,269,000  | 5,686,000  |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O1+I1+O11)</b>                  |           |            |          |            |           |          |       |               |                |              |              | 43,637,000 | 43,637,000 | 39,728,000 |

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Table B4.9-14 Cost Estimate - Disposal Trenches Medium Group - Shell Trenches Subgroup  
Alternative 14: Incineration/Pyrolysis (Rotary Kiln); Landfill (On-Post Landfill)

| Cost Item                                                                               | Cost Type | Start Year | End Year | 1992 (\$) | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$) | 1993 (\$) | 1993 (\$) |
|-----------------------------------------------------------------------------------------|-----------|------------|----------|-----------|--------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                 |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| H - On-Post Hazardous Waste Landfill Closure                                            | A         | 3          | 30       | 0.13      | BCY-YR | 100,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 15,000    | 415,000   | 210,000   |
| Subtotal (P)                                                                            |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                               |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| COST CODE: LLSL                                                                         |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| Indirects, Overhead & Profit                                                            |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| 30.0%                                                                                   |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| Contingency                                                                             |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| 30.0%                                                                                   |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| Subtotal (S = Q+R)                                                                      |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                        |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (OPERATIONS & LONG-TERM ACTIVITIES) (U = H+O+T) |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| 75,700,000                                                                              |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| 70,100,000                                                                              |           |            |          |           |        |          |       |               |                |              |             |           |           |           |

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Table BA.10-1 Cost Estimate - Disposal Trenches Medium Group - Hex Pit Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                            | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| H. No Action                         | LS        | 1          | --       | 0.00                   | SY    | 1,000    | SY    | 1,000            | 1,000             | 1,000           |             | 0                        | 0                       | 0                    |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mob/Demob                            |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit         |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design                   |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering                 |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>SUBTOTAL (A)</b>                  |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                      |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 0                       | 0                    |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mob/Demob                            |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit         |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design                   |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering                 |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>SUBTOTAL (G -B+C+D+E+F)</b>       |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                      |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 0                       | 0                    |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b> |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                      |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 0                       | 0                    |

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Table B4.10-1 Cost Estimate - Disposal Trenches Medium Group - Hex Pit Subgroup  
Alternative 1: No Additional Action (Provisions of F/A)

| Cost Item                                                                                      | Cost Type                | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |         |         |         |
|------------------------------------------------------------------------------------------------|--------------------------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|---------|---------|---------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |                          |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |         |         |         |
| H - No Action                                                                                  | LS                       | 1          | --       | 0.00                   | /SY    | 1,000    | SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |         |         |         |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |                          |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |         |         |         |
| Mod/Demob                                                                                      | Subtotal (I)             |            |          |                        |        |          |       |               |                |              |             |                          |                         | 0                    | 0       |         |         |
| Indirects, Overhead & Profit                                                                   | COST CODE                |            |          |                        |        |          |       |               |                |              |             |                          |                         | 0                    | 0       |         |         |
| Engineering Design                                                                             | J = 0.033 * (I)          |            |          |                        |        |          |       |               |                |              |             |                          |                         | 0                    | 0       |         |         |
| Resident Engineering                                                                           | K = 0.360 * (I+J)        |            |          |                        |        |          |       |               |                |              |             |                          |                         | 0                    | 0       |         |         |
| Contingency                                                                                    | L = 0.005 * (I+J+K)      |            |          |                        |        |          |       |               |                |              |             |                          |                         | 0                    | 0       |         |         |
|                                                                                                | M = 0.013 * (I+J+K)      |            |          |                        |        |          |       |               |                |              |             |                          |                         | 0                    | 0       |         |         |
|                                                                                                | N = 0.263 * (I+J+K+L+M)  |            |          |                        |        |          |       |               |                |              |             |                          |                         | 0                    | 0       |         |         |
|                                                                                                | Subtotal (O) = J+K+L+M+N |            |          |                        |        |          |       |               |                |              |             |                          |                         | 0                    | 0       |         |         |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |                          |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |         |         |         |
| H - Site Reviews                                                                               | A                        | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 165,000                 | 96,000               |         |         |         |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |                          |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |         |         |         |
| Indirects, Overhead & Profit                                                                   | Subtotal (P)             |            |          |                        |        |          |       |               |                |              |             |                          |                         | 6,000                | 165,000 | 96,000  |         |
| Contingency                                                                                    | COST CODE                |            |          |                        |        |          |       |               |                |              |             |                          |                         | 2,000                | 72,000  | 36,000  |         |
|                                                                                                | Q = 0.380 * (P)          |            |          |                        |        |          |       |               |                |              |             |                          |                         | 3,000                | 77,000  | 41,000  |         |
|                                                                                                | R = 0.300 * (P+Q)        |            |          |                        |        |          |       |               |                |              |             |                          |                         | 5,000                | 148,000 | 79,000  |         |
|                                                                                                | Subtotal (S)             |            |          |                        |        |          |       |               |                |              |             |                          |                         | 11,000               | 334,000 | 177,000 |         |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |                          |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      | 11,000  | 334,000 | 177,000 |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |                          |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |         | 334,000 | 177,000 |
| HXP-01.W01                                                                                     |                          |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |         |         |         |
| SOILS DAA                                                                                      |                          |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |         |         |         |
| 16-Jul-93                                                                                      |                          |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |         |         |         |

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Table B4.10-5

Cost Estimate - Disposal Trenches Medium Group - Hex Pit Subgroup  
Alternative 5: Caps/Covers (Clay/Soil Cap); Vertical Barriers (Slurry Walls)

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| Cost Item                                       | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                     |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H. Installation of Hydraulic Controls, Hex Pits | LS        | 1          | -        | 709,171.00             | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 809,000                  | 809,000                 | 809,000              |
| <b>INDIRECT CAPITAL COSTS</b>                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (A)                                    |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE                                       |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| MMSS                                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| B = 0.045 * (A)                                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 4.5%                                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| C = 0.403 * (A+B)                               |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 40.3%                                           |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| D = 0.045 * (A+B+C)                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 4.5%                                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| E = 0.018 * (A+B+C)                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 1.8%                                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| F = 0.288 * (A+B+C+D+E)                         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 28.8%                                           |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 813,000                                         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b>            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 1,622,000                                       |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

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Table B4.10-5 Cost Estimate - Disposal Trenches Medium Group - Hex Pit Subgroup  
Alternative 5: Caps/Covers (Clay/Soil Cap); Vertical Barriers (Slurry Walls)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| H - Slurry Wall (20 - 65 ft Deep)                                                                             | LS        | 1          | --       | 47.22                  | /SY    | 1,400    | SY    | 1,000         | 1,000          | 1,000        |             |                          | 75,000                  | 75,000               |
| H - Grade Filling w/Excav Soil from Slurry Trench Prior to Capping                                            | LS        | 1          | --       | 3.63                   | /BCY   | 1,400    | BCY   | 1,000         | 1,000          | 1,000        |             |                          | 8,000                   | 8,000                |
| H - Subgrade Preparation Prior to Installing Cap/Cover                                                        | LS        | 1          | --       | 0.06                   | /SY    | 1,000    | SY    | 1,000         | 1,000          | 1,000        |             |                          | 100                     | 100                  |
| H - Installation of Clay/Soil Cap                                                                             | LS        | 1          | --       | 23.40                  | /SY    | 1,000    | SY    | 1,000         | 1,000          | 1,000        |             |                          | 27,000                  | 27,000               |
| H - Revegetation of Disturbed Areas                                                                           | LS        | 1          | --       | 0.18                   | /SY    | 1,000    | SY    | 1,000         | 1,000          | 1,100        | Disturbance |                          | 200                     | 200                  |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                                                                     |           |            |          |                        |        |          |       |               |                |              |             |                          | 108,000                 | 108,000              |
| Indirects: Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 4,000                   | 4,000                |
| Engineering Design                                                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          | 45,000                  | 45,000               |
| Resident Engineering                                                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          | 2,000                   | 2,000                |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 44,000                  | 44,000               |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| H - Installation of Clay/Soil Cap                                                                             | A         | 2          | 30       | 0.80                   | /SY-YR | 1,000    | SY    | 1,000         | 1,000          | 1,000        |             | 1,000                    | 28,000                  | 14,000               |
| H - Site Reviews                                                                                              | A         | 2          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 6,000                    | 179,000                 | 83,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects: Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 3,000                   | 3,000                |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          | 3,000                   | 3,000                |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 6,000                   | 6,000                |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 7,000                   | 205,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 13,000                  | 579,000              |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 2,200,000               | 2,020,000            |

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Table B4.10-14 Cost Estimate - Disposal Trenches Medium Group - Hex Pit Subgroup  
Alternative 14: Incineration/Pyrolysis (Rotary Kiln); Landfill (On-Post Landfill)

| Cost Item                                       | Cost Type       | Start Year                      | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------|-----------------|---------------------------------|----------|------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                            |                 |                                 |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill            | LS              | 2                               | --       | 5.72                   | /RCY  | 3,300    | RCY   | 1.000            | 1.000             | 1.000           |             | 22,000                   | 22,000                  | 21,000               |
| H - On-Post Hazardous Waste Landfill Closure    | LS              | 2                               | --       | 3.80                   | /RCY  | 3,300    | RCY   | 1.000            | 1.000             | 1.000           |             | 14,000                   | 14,000                  | 14,000               |
| H - Hex Pit Excavation Including Vapor Controls | LS              | 2                               | --       | 499,437.00             | /EA   | 1        | EA    | 1.000            | 1.000             | 1.000           |             | 570,000                  | 570,000                 | 543,000              |
| Subtotal (A)                                    |                 |                                 |          |                        |       |          |       |                  |                   |                 |             | 606,000                  | 606,000                 | 577,000              |
| INDIRECT CAPITAL COSTS                          |                 |                                 |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mob/Demob                                       | COST CODE: LMSS |                                 |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                    | 3.9%            | $B = 0.038 * (A)$               |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design                              | 39.0%           | $C = 0.390 * (A+B)$             |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering                            | 4.5%            | $D = 0.045 * (A+B+C)$           |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                                     | 1.5%            | $E = 0.015 * (A+B+C)$           |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                 | 27.5%           | $F = 0.275 * (A+B+C+D+E)$       |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                        |                 |                                 |          |                        |       |          |       |                  |                   |                 |             | 576,000                  | 576,000                 | 549,000              |
| DIRECT SUBCONTRACT CAPITAL COSTS                |                 |                                 |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| H - Incineration                                | A               | 1                               | 2        | 36.37                  | /RCY  | 3,300    | RCY   | 1.000            | 1.000             | 1.000           |             | 137,000                  | 137,000                 | 134,000              |
| Subtotal (A1)                                   |                 |                                 |          |                        |       |          |       |                  |                   |                 |             | 137,000                  | 137,000                 | 134,000              |
| INDIRECT SUBCONTRACT CAPITAL COSTS              |                 |                                 |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mob/Demob                                       | COST CODE: C    |                                 |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contractor Markup                               | 2.0%            | $B1 = 0.020 * (A1)$             |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design                              | 10.0%           | $C1 = 0.100 * (A1+B1)$          |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering                            | 9.0%            | $D1 = 0.090 * (A1+B1+C1)$       |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                                     | 3.0%            | $E1 = 0.030 * (A1+B1+C1)$       |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                 | 30.0%           | $F1 = 0.300 * (A1+B1+C1+D1+E1)$ |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                  |                 |                                 |          |                        |       |          |       |                  |                   |                 |             | 87,000                   | 87,000                  | 85,000               |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)             |                 |                                 |          |                        |       |          |       |                  |                   |                 |             | 1,408,000                | 1,408,000               | 1,344,000            |

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Table B4.10-14 Cost Estimate - Disposal Trenches Medium Group - Hex Pit Subgroup  
Alternative 14: Incineration/Pyrolysis (Rotary Kiln); Landfill (On-Post Landfill)

| Cost Item                                                                   | Cost Type | Start Year                                                           | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost   |
|-----------------------------------------------------------------------------|-----------|----------------------------------------------------------------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|--------------|-----------|-----------|-----------|-----------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                    |           |                                                                      |          |           |           |          |       |               |                |              |              |           |           |           |           |
| H - Hex Pit Excavation Including Vapor Controls                             | LS        | 3                                                                    | --       | 100.07    | /BCY      | 3,300    | BCY   | 1,000         | 1,000          | 1,000        | Productivity | 377,000   | 377,000   |           | 342,000   |
| H - Transportation of Contaminated Soil to On-Post Incineration Facility    | LS        | 3                                                                    | --       | 1.07      | /BCY-MILE | 3,300    | BCY   | 1,000         | 0.500          | 1,300        | Productivity | 3,000     | 3,000     |           | 2,000     |
| H - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3                                                                    | --       | 1.55      | /BCY      | 3,300    | BCY   | 1,000         | 1,000          | 1,000        | Productivity | 6,000     | 6,000     |           | 5,000     |
| H - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill | LS        | 3                                                                    | --       | 1.07      | /BCY-MILE | 3,300    | BCY   | 1,000         | 1,000          | 1,300        | Productivity | 5,000     | 5,000     |           | 5,000     |
| H - On-Post Hazardous Waste Landfill                                        | LS        | 3                                                                    | --       | 4.07      | /BCY      | 3,300    | BCY   | 1,000         | 1,000          | 1,000        |              | 15,000    | 15,000    |           | 14,000    |
| H - Excavation of Borrow Material                                           | LS        | 3                                                                    | --       | 1.89      | /BCY      | 3,300    | BCY   | 1,000         | 1,000          | 1,000        |              | 7,000     | 7,000     |           | 6,000     |
| H - Transportation of Borrow Material to Backfill Area                      | LS        | 3                                                                    | --       | 0.86      | /BCY-MILE | 3,300    | BCY   | 1,000         | 1.500          | 1,000        |              | 5,000     | 5,000     |           | 4,000     |
| H - Backfill with Borrow Material                                           | LS        | 3                                                                    | --       | 1.72      | /BCY      | 3,300    | BCY   | 1,000         | 1,000          | 1,000        |              | 6,000     | 6,000     |           | 6,000     |
| H - Installation of 6 Inches of Topsoil                                     | LS        | 3                                                                    | --       | 3.24      | /SY       | 1,000    | SY    | 1,000         | 1,000          | 1,000        |              | 4,000     | 4,000     |           | 3,000     |
| H - Revegetation of Disturbed Areas                                         | LS        | 3                                                                    | --       | 0.18      | /SY       | 1,000    | SY    | 1,000         | 1,000          | 1,100        | Disturbance  | 200       | 200       |           | 200       |
| <b>Subtotal (f)</b>                                                         |           |                                                                      |          |           |           |          |       |               |                |              |              |           | 428,000   |           | 388,000   |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |                                                                      |          |           |           |          |       |               |                |              |              |           |           |           |           |
| Mod/Demob                                                                   | 5.1%      | COST CODE: HNSS                                                      |          |           |           |          |       |               |                |              |              |           |           |           |           |
| Indirects, Overhead & Profit                                                | 41.5%     | $J = 0.081 \cdot (f)$                                                |          |           |           |          |       |               |                |              |              |           |           |           |           |
| Engineering Design                                                          | 1.5%      | $K = 0.415 \cdot (f+J)$                                              |          |           |           |          |       |               |                |              |              |           |           |           |           |
| Resident Engineering                                                        | 2.0%      | $L = 0.015 \cdot (f+J+K)$                                            |          |           |           |          |       |               |                |              |              |           |           |           |           |
| Contingency                                                                 | 31.5%     | $M = 0.020 \cdot (f+J+K)$<br>$N = 0.313 \cdot (f+J+K+L+M)$           |          |           |           |          |       |               |                |              |              |           |           |           |           |
| <b>Subtotal (f)</b>                                                         |           |                                                                      |          |           |           |          |       |               |                |              |              |           | 22,000    |           | 20,000    |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                        |           |                                                                      |          |           |           |          |       |               |                |              |              |           |           |           |           |
| H - Incineration                                                            | LS        | 3                                                                    | --       | 96.24     | /BCY      | 3,300    | BCY   | 1,000         | 1,000          | 1,000        |              | 382,000   | 382,000   |           | 328,000   |
| <b>Subtotal (f)</b>                                                         |           |                                                                      |          |           |           |          |       |               |                |              |              |           | 382,000   |           | 328,000   |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |                                                                      |          |           |           |          |       |               |                |              |              |           |           |           |           |
| Mod/Demob                                                                   | 0.0%      | COST CODE: D                                                         |          |           |           |          |       |               |                |              |              |           |           |           |           |
| Contractor Markup                                                           | 10.0%     | $J1 = 0.000 \cdot (f1)$                                              |          |           |           |          |       |               |                |              |              |           |           |           |           |
| Engineering Design                                                          | 0.0%      | $K1 = 0.100 \cdot (f1+J1)$                                           |          |           |           |          |       |               |                |              |              |           |           |           |           |
| Resident Engineering                                                        | 2.0%      | $L1 = 0.000 \cdot (f1+J1+K1)$                                        |          |           |           |          |       |               |                |              |              |           |           |           |           |
| Contingency                                                                 | 40.0%     | $M1 = 0.020 \cdot (f1+J1+K1)$<br>$N1 = 0.400 \cdot (f1+J1+K1+L1+M1)$ |          |           |           |          |       |               |                |              |              |           |           |           |           |
| <b>Subtotal (D)</b>                                                         |           |                                                                      |          |           |           |          |       |               |                |              |              |           | 0         |           | 0         |
|                                                                             |           |                                                                      |          |           |           |          |       |               |                |              |              |           | 36,000    |           | 33,000    |
|                                                                             |           |                                                                      |          |           |           |          |       |               |                |              |              |           | 0         |           | 0         |
|                                                                             |           |                                                                      |          |           |           |          |       |               |                |              |              |           | 8,000     |           | 7,000     |
|                                                                             |           |                                                                      |          |           |           |          |       |               |                |              |              |           | 163,000   |           | 146,000   |
| <b>Subtotal (D)</b>                                                         |           |                                                                      |          |           |           |          |       |               |                |              |              |           | 207,000   |           | 189,000   |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (COO = f+f1+D)</b>                      |           |                                                                      |          |           |           |          |       |               |                |              |              |           | 1,435,000 |           | 1,301,000 |

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Table B4.10-14 Cost Estimate - Disposal Trenches Medium Group - Hex Pit Subgroup  
Alternative 14: Incineration/Pyrolysis (Rotary Kin), Landfill (On-Post Landfill)

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill Closure                                                           | A         | 3          | 30       | 0.13                   | 3,300    | BCY   | 1.000         | 1.000          | 1.000        |             | 500                      | 14,000                  | 7,000                |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: ULSL                                                                                        |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit 30.0% Q = 0.380 * (P)                                                     |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Contingency 30.0% R = 0.300 * (P+Q)                                                                    |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (S = Q+R)</b>                                                                              |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |          |       |               |                |              |             |                          | 2,870,000               | 2,660,000            |

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Table B4.11-1 Cost Estimate - Sanitary Landfills Medium Group  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                            | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| IF - No Action                       | LS        | 1          | --       | 0.00                   | /SY   | 150,000  | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| B - No Action                        | LS        | 1          | --       | 0.00                   | /SY   | 3,200    | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects Overhead & Profit          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>SUBTOTAL (A)</b>                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 3.3%                                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 38.0%                                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 3.0%                                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 1.3%                                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 28.3%                                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>SUBTOTAL (B) = B+C+D+E+F</b>      |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS (H) = A+G</b> |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

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| Cost Item                                                    | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                     |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                                                | LS        | 1          | --       | 0.00                   | /SY    | 150,000  | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| B - No Action                                                | LS        | 1          | --       | 0.00                   | /SY    | 3,200    | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                    |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Indirects, Overhead & Profit                                 |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Engineering Design                                           |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Resident Engineering                                         |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Contingency                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>           |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| HB - Long Term Soil Monitoring, Sanitary Landfills           | A         | 1          | 30       | 35,000.00              | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 40,000                   | 1,188,000               | 836,000              |
| HB - Site Reviews                                            | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 165,000                 | 98,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>         |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                 |           |            |          |                        |        |          |       |               |                |              |             |                          | 16,000                  | 538,000              |
| Contingency                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 19,000                  | 577,000              |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S)</b>                     |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                              |           |            |          |                        |        |          |       |               |                |              |             | 46,000                   | 1,383,000               | 733,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b> |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                              |           |            |          |                        |        |          |       |               |                |              |             | 83,000                   | 2,469,000               | 1,324,000            |
|                                                              |           |            |          |                        |        |          |       |               |                |              |             | 2,500,000                | 1,320,000               |                      |

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Table B4.11-2 Cost Estimate - Sanitary Landfills Medium Group  
Alternative 2: Access Restrictions (Modifications to FFA)

| Cost Item                            | Cost Type | Start Year              | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------|-----------|-------------------------|----------|------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>          |           |                         |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| 11 - Public Education                | LS        | 1                       | --       | 1,500.00               | /EA   | 1        | EA    | 1.000            | 1.000             | 1.000           |             |                          | 2,000                   | 2,000                |
| 11B - Fences                         | LS        | 1                       | --       | 15.00                  | /LF   | 23,000   | LF    | 1.000            | 1.000             | 1.000           |             |                          | 384,000                 | 384,000              |
|                                      |           |                         |          |                        |       |          |       |                  |                   |                 |             |                          | 386,000                 | 386,000              |
| <b>INDIRECT CAPITAL COSTS</b>        |           |                         |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (A)                         |           |                         |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>INDIRECT CAPITAL COSTS</b>        |           |                         |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| 12 - Mobilization                    | COST CODE |                         |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| 12A - Indirects                      | 3.3%      | B = 0.033 * (A)         |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| 12B - Overhead & Profit              | 36.0%     | C = 0.360 * (A+B)       |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| 12C - Engineering Design             | 3.0%      | D = 0.030 * (A+B+C)     |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| 12D - Resident Engineering           | 1.5%      | E = 0.015 * (A+B+C)     |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| 12E - Contingency                    | 26.3%     | F = 0.263 * (A+B+C+D+E) |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                      |           |                         |          |                        |       |          |       |                  |                   |                 |             |                          | 13,000                  | 13,000               |
|                                      |           |                         |          |                        |       |          |       |                  |                   |                 |             |                          | 159,000                 | 159,000              |
|                                      |           |                         |          |                        |       |          |       |                  |                   |                 |             |                          | 17,000                  | 17,000               |
|                                      |           |                         |          |                        |       |          |       |                  |                   |                 |             |                          | 7,000                   | 7,000                |
|                                      |           |                         |          |                        |       |          |       |                  |                   |                 |             |                          | 155,000                 | 155,000              |
|                                      |           |                         |          |                        |       |          |       |                  |                   |                 |             |                          | 351,000                 | 351,000              |
|                                      |           |                         |          |                        |       |          |       |                  |                   |                 |             |                          | 747,000                 | 747,000              |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b> |           |                         |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |

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Table B4.11-2 Cost Estimate - Sanitary Landfills Medium Group  
Alternative 2: Access Restrictions (Modifications to FFA)

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$) | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|--------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| HB - Habitat Modification                                                                      | A         | 1          | 3        | 0.17      | /SY    | 150,000  | SY    | 1.000         | 1.000          | 1.000        |             |           | 29,000    | 28,000    |
| II - Public Education                                                                          | A         | 1          | 30       | 500.00    | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             |           | 17,000    | 9,000     |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| Mod/Demob                                                                                      |           |            |          |           |        |          |       |               |                |              |             |           | 46,000    | 37,000    |
| Indirects, Overhead & Profit                                                                   |           |            |          |           |        |          |       |               |                |              |             |           | 1,000     | 1,000     |
| Engineering Design                                                                             |           |            |          |           |        |          |       |               |                |              |             |           | 19,000    | 15,000    |
| Resident Engineering                                                                           |           |            |          |           |        |          |       |               |                |              |             |           | 300       | 300       |
| Contingency                                                                                    |           |            |          |           |        |          |       |               |                |              |             |           | 1,000     | 1,000     |
|                                                                                                |           |            |          |           |        |          |       |               |                |              |             |           | 18,000    | 14,000    |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| HB - Fences                                                                                    | A         | 2          | 30       | 0.75      | /LF-YR | 23,000   | LF    | 1.000         | 1.000          | 1.000        |             | 20,000    | 571,000   | 288,000   |
| HB - Habitat Modification                                                                      | A         | 3          | 30       | 0.01      | /SY-YR | 150,000  | SY    | 1.000         | 1.000          | 1.000        |             | 1,000     | 27,000    | 14,000    |
| HB - Long Term Soil Monitoring, Sanitary Landfills                                             | A         | 3          | 30       | 35,000.00 | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 40,000    | 1,118,000 | 567,000   |
| HB - Site Reviews                                                                              | A         | 3          | 30       | 5,000.00  | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000     | 173,000   | 87,000    |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
| Indirects, Overhead & Profit                                                                   |           |            |          |           |        |          |       |               |                |              |             |           | 67,000    | 1,888,000 |
| Contingency                                                                                    |           |            |          |           |        |          |       |               |                |              |             |           | 28,000    | 737,000   |
|                                                                                                |           |            |          |           |        |          |       |               |                |              |             |           | 28,000    | 788,000   |
|                                                                                                |           |            |          |           |        |          |       |               |                |              |             |           | 54,000    | 1,524,000 |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
|                                                                                                |           |            |          |           |        |          |       |               |                |              |             | 121,000   | 3,498,000 | 1,813,000 |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = I+T)                                              |           |            |          |           |        |          |       |               |                |              |             |           |           |           |
|                                                                                                |           |            |          |           |        |          |       |               |                |              |             |           | 4,230,000 | 2,560,000 |

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Table B4.11-3 Cost Estimate - Sanitary Landfills Medium Group  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1993 (\$)<br>Annual Cost | 1993 (\$)<br>Total Cost | 1993 (\$)<br>PW Cost |
|-----------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                   |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill         | LS        | 1          | --       | 5.72                   | /BCY  | 430,000  | BCY   | 1.000            | 1.000             | 1.000           |             |                          | 2,807,000               | 2,807,000            |
| HB - On-Post Hazardous Waste Landfill Closure | LS        | 2          | --       | 3.80                   | /BCY  | 430,000  | BCY   | 1.000            | 1.000             | 1.000           |             |                          | 1,965,000               | 1,776,000            |
| <b>INDIRECT CAPITAL COSTS</b>                 |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mod/Demob                                     |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                  |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design                            |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering                          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                                   |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>Subtotal (A)</b>                           |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                               |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 4,671,000               | 4,583,000            |
| <b>INDIRECT CAPITAL COSTS</b>                 |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mod/Demob                                     |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                  |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design                            |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering                          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                                   |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>Subtotal (B)</b>                           |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                               |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 152,000                 | 149,000              |
|                                               |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 1,821,000               | 1,768,000            |
|                                               |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 188,000                 | 186,000              |
|                                               |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 83,000                  | 81,000               |
|                                               |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 1,818,000               | 1,794,000            |
| <b>Subtotal (G = B+C+D+E+F)</b>               |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                               |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 4,073,000               | 3,998,000            |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b>          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                               |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 8,745,000               | 8,578,000            |

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Table B4.11-3 Cost Estimate - Sanitary Landfills Medium Group  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                                                      | Cost Type      | Start Year              | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$)  | 1995 (\$) | 1995 (\$) | PW Cost    |
|------------------------------------------------------------------------------------------------|----------------|-------------------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|--------------|------------|-----------|-----------|------------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |                |                         |          |           |           |          |       |               |                |              |              |            |           |           |            |
| HB - Landfill Excavation                                                                       | LS             | 2                       | --       | 3.91      | /BCY      | 430,000  | BCY   | 1.000         | 1.000          | 1.300        | Productivity | 2,464,000  |           |           | 2,375,000  |
| HB - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill                   | LS             | 2                       | --       | 1.07      | /BCY-MILE | 430,000  | BCY   | 1.000         | 3.000          | 1.300        | Productivity | 2,048,000  |           |           | 1,850,000  |
| HB - On-Post Hazardous Waste Landfill                                                          | LS             | 2                       | --       | 4.07      | /BCY      | 430,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 1,987,000  |           |           | 1,902,000  |
| HB - Excavation of Borrow Material                                                             | LS             | 2                       | --       | 1.89      | /BCY      | 430,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 883,000    |           |           | 803,000    |
| HB - Transportation of Borrow Material to Backfill Area                                        | LS             | 2                       | --       | 0.86      | /BCY-MILE | 430,000  | BCY   | 1.000         | 1.500          | 1.000        |              | 833,000    |           |           | 803,000    |
| HB - Backfill with Borrow Material                                                             | LS             | 2                       | --       | 1.72      | /BCY      | 430,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 844,000    |           |           | 804,000    |
| HB - Installation of 6 Inches of Topsoil                                                       | LS             | 2                       | --       | 3.24      | /SY       | 130,000  | SY    | 1.000         | 1.000          | 1.000        |              | 555,000    |           |           | 528,000    |
| HB - Revegetation of Disturbed Areas                                                           | LS             | 2                       | --       | 0.18      | /SY       | 130,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance  | 34,000     |           |           | 32,000     |
|                                                                                                |                |                         |          |           |           |          |       |               |                |              |              | 9,532,000  |           |           | 9,078,000  |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |                |                         |          |           |           |          |       |               |                |              |              |            |           |           |            |
| MOB/DEMOL                                                                                      | COST CODE MLMS |                         |          |           |           |          |       |               |                |              |              |            |           |           |            |
| Indirects, Overhead & Profit                                                                   | 3.8%           | J = 0.038 * (I)         |          |           |           |          |       |               |                |              |              |            |           |           |            |
| Engineering Design                                                                             | 36.0%          | K = 0.360 * (I+J)       |          |           |           |          |       |               |                |              |              |            |           |           |            |
| Resident Engineering                                                                           | 0.5%           | L = 0.005 * (I+J+K)     |          |           |           |          |       |               |                |              |              |            |           |           |            |
| Contingency                                                                                    | 1.5%           | M = 0.015 * (I+J+K)     |          |           |           |          |       |               |                |              |              |            |           |           |            |
|                                                                                                | 27.5%          | N = 0.275 * (I+J+K+L+M) |          |           |           |          |       |               |                |              |              |            |           |           |            |
| Subtotal (I) = J+K+L+M+N                                                                       |                |                         |          |           |           |          |       |               |                |              |              | 8,367,000  |           |           | 7,888,000  |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |                |                         |          |           |           |          |       |               |                |              |              |            |           |           |            |
| HB - On-Post Hazardous Waste Landfill Closure                                                  | A              | 2                       | 30       | 0.13      | /BCY-YR   | 430,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 64,000     |           |           | 888,000    |
| Subtotal (P) = Q+R+S+T                                                                         |                |                         |          |           |           |          |       |               |                |              |              | 64,000     |           |           | 888,000    |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |                |                         |          |           |           |          |       |               |                |              |              |            |           |           |            |
| Indirects, Overhead & Profit                                                                   | 36.0%          | Q = 0.360 * (P)         |          |           |           |          |       |               |                |              |              |            |           |           |            |
| Contingency                                                                                    | 30.0%          | R = 0.300 * (P+Q)       |          |           |           |          |       |               |                |              |              |            |           |           |            |
| Subtotal (S)                                                                                   |                |                         |          |           |           |          |       |               |                |              |              | 25,000     |           |           | 377,000    |
|                                                                                                |                |                         |          |           |           |          |       |               |                |              |              | 27,000     |           |           | 403,000    |
|                                                                                                |                |                         |          |           |           |          |       |               |                |              |              | 51,000     |           |           | 779,000    |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |                |                         |          |           |           |          |       |               |                |              |              | 115,000    |           |           | 18,782,000 |
|                                                                                                |                |                         |          |           |           |          |       |               |                |              |              | 21,242,000 |           |           | 27,400,000 |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |                |                         |          |           |           |          |       |               |                |              |              | 30,000,000 |           |           | 27,400,000 |

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| Cost Item                                                 | Cost Type | Start Year | End Year | 1992 (\$)    | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)  | 1995 (\$) | 1995 (\$) |
|-----------------------------------------------------------|-----------|------------|----------|--------------|-------|----------|-------|---------------|----------------|--------------|-------------|------------|-----------|-----------|
|                                                           |           |            |          | Unit Cost    |       |          |       |               |                |              |             | Total Cost |           | PW Cost   |
| DIRECT CAPITAL COSTS                                      |           |            |          |              |       |          |       |               |                |              |             |            |           |           |
| H. Installation of Hydraulic Controls, Sanitary Landfills | LS        | 1          | --       | 1,043,762.00 | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 1,191,000  |           | 1,191,000 |
|                                                           |           |            |          |              |       |          |       |               |                |              |             | 1,191,000  | 1,191,000 |           |
| INDIRECT CAPITAL COSTS                                    |           |            |          |              |       |          |       |               |                |              |             |            |           |           |
| Mob/Demob                                                 |           |            |          |              |       |          |       |               |                |              |             | 54,000     |           | 54,000    |
| Indirects, Overhead & Profit                              |           |            |          |              |       |          |       |               |                |              |             | 501,000    |           | 501,000   |
| Engineering Design                                        |           |            |          |              |       |          |       |               |                |              |             | 79,000     |           | 79,000    |
| Resident Engineering                                      |           |            |          |              |       |          |       |               |                |              |             | 31,000     |           | 31,000    |
| Contingency                                               |           |            |          |              |       |          |       |               |                |              |             | 533,000    |           | 533,000   |
|                                                           |           |            |          |              |       |          |       |               |                |              |             | 1,197,000  | 1,197,000 |           |
|                                                           |           |            |          |              |       |          |       |               |                |              |             | 2,388,000  | 2,388,000 |           |

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Table B4.11-5 Cost Estimate - Sanitary Landfills Medium Group  
Alternative 5: Caps/Covers (Clay/Soil Cap); Vertical Barriers (Slurry Walls)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$)  |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|------------|
|                                                                                                               |           |            |          | Unit Cost |           |          |       |               |                |              |             | Annual Cost | Total Cost | PW Cost    |
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| H - Slurry Wall (0 - 20 ft Deep)                                                                              | A         | 1          | 2        | 33.41     | /SY       | 6,200    |       | 1.000         | 1.000          | 1.000        |             | 238,000     | 238,000    | 231,000    |
| H - Slurry Wall (20 - 65 ft Deep)                                                                             | A         | 1          | 2        | 47.22     | /SY       | 77,200   |       | 1.000         | 1.000          | 1.000        |             | 4,160,000   | 4,160,000  | 4,081,000  |
| H - Slurry Wall (> 65 ft Deep)                                                                                | A         | 1          | 2        | 99.56     | /SY       | 18,400   |       | 1.000         | 1.000          | 1.000        |             | 2,091,000   | 2,091,000  | 2,041,000  |
| B - Soil Excavation                                                                                           | A         | 1          | 2        | 3.91      | /RCY      | 3,200    |       | 1.000         | 1.000          | 1.000        |             | 14,000      | 14,000     | 14,000     |
| B - Grade Filling w/Consolidated Soil Prior to Capping                                                        | A         | 1          | 2        | 3.63      | /RCY      | 3,200    |       | 1.000         | 1.000          | 1.000        |             | 13,000      | 13,000     | 13,000     |
| B - Excavation of Borrow Material                                                                             | A         | 1          | 2        | 1.89      | /RCY      | 3,200    |       | 1.000         | 1.000          | 1.000        |             | 7,000       | 7,000      | 7,000      |
| B - Backfill with Borrow Material                                                                             | A         | 1          | 2        | 0.86      | /RCY-MILE | 3,200    |       | 1.000         | 1.500          | 1.000        |             | 5,000       | 5,000      | 5,000      |
| B - Backfill with Borrow Material                                                                             | A         | 1          | 2        | 1.72      | /RCY      | 3,200    |       | 1.000         | 1.000          | 1.000        |             | 6,000       | 6,000      | 6,000      |
| H - Grade Filling w/Excav Soil from Slurry Trench Prior to Capping                                            | A         | 1          | 2        | 3.63      | /RCY      | 102,000  |       | 1.000         | 1.000          | 1.000        |             | 423,000     | 423,000    | 412,000    |
| HR - Subgrade Preparation Prior to Installing Cap/Cover                                                       | LS        | 1          | --       | 0.06      | /SY       | 150,000  |       | 1.000         | 1.000          | 1.000        |             | 10,000      | 10,000     | 10,000     |
| HR - Installation of Clay/Soil Cap                                                                            | A         | 1          | 2        | 23.30     | /SY       | 150,000  |       | 1.000         | 1.000          | 1.000        |             | 3,898,000   | 3,898,000  | 3,883,000  |
| HR - Installation of 6 inches of Topsoil                                                                      | A         | 1          | 2        | 3.24      | /SY       | 3,200    |       | 1.000         | 1.000          | 1.000        |             | 12,000      | 12,000     | 12,000     |
| HR - Revegetation of Disturbed Areas                                                                          | A         | 1          | 2        | 0.18      | /SY       | 150,000  |       | 1.000         | 1.000          | 1.100        | Disturbance | 34,000      | 34,000     | 33,000     |
|                                                                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 10,999,000 | 10,738,000 |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| Mod/Demob                                                                                                     |           |            |          |           |           |          |       |               |                |              |             |             | 428,000    | 416,000    |
| Indirects, Overhead & Profit                                                                                  |           |            |          |           |           |          |       |               |                |              |             |             | 4,458,000  | 4,350,000  |
| Engineering Design                                                                                            |           |            |          |           |           |          |       |               |                |              |             |             | 78,000     | 78,000     |
| President Engineering                                                                                         |           |            |          |           |           |          |       |               |                |              |             |             | 238,000    | 233,000    |
| Contingency                                                                                                   |           |            |          |           |           |          |       |               |                |              |             |             | 4,455,000  | 4,349,000  |
|                                                                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 9,654,000  | 9,425,000  |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| HR - Installation of Clay/Soil Cap                                                                            | A         | 3          | 30       | 0.80      | /SY-YR    | 150,000  |       | 1.000         | 1.000          | 1.000        |             | 137,000     | 3,834,000  | 1,943,000  |
| HR - Site Reviews                                                                                             | A         | 3          | 30       | 5,400.00  | /EA-YR    | 1        |       | 1.000         | 1.000          | 1.000        |             | 6,000       | 173,000    | 87,000     |
|                                                                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 143,000    | 4,007,000  |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
| Indirects, Overhead & Profit                                                                                  |           |            |          |           |           |          |       |               |                |              |             |             | 56,000     | 1,563,000  |
| Contingency                                                                                                   |           |            |          |           |           |          |       |               |                |              |             |             | 60,000     | 1,671,000  |
|                                                                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 115,000    | 3,234,000  |
|                                                                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 259,000    | 27,894,000 |
|                                                                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 30,300,000 | 26,300,000 |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
|                                                                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 27,894,000 | 23,631,000 |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = I+T)</b>                                                  |           |            |          |           |           |          |       |               |                |              |             |             |            |            |
|                                                                                                               |           |            |          |           |           |          |       |               |                |              |             |             | 30,300,000 | 26,300,000 |

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Table B4.11-13b Cost Estimate - Sanitary Landfill Medium Group  
Alternative 13b: Direct Thermal Desorption (Direct Heating): Landfill (On-Post Landfill)

| Cost Item                                                   | Cost Type | Start Year | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)  | 1993 (\$)  | 1993 (\$)  | PW Cost    |           |           |           |
|-------------------------------------------------------------|-----------|------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|------------|------------|------------|------------|-----------|-----------|-----------|
| DIRECT CAPITAL COSTS                                        |           |            |          |           |       |          |       |               |                |              |             |            |            |            |            |           |           |           |
| H - On-Post Hazardous Waste Landfill                        | LS        | 2          | --       | 5.72      | /RCY  | 430,000  | RCY   | 1.000         | 1.000          | 1.000        |             | 2,807,000  | 2,807,000  | 2,807,000  | 2,807,000  |           |           |           |
| H - On-Post Hazardous Waste Landfill Closure                | LS        | 4          | --       | 3.80      | /RCY  | 430,000  | RCY   | 1.000         | 1.000          | 1.000        |             | 1,666,000  | 1,666,000  | 1,666,000  | 1,666,000  |           |           |           |
| B - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2          | --       | 5.72      | /RCY  | 32       | RCY   | 1.000         | 1.000          | 1.000        |             | 200        | 200        | 200        | 200        |           |           |           |
| B - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3          | --       | 3.80      | /RCY  | 32       | RCY   | 1.000         | 1.000          | 1.000        |             | 100        | 100        | 100        | 100        |           |           |           |
| Subtotal (A)                                                |           |            |          |           |       |          |       |               |                |              |             | 4,672,000  | 4,672,000  | 4,672,000  |            |           |           |           |
| INDIRECT CAPITAL COSTS                                      |           |            |          |           |       |          |       |               |                |              |             |            |            |            |            |           |           |           |
| COST CODE: LUMS                                             |           |            |          |           |       |          |       |               |                |              |             |            |            |            |            |           |           |           |
| Mod/Demob                                                   | 3.3%      |            |          |           |       |          |       |               |                |              |             |            |            |            | 152,000    | 152,000   | 152,000   | 152,000   |
| Indirects, Overhead & Profit                                | 37.6%     |            |          |           |       |          |       |               |                |              |             |            |            |            | 1,821,000  | 1,821,000 | 1,821,000 | 1,821,000 |
| Engineering Design                                          | 3.0%      |            |          |           |       |          |       |               |                |              |             |            |            |            | 198,000    | 198,000   | 198,000   | 198,000   |
| Resident Engineering                                        | 1.3%      |            |          |           |       |          |       |               |                |              |             |            |            |            | 83,000     | 83,000    | 83,000    | 83,000    |
| Contingency                                                 | 28.3%     |            |          |           |       |          |       |               |                |              |             |            |            |            | 1,618,000  | 1,618,000 | 1,618,000 | 1,618,000 |
| Subtotal (G = B+C+D+E+F)                                    |           |            |          |           |       |          |       |               |                |              |             | 4,073,000  | 4,073,000  | 4,073,000  | 3,739,000  |           |           |           |
| DIRECT SUBCONTRACT CAPITAL COSTS                            |           |            |          |           |       |          |       |               |                |              |             |            |            |            |            |           |           |           |
| HB - Thermal Desorption (Dry Soil)                          | A         | 1          | 2        | 14.17     | /RCY  | 330,000  | RCY   | 1.000         | 1.000          | 1.000        |             | 5,306,000  | 5,306,000  | 5,306,000  | 5,306,000  |           |           |           |
| B - Thermal Desorption (Dry Soil)                           | A         | 1          | 2        | 14.17     | /RCY  | 430,000  | RCY   | 1.000         | 1.000          | 1.000        |             | 6,063,000  | 6,063,000  | 6,063,000  | 6,063,000  |           |           |           |
| Subtotal (A1)                                               |           |            |          |           |       |          |       |               |                |              |             | 12,288,000 | 12,288,000 | 12,288,000 | 11,887,000 |           |           |           |
| INDIRECT SUBCONTRACT CAPITAL COSTS                          |           |            |          |           |       |          |       |               |                |              |             |            |            |            |            |           |           |           |
| COST CODE: C                                                |           |            |          |           |       |          |       |               |                |              |             |            |            |            |            |           |           |           |
| Mod/Demob                                                   | 2.0%      |            |          |           |       |          |       |               |                |              |             |            |            |            | 246,000    | 246,000   | 246,000   | 246,000   |
| Contractor Markup                                           | 10.0%     |            |          |           |       |          |       |               |                |              |             |            |            |            | 1,254,000  | 1,254,000 | 1,254,000 | 1,254,000 |
| Engineering Design                                          | 9.0%      |            |          |           |       |          |       |               |                |              |             |            |            |            | 1,241,000  | 1,241,000 | 1,241,000 | 1,241,000 |
| Resident Engineering                                        | 3.0%      |            |          |           |       |          |       |               |                |              |             |            |            |            | 414,000    | 414,000   | 414,000   | 414,000   |
| Contingency                                                 | 30.0%     |            |          |           |       |          |       |               |                |              |             |            |            |            | 4,633,000  | 4,633,000 | 4,633,000 | 4,523,000 |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |            |          |           |       |          |       |               |                |              |             | 7,787,000  | 7,787,000  | 7,787,000  | 7,602,000  |           |           |           |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                         |           |            |          |           |       |          |       |               |                |              |             | 28,622,000 | 28,622,000 | 28,622,000 | 27,619,000 |           |           |           |
| HSL-13R-W01<br>SOILS DATA<br>16-Jul-93                      |           |            |          |           |       |          |       |               |                |              |             |            |            |            |            |           |           |           |



Table B4.11-13b Cost Estimate - Sanitary Landfills Medium Group  
Alternative 13b: Direct Thermal Desorption (Direct Heating): Landfill (On-Post Landfill)

| Cost Item                                                                   | Cost Type | Start Year | End Year | 1992 (\$) | Units                        | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$)  | 1995 (\$)  | 1995 (\$)  |
|-----------------------------------------------------------------------------|-----------|------------|----------|-----------|------------------------------|----------|-------|---------------|----------------|--------------|--------------|------------|------------|------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                    |           |            |          |           |                              |          |       |               |                |              |              |            |            |            |
| H - Landfill Excavation                                                     | LS        | 3          | --       | 3.91      | /BCY                         | 430,000  | BCY   | 1.000         | 1.000          | 1.300        | Productivity | 2,494,000  | 2,494,000  | 2,262,000  |
| H - Transportation of Contaminated Soil to Thermal Desorption Facility      | LS        | 3          | --       | 1.07      | /BCY-MILE                    | 430,000  | BCY   | 1.000         | 3.000          | 1.300        | Productivity | 2,048,000  | 2,048,000  | 1,857,000  |
| H - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3          | --       | 1.55      | /BCY                         | 430,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 781,000    | 781,000    | 680,000    |
| H - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill | LS        | 3          | --       | 1.07      | /BCY-MILE                    | 430,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 525,000    | 525,000    | 476,000    |
| H - On-Post Hazardous Waste Landfill                                        | LS        | 3          | --       | 4.07      | /BCY                         | 430,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 1,897,000  | 1,897,000  | 1,811,000  |
| H - Excavation of Borrow Material                                           | LS        | 3          | --       | 1.89      | /BCY                         | 430,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 827,000    | 827,000    | 841,000    |
| H - Transportation of Borrow Material to Backfill Area                      | LS        | 3          | --       | 0.86      | /BCY-MILE                    | 430,000  | BCY   | 1.000         | 1.500          | 1.000        |              | 633,000    | 633,000    | 574,000    |
| H - Backfill with Borrow Material                                           | LS        | 3          | --       | 1.72      | /BCY                         | 430,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 844,000    | 844,000    | 768,000    |
| B - Soil Excavation                                                         | LS        | 3          | --       | 3.91      | /BCY                         | 3,200    | BCY   | 1.000         | 1.000          | 1.000        |              | 14,000     | 14,000     | 13,000     |
| B - Transportation of Contaminated Soil to Thermal Desorption Facility      | LS        | 3          | --       | 1.07      | /BCY-MILE                    | 3,200    | BCY   | 1.000         | 3.000          | 1.000        |              | 12,000     | 12,000     | 11,000     |
| B - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3          | --       | 1.55      | /BCY                         | 32       | BCY   | 1.000         | 1.000          | 1.000        |              | 100        | 100        | 40         |
| B - On-Post Hazardous Waste Landfill (Particulates)                         | LS        | 3          | --       | 4.07      | /BCY                         | 32       | BCY   | 1.000         | 1.000          | 1.000        |              | 100        | 100        | 100        |
| B - Load Nonhazardous Treated Soil from Stockpile for Backfill              | LS        | 3          | --       | 1.28      | /BCY                         | 3,200    | BCY   | 1.000         | 1.000          | 1.000        |              | 5,000      | 5,000      | 4,000      |
| B - Transportation of Treated Soil to Backfill Excavation                   | LS        | 3          | --       | 0.86      | /BCY-MILE                    | 3,200    | BCY   | 1.000         | 3.000          | 1.000        |              | 9,000      | 9,000      | 8,000      |
| B - Backfill with Treated Soil                                              | LS        | 3          | --       | 1.72      | /BCY                         | 3,200    | BCY   | 1.000         | 1.000          | 1.000        |              | 6,000      | 6,000      | 6,000      |
| HB - Installation of 6 Inches of Topsoil                                    | LS        | 3          | --       | 3.24      | /SV                          | 150,000  | SV    | 1.000         | 1.000          | 1.000        |              | 555,000    | 555,000    | 500,000    |
| HB - Revegetation of Disturbed Areas                                        | LS        | 3          | --       | 0.18      | /SV                          | 150,000  | SV    | 1.000         | 1.000          | 1.100        | Disturbance  | 34,000     | 34,000     | 31,000     |
| <b>Subtotal (I)</b>                                                         |           |            |          |           |                              |          |       |               |                |              |              | 10,894,000 | 10,894,000 | 9,854,000  |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |            |          |           |                              |          |       |               |                |              |              |            |            |            |
| Mo/Demob                                                                    |           |            |          | 4.5%      | J = 0.045 * (I)              |          |       |               |                |              |              | 489,000    | 489,000    | 443,000    |
| Indirects, Overhead & Profit                                                |           |            |          | 38.0%     | K = 0.380 * (I+J)            |          |       |               |                |              |              | 4,018,000  | 4,018,000  | 3,614,000  |
| Engineering Design                                                          |           |            |          | 1.5%      | L = 0.015 * (I+J+K)          |          |       |               |                |              |              | 237,000    | 237,000    | 215,000    |
| Resident Engineering                                                        |           |            |          | 1.8%      | M = 0.018 * (I+J+K)          |          |       |               |                |              |              | 278,000    | 278,000    | 250,000    |
| Contingency                                                                 |           |            |          | 28.8%     | N = 0.288 * (I+J+K+L+M)      |          |       |               |                |              |              | 4,684,000  | 4,684,000  | 4,249,000  |
| <b>Subtotal (D) = J+K+L+M+N</b>                                             |           |            |          |           |                              |          |       |               |                |              |              | 10,114,000 | 10,114,000 | 9,174,000  |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                        |           |            |          |           |                              |          |       |               |                |              |              |            |            |            |
| H - Thermal Desorption (Dry Soil)                                           | LS        | 3          | --       | 49.13     | /BCY                         | 430,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 24,108,000 | 24,108,000 | 21,867,000 |
| B - Thermal Desorption (Dry Soil)                                           | LS        | 3          | --       | 49.13     | /BCY                         | 3,200    | BCY   | 1.000         | 1.000          | 1.000        |              | 179,000    | 179,000    | 163,000    |
| <b>Subtotal (H)</b>                                                         |           |            |          |           |                              |          |       |               |                |              |              | 24,288,000 | 24,288,000 | 22,030,000 |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |            |          |           |                              |          |       |               |                |              |              |            |            |            |
| Mo/Demob                                                                    |           |            |          | 0.0%      | J1 = 0.000 * (H)             |          |       |               |                |              |              | 0          | 0          | 0          |
| Contractor Markup                                                           |           |            |          | 10.0%     | K1 = 0.100 * (H+J1)          |          |       |               |                |              |              | 2,429,000  | 2,429,000  | 2,203,000  |
| Engineering Design                                                          |           |            |          | 0.0%      | L1 = 0.000 * (H+J1+K1)       |          |       |               |                |              |              | 0          | 0          | 0          |
| Resident Engineering                                                        |           |            |          | 2.0%      | M1 = 0.020 * (H+J1+K1)       |          |       |               |                |              |              | 534,000    | 534,000    | 485,000    |
| Contingency                                                                 |           |            |          | 40.0%     | N1 = 0.400 * (H+J1+K1+L1+M1) |          |       |               |                |              |              | 10,900,000 | 10,900,000 | 9,867,000  |
| <b>Subtotal (O1) = J1+K1+L1+M1+N1</b>                                       |           |            |          |           |                              |          |       |               |                |              |              | 13,863,000 | 13,863,000 | 12,574,000 |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (DO = I+O1+H+O1)</b>                    |           |            |          |           |                              |          |       |               |                |              |              | 59,129,000 | 59,129,000 | 53,632,000 |

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Table B4.11-13b Cost Estimate - Sanitary Landfills Medium Group  
Alternative 13b: Direct Thermal Desorption (Direct Heating); Landfill (On-Post Landfill)

| Cost Item                                                                                | Cost Type                  | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|------------------------------------------------------------------------------------------|----------------------------|------------|----------|------------------------|---------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                  |                            |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill Closure                                             | A                          | 4          | 30       | 0.13                   | /BCY-YR | 330,000  | BCY   | 1.000            | 1.000             | 1.000           |             | 49,000                   | 1,322,000               | 660,000              |
| B - On-Post Hazardous Waste Landfill Closure (Particulates)                              | A                          | 3          | 30       | 0.13                   | /BCY-YR | 32       | BCY   | 1.000            | 1.000             | 1.000           |             | 5                        | 100                     | 100                  |
| Subtotal (P)                                                                             |                            |            |          |                        |         |          |       |                  |                   |                 |             | 49,000                   | 1,322,000               | 660,000              |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                |                            |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                             | COST CODE: LLSL            |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                                                                              | Q = 0.390 * (P)<br>39.0%   |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                          | R = 0.300 * (P+Q)<br>30.0% |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (S = Q+R)                                                                       |                            |            |          |                        |         |          |       |                  |                   |                 |             | 19,000<br>20,000         | 516,000<br>551,000      | 254,000<br>271,000   |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                         |                            |            |          |                        |         |          |       |                  |                   |                 |             | 40,000                   | 1,087,000               | 525,000              |
|                                                                                          |                            |            |          |                        |         |          |       |                  |                   |                 |             | 88,000                   | 2,388,000               | 1,175,000            |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (OPERATIONS & LONG-TERM ACTIVITIES) (U = H+OO+T) |                            |            |          |                        |         |          |       |                  |                   |                 |             |                          | 90,300,000              | 82,400,000           |

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Table B4.12-1 Cost Estimate - Lime Basins Medium Group - Section 36 Lime Basins Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                            | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                        | LS        | 1          | --       | 0.00                   | /SY   | 52,000   | SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| B - No Action                        | LS        | 1          | --       | 0.00                   | /SY   | 11,000   | SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| A - No Action                        | LS        | 1          | --       | 0.00                   | /SY   | 34,000   | SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects Overhead & Profit          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>SUBTOTAL (A)</b>                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>SUBTOTAL (G = B+C+D+E+F)</b>      |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b> |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |

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Table B4.12-1

Cost Estimate - Lime Basins Medium Group - Section 36 Lime Basins Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

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| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 52,000   |       | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| B - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 11,000   |       | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| A - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 34,000   |       | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                                                                     |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Engineering Design                                                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Resident Engineering                                                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| HB - Long Term Soil Monitoring, Lime Settling Basins                                                          | A         | 1          | 30       | 24,000.00              | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 27,000                   | 822,000                 | 436,000              |
| HBA - Site Reviews                                                                                            | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 186,000                 | 98,000               |
| HB - Maintenance of Existing Soil Cover                                                                       | A         | 1          | 30       | 0.33                   | /SY-YR | 63,000   |       | 1.000         | 1.000          | 1.000        |             | 24,000                   | 712,000                 | 377,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 670,000                 | 366,000              |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          | 717,000                 | 390,000              |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             | 57,000                   | 1,718,000               | 911,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = I+T)</b>                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             | 103,000                  | 3,105,000               | 1,645,000            |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             | 3,100,000                | 1,650,000               |                      |

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Table B4.12-6d Cost Estimate - Lime Basins Medium Group - Section 36 Lime Basins Subgroup  
Alternative 6d: Caps/Covers (Clay/Soil Cap) with Modifications to Existing Systems

| Cost Item                    | Cost Type | Start Year | End Year | 1992 (\$) | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |
|------------------------------|-----------|------------|----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|-----------|---------|
| DIRECT CAPITAL COSTS         |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| INDIRECT CAPITAL COSTS       |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| Mob/Demob                    |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| Indirects, Overhead & Profit |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| Engineering Design           |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| Resident Engineering         |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| Contingency                  |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| Subtotal (A)                 |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| COST CODE                    |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| B = 0.033 * (A)              |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| C = 0.390 * (A+B)            |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| D = 0.030 * (A+B+C)          |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| E = 0.013 * (A+B+C)          |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| F = 0.263 * (A+B+C+D+E)      |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| Subtotal (G = B+C+D+E+F)     |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| TOTAL CAPITAL COSTS H = A+G  |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| H36L-06D W01                 |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |
| SOILS DAA                    |           |            |          |           |          |       |               |                |              |             |           |           |           |           |         |

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Table B4.12-6d Cost Estimate - Lime Basins Medium Group - Section 36 Lime Basins Subgroup  
Alternative 6d: Caps/Covers (Clay/Soil Cap) with Modifications to Existing Systems

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| HBA - Subgrade Preparation Prior to Installing Cap/Cover                                       | LS        | 1          | --       | 0.06                   | /SY    | 63,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 4,000                   | 4,000                |
| HBA - Modification of Existing Soil Cover                                                      | LS        | 1          | --       | 22.80                  | /SY    | 63,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 1,639,000               | 1,639,000            |
| HBA - Revegetation of Disturbed Areas                                                          | LS        | 1          | --       | 0.18                   | /SY    | 63,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance |                          | 14,000                  | 14,000               |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (T)                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| COST CODE                                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| J = 0.033 * (T)                                                                                |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| K = 0.390 * (T-J)                                                                              |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| L = 0.005 * (T-J+K)                                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| M = 0.013 * (T-J+K)                                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| N = 0.263 * (T-J+K+L+M)                                                                        |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (Q = J+K+L+M+N)                                                                       |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| HBA - Modification of Existing Soil Cover                                                      | A         | 1          | 30       | 0.80                   | /SY-YR | 63,000   | SY    | 1.000         | 1.000          | 1.000        |             | 58,000                   | 1,725,000               | 914,000              |
| HBA - Site Reviews                                                                             | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 185,000                 | 98,000               |
| Subtotal (P)                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| COST CODE                                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Q = 0.390 * (P)                                                                                |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| R = 0.300 * (P+Q)                                                                              |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Subtotal                                                                                       |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 1,658,000                                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 54,000                                                                                         |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 688,000                                                                                        |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 12,000                                                                                         |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 30,000                                                                                         |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 635,000                                                                                        |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 1,398,000                                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 58,000                                                                                         |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 6,000                                                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 1,810,000                                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 745,000                                                                                        |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 797,000                                                                                        |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 1,542,000                                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 817,000                                                                                        |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 115,000                                                                                        |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 6,508,000                                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 6,510,000                                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 4,890,000                                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| 16-Jul-93                                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |

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Table B4.12-13a Cost Estimate - Lime Basins Medium Group - Section 36 Lime Basins Subgroup  
Alternative 13a: Direct Thermal Description (Direct Heating)

| Cost Item                                                    | Cost Type                     | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------|-------------------------------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                         |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - Excavation Dewatering, Lime Basins                       | LS                            | 1          | --       | 197,977.00             | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             |                          | 228,000                 | 228,000              |
| HB - On-Post Hazardous Waste Landfill (Particulates)         | LS                            | 2          | --       | 5.72                   | /BCY  | 2,000    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 13,000                  | 12,000               |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates) | LS                            | 3          | --       | 3.80                   | /BCY  | 1        | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 4                       | 4                    |
| A - On-Post Hazardous Waste Landfill (Particulates)          | LS                            | 2          | --       | 5.72                   | /BCY  | 1        | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 10                      | 10                   |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)  | LS                            | 3          | --       | 3.80                   | /BCY  | 1        | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 4                       | 4                    |
| Subtotal (A)                                                 |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LMSS                                              |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 3.8%                                                         | B = 0.038 * (A)               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 38.0%                                                        | C = 0.380 * (A+B)             |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 4.5%                                                         | D = 0.045 * (A+B+C)           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 1.5%                                                         | E = 0.015 * (A+B+C)           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 27.5%                                                        | F = 0.275 * (A+B+C+D+E)       |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                     |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| DIRECT SUBCONTRACT CAPITAL COSTS                             |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| HB - Thermal Description (Saturated Soil)                    | A                             | 1          | 2        | 14.17                  | /BCY  | 200,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 3,234,000               | 3,157,000            |
| A - Incineration                                             | A                             | 1          | 2        | 36.37                  | /BCY  | 90       | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 4,000                   | 4,000                |
| Subtotal (A1)                                                |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: C                                                 |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 2.0%                                                         | B1 = 0.020 * (A1)             |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 10.0%                                                        | C1 = 0.100 * (A1+B1)          |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 9.0%                                                         | D1 = 0.090 * (A1+B1+C1)       |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 3.0%                                                         | E1 = 0.030 * (A1+B1+C1)       |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 30.0%                                                        | F1 = 0.300 * (A1+B1+C1+D1+E1) |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                               |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                          |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal                                                     |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 3,238,000 3,161,000                                          |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 66,000 63,000                                                |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 330,000 322,000                                              |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 327,000 319,000                                              |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 109,000 106,000                                              |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 1,221,000 1,192,000                                          |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 2,052,000 2,003,000                                          |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 5,756,000 5,629,000                                          |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 16-Jan-93                                                    |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H36L-13A, WQ1                                                |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| SOILS DAA                                                    |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

| Cost Item                                                                | Cost Type | Start Year | End Year | 1992 (\$) | Units                         | Quantity | Units | Volume | Factor | Mileage | Factor | Other | Description  | Annual Cost | 1995 (\$)  | Total Cost | 1995 (\$)  | PW Cost    |
|--------------------------------------------------------------------------|-----------|------------|----------|-----------|-------------------------------|----------|-------|--------|--------|---------|--------|-------|--------------|-------------|------------|------------|------------|------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                 |           |            |          |           |                               |          |       |        |        |         |        |       |              |             |            |            |            |            |
| HB - Excavation of Cover Overburden                                      | LS        | 3          | --       | 1.89      | /BCY                          | 42,210   | BCY   | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 |              |             | 81,000     |            | 81,000     | 63,000     |
| H - Excavation Dewatering Lime Basins                                    | A         | 1          | 3        | 52,529.00 | /EA-YR                        | 1        | EA    | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 |              |             | 180,000    |            | 180,000    | 171,000    |
| HB - Soil Excavation                                                     | LS        | 3          | --       | 3.91      | /BCY                          | 200,000  | BCY   | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 | Odor Control |             | 1,071,000  |            | 1,071,000  | 871,000    |
| HB - Transportation of Contaminated Soil to Thermal Desorption Facility  | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 200,000  | BCY   | 1,000  | 0.250  | 1,000   | 1,000  | 1,000 |              |             | 61,000     |            | 61,000     | 55,000     |
| HB - Load Treated Soil for Transport to Hazardous Waste Landfill         | LS        | 3          | --       | 1.55      | /BCY                          | 2,000    | BCY   | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 |              |             | 4,000      |            | 4,000      | 3,000      |
| HB - Transportation of Particulates to On-Post Hazardous Waste Landfill  | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 2,000    | BCY   | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 |              |             | 2,000      |            | 2,000      | 2,000      |
| HB - On-Post Hazardous Waste Landfill (Particulates)                     | LS        | 3          | --       | 4.07      | /BCY                          | 2,000    | BCY   | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 |              |             | 8,000      |            | 8,000      | 6,000      |
| HB - Load Nonhazardous Treated Soil from Stockpile for Backfill          | LS        | 3          | --       | 1.28      | /BCY                          | 200,000  | BCY   | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 |              |             | 282,000    |            | 282,000    | 265,000    |
| HB - Transportation of Treated Soil to Backfill Excavation               | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 200,000  | BCY   | 1,000  | 0.250  | 1,000   | 1,000  | 1,000 |              |             | 48,000     |            | 48,000     | 45,000     |
| HB - Backfill with Treated Soil                                          | LS        | 3          | --       | 1.72      | /BCY                          | 200,000  | BCY   | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 |              |             | 383,000    |            | 383,000    | 358,000    |
| HB - Backfill of Cover Overburden                                        | LS        | 3          | --       | 1.72      | /BCY                          | 42,210   | BCY   | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 | Disturbance  |             | 83,000     |            | 83,000     | 75,000     |
| HB - Re-vegetation of Disturbed Areas                                    | LS        | 3          | --       | 0.18      | /SY                           | 63,000   | SY    | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 |              |             | 14,000     |            | 14,000     | 13,000     |
| A - Drilling and Agent Screening Prior to Excavation                     | LS        | 2          | --       | 4.89      | /SY                           | 34,000   | SY    | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 |              |             | 180,000    |            | 180,000    | 161,000    |
| A - Excavation of Soil with Agent                                        | LS        | 3          | --       | 4.55      | /BCY                          | 90       | BCY   | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 | Odor Control |             | 1,000      |            | 1,000      | 1,000      |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 90       | BCY   | 1,000  | 0.250  | 1,000   | 1,000  | 1,000 |              |             | 30         |            | 30         | 20         |
| A - Load Treated Soil for Transport to Hazardous Waste Landfill          | LS        | 3          | --       | 1.55      | /BCY                          | 1        | BCY   | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 |              |             | 2          |            | 2          | 2          |
| A - On-Post Hazardous Waste Landfill (Particulates)                      | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 1        | BCY   | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 |              |             | 1          |            | 1          | 1          |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill           | LS        | 3          | --       | 4.07      | /BCY                          | 1        | BCY   | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 |              |             | 5          |            | 5          | 4          |
| A - Transportation of Treated Soil to Backfill Excavation                | LS        | 3          | --       | 1.28      | /BCY                          | 90       | BCY   | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 |              |             | 100        |            | 100        | 100        |
| A - Backfill with Treated Soil                                           | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 90       | BCY   | 1,000  | 0.250  | 1,000   | 1,000  | 1,000 |              |             | 20         |            | 20         | 20         |
| Subtotal (I)                                                             |           |            |          | 1.72      | /BCY                          | 90       | BCY   | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 |              |             | 200        |            | 200        | 200        |
| Subtotal (I)                                                             |           |            |          |           |                               |          |       |        |        |         |        |       |              |             |            | 2,440,000  |            | 2,230,000  |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                               |           |            |          |           |                               |          |       |        |        |         |        |       |              |             |            |            |            |            |
| Mobile/Demob                                                             |           |            |          | 5.1%      | J = 0.051 * (I)               |          |       |        |        |         |        |       |              |             |            | 125,000    |            | 114,000    |
| Indirects, Overhead & Profit                                             |           |            |          | 40.3%     | K = 0.403 * (I+J)             |          |       |        |        |         |        |       |              |             |            | 1,032,000  |            | 943,000    |
| Engineering Design                                                       |           |            |          | 1.5%      | L = 0.015 * (I+J+K)           |          |       |        |        |         |        |       |              |             |            | 54,000     |            | 49,000     |
| Resident Engineering                                                     |           |            |          | 2.0%      | M = 0.020 * (I+J+K)           |          |       |        |        |         |        |       |              |             |            | 72,000     |            | 66,000     |
| Contingency                                                              |           |            |          | 31.3%     | N = 0.313 * (I+J+K+L+M)       |          |       |        |        |         |        |       |              |             |            | 1,163,000  |            | 1,063,000  |
| Subtotal (I)                                                             |           |            |          |           |                               |          |       |        |        |         |        |       |              |             |            | 2,447,000  |            | 2,238,000  |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                     |           |            |          |           |                               |          |       |        |        |         |        |       |              |             |            |            |            |            |
| HB - Thermal Desorption (Saturated Soil)                                 | LS        | 3          | --       | 73.64     | /BCY                          | 200,000  | BCY   | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 |              |             | 16,807,000 |            | 16,807,000 | 15,245,000 |
| A - Incineration                                                         | LS        | 3          | --       | 96.24     | /BCY                          | 90       | BCY   | 1,000  | 1,000  | 1,000   | 1,000  | 1,000 |              |             | 10,000     |            | 10,000     | 9,000      |
| Subtotal (II)                                                            |           |            |          |           |                               |          |       |        |        |         |        |       |              |             |            | 16,817,000 |            | 15,253,000 |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |           |                               |          |       |        |        |         |        |       |              |             |            |            |            |            |
| Mobile/Demob                                                             |           |            |          | 0.0%      | J1 = 0.000 * (II)             |          |       |        |        |         |        |       |              |             |            | 0          |            | 0          |
| Contractor Markup                                                        |           |            |          | 10.0%     | K1 = 0.100 * (II+J1)          |          |       |        |        |         |        |       |              |             |            | 1,682,000  |            | 1,525,000  |
| Engineering Design                                                       |           |            |          | 0.0%      | L1 = 0.000 * (II+J1+K1)       |          |       |        |        |         |        |       |              |             |            | 0          |            | 0          |
| Resident Engineering                                                     |           |            |          | 2.0%      | M1 = 0.020 * (II+J1+K1)       |          |       |        |        |         |        |       |              |             |            | 370,000    |            | 336,000    |
| Contingency                                                              |           |            |          | 40.0%     | N1 = 0.400 * (II+J1+K1+L1+M1) |          |       |        |        |         |        |       |              |             |            | 7,547,000  |            | 6,846,000  |
| Subtotal (II)                                                            |           |            |          |           |                               |          |       |        |        |         |        |       |              |             |            | 9,599,000  |            | 8,707,000  |
| TOTAL O&M COSTS (OPERATIONS) [OO = I+O+II+OII]                           |           |            |          |           |                               |          |       |        |        |         |        |       |              |             |            | 31,302,000 |            | 28,428,000 |



| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1993 (\$)<br>Annual Cost | 1993 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       | 0.13                   | /BCY-YR | 2,000    | BCY   | 1,000            | 1,000             | 1,000           |             | 300                      | 8,000                   | 4,000                |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 3          | 30       | 0.13                   | /BCY-YR | 1        | BCY   | 1,000            | 1,000             | 1,000           |             | 0                        | 4                       | 2                    |
| <b>Subtotal (P)</b>                                                                                     |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| COST CODE: LLSL                                                                                         |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit 30.0% Q = 0.390 * (P)                                                      |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency 30.0% R = 0.300 * (P+Q)                                                                     |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>Subtotal (S = Q+R)</b>                                                                               |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |                  |                   |                 |             |                          | 37,100,000              | 34,100,000           |

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| Cost Item                                                   | Cost Type | Start Year | End Year | 1992 (\$)    | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | Annual Cost | 1995 (\$) | Total Cost | 1995 (\$) | PW Cost    |
|-------------------------------------------------------------|-----------|------------|----------|--------------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-------------|-----------|------------|-----------|------------|
| <b>DIRECT CAPITAL COSTS</b>                                 |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| H - Excavation Dewatering, Lime Basins                      | LS        | 2          | -        | 197,977.00   | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        | 1.000       | 228,000   |             | 228,000   |            | 215,000   |            |
| A - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 2          | -        | 5.72         | /BCY  | 1        | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 10        |             | 10        |            | 10        |            |
| A - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3          | -        | 3.80         | /BCY  | 1        | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 4         |             | 4         |            | 4         |            |
| <b>Subtotal (A)</b>                                         |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| <b>INDIRECT CAPITAL COSTS</b>                               |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| <b>COST CODE: LMSS</b>                                      |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| Mob/Demob                                                   |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| Indirects, Overhead & Profit                                |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| Engineering Design                                          |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| Resident Engineering                                        |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| Contingency                                                 |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| <b>Subtotal (G = B+C+D+E+F)</b>                             |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                     |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| HB - In Situ RF/Microwave Heating - Deep/Saturated          | LS        | 1          | -        | 7,066,000.00 | /UNIT | 1        | UNIT  | 1.000         | 1.000          | 1.000        | 1.000       | 8,083,000 |             | 8,083,000 |            | 8,083,000 |            |
| A - Incineration                                            | A         | 1          | 2        | 36.37        | /BCY  | 90       | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 4,000     |             | 4,000     |            | 4,000     |            |
| <b>Subtotal (A1)</b>                                        |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                   |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| <b>COST CODE: K</b>                                         |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| Mob/Demob                                                   |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| Contractor Markup                                           |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| Engineering Design                                          |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| Resident Engineering                                        |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| Contingency                                                 |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| <b>Subtotal (G1 = B1+C1+D1+E1+F1)</b>                       |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>                  |           |            |          |              |       |          |       |               |                |              |             |           |             |           |            |           |            |
|                                                             |           |            |          |              |       |          |       |               |                |              |             |           | 13,311,000  |           | 13,311,000 |           | 13,289,000 |

Table B4.12-19a Cost Estimate - Lime Basins Medium Group - Section 36 Lime Basins Subgroup  
Alternative 19a: In Situ Thermal Treatment (RF/Microwave Heating)

| Cost Item                                                                | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------|-----------|------------|----------|------------------------|-----------|----------|-------|---------------|----------------|--------------|--------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                 |           |            |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| HA - Excavation Dewatering, Lime Basins                                  | A         | 1          | 5        | 52,529.00              | /EA-YR    | 1        | EA    | 1.000         | 1.000          | 1.000        |              | 300,000                  | 300,000                 | 273,000              |
| HB - Installation of 6 Inches of Topsoil                                 | A         | 1          | 5        | 3.24                   | /SY       | 63,000   | SY    | 1.000         | 1.000          | 1.000        |              | 223,000                  | 223,000                 | 212,000              |
| HB - Revegetation of Disturbed Areas                                     | A         | 1          | 5        | 0.18                   | /SY       | 63,000   | SY    | 1.000         | 1.000          | 1.000        | Disturbance  | 14,000                   | 14,000                  | 13,000               |
| A - Drilling and Agent Screening Prior to Excavation                     | LS        | 2          | --       | 4.89                   | /SY       | 34,000   | SY    | 1.000         | 1.000          | 1.000        |              | 180,000                  | 180,000                 | 181,000              |
| A - Excavation of Soil with Agent                                        | LS        | 3          | --       | 4.55                   | /BCY      | 90       | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 1,000                    | 1,000                   | 1,000                |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility | LS        | 3          | --       | 1.07                   | /BCY-MILE | 90       | BCY   | 1.000         | 0.250          | 1.000        |              | 30                       | 30                      | 20                   |
| A - Load Treated Soil for Transport to Hazardous Landfill                | LS        | 3          | --       | 1.55                   | /BCY      | 1        | BCY   | 1.000         | 1.000          | 1.000        |              | 2                        | 2                       | 1                    |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill   | LS        | 3          | --       | 1.07                   | /BCY-MILE | 1        | BCY   | 1.000         | 1.000          | 1.000        |              | 1                        | 1                       | 1                    |
| A - On-Post Hazardous Waste Landfill (Particulates)                      | LS        | 3          | --       | 4.07                   | /BCY      | 1        | BCY   | 1.000         | 1.000          | 1.000        |              | 5                        | 5                       | 4                    |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill           | LS        | 3          | --       | 1.28                   | /BCY      | 90       | BCY   | 1.000         | 1.000          | 1.000        |              | 100                      | 100                     | 100                  |
| A - Transportation of Treated Soil to Backfill Excavation                | LS        | 3          | --       | 0.86                   | /BCY-MILE | 90       | BCY   | 1.000         | 0.250          | 1.000        |              | 20                       | 20                      | 20                   |
| A - Backfill with Treated Soil                                           | LS        | 3          | --       | 1.72                   | /BCY      | 90       | BCY   | 1.000         | 1.000          | 1.000        |              | 200                      | 200                     | 200                  |
| Subtotal (F)                                                             |           |            |          |                        |           |          |       |               |                |              |              | 738,000                  | 738,000                 | 679,000              |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                               |           |            |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Mod/Demob                                                                |           |            |          | 4.5%                   |           |          |       |               |                |              |              |                          | 33,000                  | 31,000               |
| Indirects, Overhead & Profit                                             |           |            |          | 40.3%                  |           |          |       |               |                |              |              |                          | 310,000                 | 285,000              |
| Engineering Design                                                       |           |            |          | 1.5%                   |           |          |       |               |                |              |              |                          | 18,000                  | 15,000               |
| Resident Engineering                                                     |           |            |          | 2.0%                   |           |          |       |               |                |              |              |                          | 22,000                  | 20,000               |
| Contingency                                                              |           |            |          | 30.0%                  |           |          |       |               |                |              |              |                          | 336,000                 | 308,000              |
| Subtotal (G = J+K+L+M+N)                                                 |           |            |          |                        |           |          |       |               |                |              |              | 717,000                  | 717,000                 | 680,000              |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                     |           |            |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| HB - In Situ RF/Microwave Heating - Deep/Saturated                       | A         | 1          | 5        | 229.41                 | /BCY      | 200,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 52,359,000               | 52,359,000              | 47,804,000           |
| A - Incineration                                                         | LS        | 3          | --       | 96.24                  | /BCY      | 90       | BCY   | 1.000         | 1.000          | 1.000        |              | 10,000                   | 10,000                  | 9,000                |
| Subtotal (H)                                                             |           |            |          |                        |           |          |       |               |                |              |              | 52,369,000               | 52,369,000              | 47,813,000           |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Mod/Demob                                                                |           |            |          | 0.0%                   |           |          |       |               |                |              |              |                          | 0                       | 0                    |
| Contractor Markup                                                        |           |            |          | 6.0%                   |           |          |       |               |                |              |              |                          | 3,142,000               | 2,857,000            |
| Engineering Design                                                       |           |            |          | 0.5%                   |           |          |       |               |                |              |              |                          | 278,000                 | 252,000              |
| Resident Engineering                                                     |           |            |          | 1.0%                   |           |          |       |               |                |              |              |                          | 555,000                 | 505,000              |
| Contingency                                                              |           |            |          | 40.0%                  |           |          |       |               |                |              |              |                          | 22,537,000              | 20,491,000           |
| Subtotal (D1 = J1+K1+L1+M1+N1)                                           |           |            |          |                        |           |          |       |               |                |              |              | 26,512,000               | 24,105,000              |                      |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+H1+O1)</b>                 |           |            |          |                        |           |          |       |               |                |              |              | 80,336,000               | 73,056,000              |                      |

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**Table B4.12-19a** Cost Estimate - Lime Basins Medium Group - Section 36 Lime Basins Subgroup Alternative 19a: In Situ Thermal Treatment (RF/Microwave Heating)

Table B4.13-1 Cost Estimate - Lime Basins Medium Group - Buried M-1 Pits Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                     | Cost Type    | Start Year               | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------|--------------|--------------------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS          |              |                          |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                 | LS           | 1                        | --       | 0.00                   | /SY   | 8,600    | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| A - No Action                 | LS           | 1                        | --       | 0.00                   | /SY   | 8,600    | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| INDIRECT CAPITAL COSTS        |              |                          |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demo                      | Subtotal (A) |                          |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit  | 3.3%         | COST CODE LLSS           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design            | 39.0%        | B = 0.033 * (A)          |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering          | 3.0%         | C = 0.390 * (A+B)        |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                   | 1.3%         | D = 0.030 * (A+B+C)      |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                               | 26.3%        | E = 0.013 * (A+B+C)      |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                               |              | F = 0.263 * (A+B+C+D+E)  |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                               |              | Subtotal (G = B+C+D+E+F) |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| TOTAL CAPITAL COSTS (H = A+G) |              |                          |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                               |              |                          |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |

Table B4.13-1 Cost Estimate - Lime Basins Medium Group - Buried M-1 Pits Subgroup  
Alternative 1: No Additional Action (Provisions of TPA)

| Cost Item                                                    | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1993 (\$)<br>Total Cost | 1993 (\$)<br>PW Cost |
|--------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                     |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                                                | LS        | 1          | --       | 0.00                   | /SY    | 8,600    | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| A - No Action                                                | LS        | 1          | --       | 0.00                   | /SY    | 8,600    | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                    |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Indirects, Overhead & Profit                                 |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Engineering Design                                           |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Resident Engineering                                         |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Contingency                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>           |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| H - Long Term Soil Monitoring, M-1 Pits                      | A         | 1          | 30       | 12,000.00              | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 14,000                   | 411,000                 | 216,000              |
| HA - Site Reviews                                            | A         | 1          | 30       | 3,400.00               | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 185,000                 | 96,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>         |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                 |           |            |          |                        |        |          |       |               |                |              |             |                          | 6,000                   | 123,000              |
| Contingency                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 8,000                   | 132,000              |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S)</b>                     |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                              |           |            |          |                        |        |          |       |               |                |              |             |                          | 20,000                  | 316,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b> |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                              |           |            |          |                        |        |          |       |               |                |              |             |                          | 36,000                  | 570,000              |
|                                                              |           |            |          |                        |        |          |       |               |                |              |             |                          | 1,080,000               | 570,000              |

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Table B4.13-5 Cost Estimate - Lime Basins Medium Group - Buried M-1 Pits Subgroup  
Alternative 5: Caps/Covers (Clay/Soil Cap); Vertical Barriers (Slurry Walls)

| Cost Item                                        | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------|-----------|------------|----------|------------------------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                      |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| H - Installation of Hydraulic Controls, M-1 Pits | LS        | 1          | --       | 515,891.00             | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 588,000                  | 588,000                 | 588,000              |
| <b>Subtotal (A)</b>                              |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT CAPITAL COSTS</b>                    |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                        |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Indirects Overhead & Profit                      |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                               |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                             |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                      |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (B = 0.045 * (A))</b>                |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (C = 0.400 * (A+B))</b>              |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (D = 0.045 * (A+B+C))</b>            |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (E = 0.018 * (A+B+C))</b>            |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (F = 0.288 * (A+B+C+D+E))</b>        |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (G = B+C+D+E+F)</b>                  |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b>             |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
|                                                  |           |            |          |                        |          |       |               |                |              |             |                          | 1,180,000               | 1,180,000            |

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Table B4.13-5 Cost Estimate - Lime Basins Medium Group - Buried M-1 Pits Subgroup  
Alternative 5: Caps/Covers (Clay/Soil Cap); Vertical Barriers (Slurry Walls)

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) |         |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|---------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |           |           |          |       |               |                |              |             |           |           |           |         |
| H - Slurry Wall (0 - 20 ft Deep)                                                               | LS        | 1          | --       | 33.41     | /SY       | 2,500    | SY    | 1.000         | 1.000          | 1.000        |             | 95,000    |           | 95,000    |         |
| H - Excavation of Borrow Material                                                              | LS        | 1          | --       | 1.89      | /BCY      | 2,500    | BCY   | 1.000         | 1.000          | 1.000        |             | 5,000     |           | 5,000     |         |
| H - Transportation of Borrow Material                                                          | LS        | 1          | --       | 0.86      | /BCY-MILE | 2,500    | BCY   | 1.000         | 1.500          | 1.000        |             | 4,000     |           | 4,000     |         |
| H - Backfill with Borrow Material                                                              | LS        | 1          | --       | 1.72      | /BCY      | 2,500    | BCY   | 1.000         | 1.000          | 1.000        |             | 5,000     |           | 5,000     |         |
| H - Grade Filling w/Excav Soil from Slurry Trench Prior to Capping                             | LS        | 1          | --       | 3.63      | /BCY      | 2,500    | BCY   | 1.000         | 1.000          | 1.000        |             | 10,000    |           | 10,000    |         |
| H - Subgrade Preparation Prior to Installing Cap/Cover                                         | LS        | 1          | --       | 0.06      | /SY       | 8,600    | SY    | 1.000         | 1.000          | 1.000        |             | 1,000     |           | 1,000     |         |
| HA - Installation of Clay/Soil Cap                                                             | LS        | 1          | --       | 23.30     | /SY       | 8,600    | SY    | 1.000         | 1.000          | 1.000        |             | 229,000   |           | 229,000   |         |
| HA - Revegetation of Disturbed Areas                                                           | LS        | 1          | --       | 0.18      | /SY       | 8,600    | SY    | 1.000         | 1.000          | 1.100        | Disturbance | 2,000     |           | 2,000     |         |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |           |           |          |       |               |                |              |             |           |           |           |         |
| Subtotal (I)                                                                                   |           |            |          |           |           |          |       |               |                |              |             |           | 351,000   | 351,000   |         |
| MOB/Demob                                                                                      |           |            |          | 3.9%      |           |          |       |               |                |              |             |           |           | 14,000    |         |
| Indirects, Overhead & Profit                                                                   |           |            |          | 40.3%     |           |          |       |               |                |              |             |           |           | 147,000   |         |
| Engineering Design                                                                             |           |            |          | 0.5%      |           |          |       |               |                |              |             |           |           | 3,000     |         |
| Resident Engineering                                                                           |           |            |          | 1.5%      |           |          |       |               |                |              |             |           |           | 8,000     |         |
| Contingency                                                                                    |           |            |          | 27.5%     |           |          |       |               |                |              |             |           |           | 143,000   |         |
| Subtotal (O = J+K+L+M+N)                                                                       |           |            |          |           |           |          |       |               |                |              |             |           | 314,000   | 314,000   |         |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |           |           |          |       |               |                |              |             |           |           |           |         |
| HA - Installation of Clay/Soil Cap                                                             | A         | 1          | 30       | 0.80      | /SY-YR    | 8,600    | SY    | 1.000         | 1.000          | 1.000        |             | 8,000     |           | 125,000   |         |
| HA - Site Reviews                                                                              | A         | 1          | 30       | 5,400.00  | /EA-YR    | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000     |           | 98,000    |         |
| Subtotal (P)                                                                                   |           |            |          |           |           |          |       |               |                |              |             |           | 14,000    | 420,000   |         |
| Subtotal (Q = J+K+L+M+N)                                                                       |           |            |          |           |           |          |       |               |                |              |             |           | 11,000    | 339,000   |         |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |           |           |          |       |               |                |              |             |           |           |           |         |
| Indirects, Overhead & Profit                                                                   |           |            |          | 39.0%     |           |          |       |               |                |              |             |           |           | 5,000     | 164,000 |
| Contingency                                                                                    |           |            |          | 30.0%     |           |          |       |               |                |              |             |           |           | 6,000     | 175,000 |
| Subtotal (R = 0.390 * (P) + 0.300 * (P+Q))                                                     |           |            |          |           |           |          |       |               |                |              |             |           | 11,000    | 339,000   |         |
| Subtotal (S)                                                                                   |           |            |          |           |           |          |       |               |                |              |             |           | 25,000    | 1,424,000 |         |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |           |           |          |       |               |                |              |             |           |           |           |         |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |           |           |          |       |               |                |              |             |           |           |           |         |
| 2,600,000                                                                                      |           |            |          |           |           |          |       |               |                |              |             |           |           |           |         |
| 2,250,000                                                                                      |           |            |          |           |           |          |       |               |                |              |             |           |           |           |         |



| Cost Item                                                   | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                        |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| A - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | --       | 5.72                   | /BCY  | 1        | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 10                      | 10                   |
| A - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                             | --       | 3.80                   | /BCY  | 1        | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 4                       | 4                    |
| Subtotal (A)                                                |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| INDIRECT CAPITAL COSTS                                      |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSS                                             |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                   | 3.3%      | B = 0.033 * (A)               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                | 39.0%     | C = 0.390 * (A+B)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                          | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                        | 1.3%      | E = 0.013 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                 | 26.3%     | F = 0.263 * (A+B+C+D+E)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                    |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| DIRECT SUBCONTRACT CAPITAL COSTS                            |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - Cement-Based Solidification                             | LS        | 2                             | --       | 3.35                   | /BCY  | 29,000   | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 111,000                 | 108,000              |
| A - Incineration                                            | A         | 1                             | 2        | 36.37                  | /BCY  | 29       | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 1,000                   | 1,000                |
| Subtotal (A1)                                               |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| INDIRECT SUBCONTRACT CAPITAL COSTS                          |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: C                                                |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                   | 2.0%      | B1 = 0.020 * (A1)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                           | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                          | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                        | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                 | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                         |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                                             |           |                               |          |                        |       |          |       |               |                |              |             |                          | 71,000                  | 68,000               |
|                                                             |           |                               |          |                        |       |          |       |               |                |              |             |                          | 183,000                 | 174,000              |

Table B4.13-10 Cost Estimate - Lime Basins Medium Group - Buried M-1 Pits Subgroup  
Alternative 10: Direct Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                | Cost Type | Start Year | End Year | 1992 (\$) | Units                         | Quantity | Units | Volume | Mileage | Other Factor | Description  | 1992 (\$) | 1993 (\$) | 1995 (\$) |
|--------------------------------------------------------------------------|-----------|------------|----------|-----------|-------------------------------|----------|-------|--------|---------|--------------|--------------|-----------|-----------|-----------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                 |           |            |          |           |                               |          |       |        |         |              |              |           |           |           |
| H - Soil Excavation                                                      | A         | 3          | 5        | 3.91      | /BCY                          | 29,000   | BCY   | 1,000  | 1,000   | 1,200        | Odor Control | 155,000   | 9,000     | 134,000   |
| H - Transportation of Contaminated Soil to Solidification Facility       | A         | 3          | 5        | 1.07      | /BCY-MILE                     | 29,000   | BCY   | 1,000  | 0.250   | 1,000        |              | 9,000     | 8,000     | 8,000     |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill           | A         | 3          | 5        | 1.28      | /BCY                          | 29,000   | BCY   | 1,000  | 1,000   | 1,000        |              | 51,000    | 9,000     | 44,000    |
| H - Transportation of Treated Soil to Backfill Excavation                | A         | 3          | 5        | 0.86      | /BCY-MILE                     | 29,000   | BCY   | 1,000  | 0.250   | 1,000        |              | 9,000     | 7,000     | 7,000     |
| H - Backfill with Treated Soil                                           | A         | 3          | 5        | 1.72      | /BCY                          | 29,000   | BCY   | 1,000  | 1,000   | 1,000        |              | 88,000    | 9,000     | 59,000    |
| H - Soil Cover for Solidified Materials                                  | A         | 3          | 5        | 9.14      | /SY                           | 8,600    | SY    | 1,000  | 1,000   | 1,000        |              | 90,000    | 2,000     | 78,000    |
| H - Revegetation of Disturbed Areas                                      | A         | 3          | 5        | 0.18      | /SY                           | 8,600    | SY    | 1,000  | 1,000   | 1,100        | Disturbance  | 2,000     | 2,000     | 2,000     |
| A - Drilling and Agent Screening Prior to Excavation                     | LS        | 3          | --       | 4.89      | /SY                           | 8,600    | SY    | 1,000  | 1,000   | 1,000        |              | 48,000    | 44,000    | 44,000    |
| A - Excavation of Soil with Agent                                        | LS        | 3          | --       | 4.55      | /BCY                          | 29       | BCY   | 1,000  | 1,000   | 1,200        | Odor Control | 200       | 200       | 200       |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 29       | BCY   | 1,000  | 0.250   | 1,000        |              | 10        | 10        | 10        |
| A - Load Treated Soil for Transport to Hazardous Landfill                | LS        | 3          | --       | 1.55      | /BCY                          | 1        | BCY   | 1,000  | 1,000   | 1,000        |              | 2         | 2         | 2         |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill   | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 1        | BCY   | 1,000  | 1,000   | 1,000        |              | 1         | 1         | 1         |
| A - On-Post Hazardous Waste Landfill (Particulates)                      | LS        | 3          | --       | 4.07      | /BCY                          | 1        | BCY   | 1,000  | 1,000   | 1,000        |              | 5         | 4         | 4         |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill           | LS        | 3          | --       | 1.28      | /BCY                          | 29       | BCY   | 1,000  | 1,000   | 1,000        |              | 40        | 40        | 40        |
| A - Transportation of Treated Soil to Backfill Excavation                | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 29       | BCY   | 1,000  | 0.250   | 1,000        |              | 10        | 10        | 10        |
| A - Backfill with Treated Soil                                           | LS        | 3          | --       | 1.72      | /BCY                          | 29       | BCY   | 1,000  | 1,000   | 1,000        |              | 100       | 100       | 100       |
| Subtotal (I)                                                             |           |            |          |           |                               |          |       |        |         |              |              | 432,000   |           | 375,000   |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                               |           |            |          |           |                               |          |       |        |         |              |              |           |           |           |
| Mod/Demob                                                                |           |            |          | 4.5%      | J = 0.045 * (I)               |          |       |        |         |              |              | 19,000    |           | 17,000    |
| Indirects, Overhead & Profit                                             |           |            |          | 41.5%     | K = 0.415 * (I+J)             |          |       |        |         |              |              | 187,000   |           | 163,000   |
| Engineering Design                                                       |           |            |          | 0.5%      | L = 0.005 * (I+J+K)           |          |       |        |         |              |              | 3,000     |           | 3,000     |
| Resident Engineering                                                     |           |            |          | 1.8%      | M = 0.018 * (I+J+K)           |          |       |        |         |              |              | 11,000    |           | 10,000    |
| Contingency                                                              |           |            |          | 30.0%     | N = 0.300 * (I+J+K+L+M)       |          |       |        |         |              |              | 196,000   |           | 170,000   |
| Subtotal (O) = J+K+L+M+N                                                 |           |            |          |           |                               |          |       |        |         |              |              | 417,000   |           | 362,000   |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                     |           |            |          |           |                               |          |       |        |         |              |              |           |           |           |
| H - Cement-Based Solidification                                          | A         | 3          | 5        | 70.10     | /BCY                          | 29,000   | BCY   | 1,000  | 1,000   | 1,000        |              | 2,320,000 |           | 2,008,000 |
| A - Incineration                                                         | LS        | 3          | --       | 96.24     | /BCY                          | 29       | BCY   | 1,000  | 1,000   | 1,000        |              | 3,000     |           | 3,000     |
| Subtotal (I1)                                                            |           |            |          |           |                               |          |       |        |         |              |              | 2,323,000 |           | 2,008,000 |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |           |                               |          |       |        |         |              |              |           |           |           |
| Mod/Demob                                                                |           |            |          | 0.0%      | J1 = 0.000 * (I1)             |          |       |        |         |              |              | 0         |           | 0         |
| Contractor Markup                                                        |           |            |          | 10.0%     | K1 = 0.100 * (I1+J1)          |          |       |        |         |              |              | 232,000   |           | 201,000   |
| Engineering Design                                                       |           |            |          | 0.0%      | L1 = 0.000 * (I1+J1+K1)       |          |       |        |         |              |              | 0         |           | 0         |
| Resident Engineering                                                     |           |            |          | 2.0%      | M1 = 0.020 * (I1+J1+K1)       |          |       |        |         |              |              | 51,000    |           | 44,000    |
| Contingency                                                              |           |            |          | 40.0%     | N1 = 0.400 * (I1+J1+K1+L1+M1) |          |       |        |         |              |              | 1,043,000 |           | 901,000   |
| Subtotal (O1) = J1+K1+L1+M1+N1                                           |           |            |          |           |                               |          |       |        |         |              |              | 1,326,000 |           | 1,146,000 |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O+I1+O1)                            |           |            |          |           |                               |          |       |        |         |              |              | 4,498,000 |           | 3,893,000 |

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Table B4.13-10 Cost Estimate - Lime Basins Medium Group - Buried M-1 Pits Subgroup  
Alternative 10: Direct Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units             | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-------------------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |                   |          |       |               |                |              |             |                          |                         |                      |
| H - Long Term Monitoring of Solidified Soil                                                            | A         | 5          | 30       | 0.25                   | /SY-YR            | 8,600    | SY    | 1.000         | 1.000          | 1.000        |             | 2,000                    | 84,000                  | 30,000               |
| H - Site Reviews                                                                                       | A         | 3          | 30       | 5,400.00               | /EA-YR            | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 173,000                 | 87,000               |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       | 0.13                   | /BCY-YR           | 1        | BCY   | 1.000         | 1.000          | 1.000        |             | 0                        | 4                       | 2                    |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |                        |                   |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |                   |          |       |               |                |              |             | 9,000                    | 238,000                 | 118,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |                        |                   |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                                        |           |            |          |                        |                   |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                           |           |            |          | 30.0%                  | Q = 0.390 * (P)   |          |       |               |                |              |             | 3,000                    | 92,000                  | 48,000               |
| Contingency                                                                                            |           |            |          | 30.0%                  | R = 0.300 * (P+Q) |          |       |               |                |              |             | 4,000                    | 98,000                  | 48,000               |
| <b>Subtotal (S = Q+R)</b>                                                                              |           |            |          |                        |                   |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |                   |          |       |               |                |              |             | 7,000                    | 181,000                 | 85,000               |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |                        |                   |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |                   |          |       |               |                |              |             | 16,000                   | 427,000                 | 213,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                        |                   |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |                   |          |       |               |                |              |             |                          | 5,110,000               | 4,280,000            |

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| Cost Item                                                                | Cost Type | Start Year | End Year | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | Annual Cost  | 1995 (\$) | 1995 (\$) | PW Cost   |
|--------------------------------------------------------------------------|-----------|------------|----------|-----------|----------|-------|---------------|----------------|--------------|-------------|--------------|-----------|-----------|-----------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                 |           |            |          |           |          |       |               |                |              |             |              |           |           |           |
| H - Soil Cover for Solidified Materials                                  | LS        | 3          | --       | /SY       | 8,600    | SY    | 1.000         | 1.000          | 1.000        | 1.000       |              | 80,000    | 81,000    | 81,000    |
| H - Installation of 6 Inches of Topsoil                                  | LS        | 3          | --       | /SY       | 8,600    | SY    | 1.000         | 1.000          | 1.000        | 1.000       |              | 32,000    | 32,000    | 28,000    |
| H - Revegetation of Disturbed Areas                                      | LS        | 3          | --       | /SY       | 8,600    | SY    | 1.000         | 1.000          | 1.000        | 1.100       | Disturbance  | 2,000     | 2,000     | 2,000     |
| A - Drilling and Agent Screening Prior to Excavation                     | LS        | 2          | --       | /SY       | 8,600    | SY    | 1.000         | 1.000          | 1.000        | 1.000       |              | 48,000    | 48,000    | 48,000    |
| A - Excavation of Soil with Agent                                        | LS        | 3          | --       | /BCY      | 29       | BCY   | 1.000         | 1.000          | 1.200        | 1.000       | Odor Control | 200       | 200       | 200       |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility | LS        | 3          | --       | /BCY-MILE | 29       | BCY   | 1.000         | 0.250          | 1.000        | 1.000       |              | 10        | 10        | 10        |
| A - Load Treated Soil for Transport to Hazardous Landfill                | LS        | 3          | --       | /BCY      | 1        | BCY   | 1.000         | 1.000          | 1.000        | 1.000       |              | 2         | 2         | 2         |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill   | LS        | 3          | --       | /BCY-MILE | 1        | BCY   | 1.000         | 1.000          | 1.000        | 1.000       |              | 1         | 1         | 1         |
| A - On-Post Hazardous Waste Landfill (Particulates)                      | LS        | 3          | --       | /BCY      | 1        | BCY   | 1.000         | 1.000          | 1.000        | 1.000       |              | 5         | 5         | 4         |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill           | LS        | 3          | --       | /BCY      | 29       | BCY   | 1.000         | 1.000          | 1.000        | 1.000       |              | 40        | 40        | 40        |
| A - Transportation of Treated Soil to Backfill Excavation                | LS        | 3          | --       | /BCY-MILE | 29       | BCY   | 1.000         | 0.250          | 1.000        | 1.000       |              | 10        | 10        | 10        |
| A - Backfill with Treated Soil                                           | LS        | 3          | --       | /BCY      | 29       | BCY   | 1.000         | 1.000          | 1.000        | 1.000       |              | 100       | 100       | 100       |
| Subtotal (I)                                                             |           |            |          |           |          |       |               |                |              |             |              | 172,000   | 172,000   | 158,000   |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                               |           |            |          |           |          |       |               |                |              |             |              |           |           |           |
| Mod/Demob                                                                |           |            |          |           |          |       |               |                |              |             |              |           |           |           |
| Indirects, Overhead & Profit                                             |           |            |          |           |          |       |               |                |              |             |              |           |           |           |
| Engineering Design                                                       |           |            |          |           |          |       |               |                |              |             |              |           |           |           |
| Resident Engineering                                                     |           |            |          |           |          |       |               |                |              |             |              |           |           |           |
| Contingency                                                              |           |            |          |           |          |       |               |                |              |             |              |           |           |           |
| Subtotal (I)                                                             |           |            |          |           |          |       |               |                |              |             |              | 8,000     | 8,000     | 7,000     |
| Subtotal (O = J+K+L+M+N)                                                 |           |            |          |           |          |       |               |                |              |             |              | 74,000    | 74,000    | 68,000    |
| Subtotal (O = J+K+L+M+N)                                                 |           |            |          |           |          |       |               |                |              |             |              | 1,000     | 1,000     | 1,000     |
| Subtotal (O = J+K+L+M+N)                                                 |           |            |          |           |          |       |               |                |              |             |              | 4,000     | 4,000     | 4,000     |
| Subtotal (O = J+K+L+M+N)                                                 |           |            |          |           |          |       |               |                |              |             |              | 78,000    | 78,000    | 72,000    |
| Subtotal (O = J+K+L+M+N)                                                 |           |            |          |           |          |       |               |                |              |             |              | 188,000   | 188,000   | 153,000   |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                     |           |            |          |           |          |       |               |                |              |             |              |           |           |           |
| H - In Situ RF/Microwave Heating - Deep/Saturated                        | LS        | 3          | --       | /BCY      | 2,300    | BCY   | 1.000         | 1.000          | 1.000        | 1.000       |              | 602,000   | 602,000   | 548,000   |
| H - In Situ Cement-Based Solidification                                  | LS        | 3          | --       | /BCY      | 29,000   | BCY   | 1.000         | 1.000          | 1.000        | 1.000       |              | 1,998,000 | 1,998,000 | 1,812,000 |
| A - Incineration                                                         | LS        | 3          | --       | /BCY      | 29       | BCY   | 1.000         | 1.000          | 1.000        | 1.000       |              | 3,000     | 3,000     | 3,000     |
| Subtotal (I1)                                                            |           |            |          |           |          |       |               |                |              |             |              | 2,604,000 | 2,604,000 | 2,363,000 |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |           |          |       |               |                |              |             |              |           |           |           |
| Mod/Demob                                                                |           |            |          |           |          |       |               |                |              |             |              |           |           |           |
| Contractor Markup                                                        |           |            |          |           |          |       |               |                |              |             |              |           |           |           |
| Engineering Design                                                       |           |            |          |           |          |       |               |                |              |             |              |           |           |           |
| Resident Engineering                                                     |           |            |          |           |          |       |               |                |              |             |              |           |           |           |
| Contingency                                                              |           |            |          |           |          |       |               |                |              |             |              |           |           |           |
| Subtotal (I1)                                                            |           |            |          |           |          |       |               |                |              |             |              | 0         | 0         | 0         |
| Subtotal (I1)                                                            |           |            |          |           |          |       |               |                |              |             |              | 158,000   | 158,000   | 142,000   |
| Subtotal (I1)                                                            |           |            |          |           |          |       |               |                |              |             |              | 14,000    | 14,000    | 13,000    |
| Subtotal (I1)                                                            |           |            |          |           |          |       |               |                |              |             |              | 28,000    | 28,000    | 25,000    |
| Subtotal (I1)                                                            |           |            |          |           |          |       |               |                |              |             |              | 1,120,000 | 1,120,000 | 1,016,000 |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                           |           |            |          |           |          |       |               |                |              |             |              | 1,318,000 | 1,318,000 | 1,186,000 |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                           |           |            |          |           |          |       |               |                |              |             |              | 4,259,000 | 4,259,000 | 3,867,000 |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+I1+O1)</b>                 |           |            |          |           |          |       |               |                |              |             |              |           |           |           |

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Table BA.13-19 Cost Estimate - Lime Basins Medium Group - Buried M:1 Pit Subgroup  
Alternative 19: In Situ Thermal Treatment (RF/Microwave Heating); In Situ Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$) | Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$)  | 1995 (\$) | PW Cost    |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|---------|----------|-------|---------------|----------------|--------------|-------------|-----------|------------|-----------|------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |           |           |         |          |       |               |                |              |             |           |            |           |            |
| H - Long Term Monitoring of In Situ Solidified Soil                                                     | A         | 3          | 30       |           | 0.25      | /SV-YR  | 8,600    | SV    | 1,000         | 1,000          | 1,000        | 1,000       | 2,000     | 68,000     |           | 36,000     |
| H - Site Reviews                                                                                        | A         | 3          | 30       |           | 5,400.00  | /EA-YR  | 1        | EA    | 1,000         | 1,000          | 1,000        | 1,000       | 6,000     | 173,000    |           | 87,000     |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 3          | 30       |           | 0.13      | /BCY-YR | 1        | BCY   | 1,000         | 1,000          | 1,000        | 1,000       | 0         | 4          |           | 2          |
| <b>Subtotal (P)</b>                                                                                     |           |            |          |           |           |         |          |       |               |                |              |             |           |            |           |            |
|                                                                                                         |           |            |          |           |           |         |          |       |               |                |              |             | 9,000     | 241,000    |           | 122,000    |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |           |           |         |          |       |               |                |              |             |           |            |           |            |
| COST CODE: LLSL                                                                                         |           |            |          |           |           |         |          |       |               |                |              |             |           |            |           |            |
| Indirects, Overhead & Profit 39.0% Q = 0.390 * (P)                                                      |           |            |          |           |           |         |          |       |               |                |              |             |           |            |           |            |
| Contingency 30.0% R = 0.300 * (P+Q)                                                                     |           |            |          |           |           |         |          |       |               |                |              |             |           |            |           |            |
| <b>Subtotal (S = Q+R)</b>                                                                               |           |            |          |           |           |         |          |       |               |                |              |             |           |            |           |            |
|                                                                                                         |           |            |          |           |           |         |          |       |               |                |              |             | 3,000     | 84,000     |           | 48,000     |
|                                                                                                         |           |            |          |           |           |         |          |       |               |                |              |             | 4,000     | 101,000    |           | 51,000     |
|                                                                                                         |           |            |          |           |           |         |          |       |               |                |              |             | 7,000     | 185,000    |           | 99,000     |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |           |           |         |          |       |               |                |              |             |           |            |           |            |
|                                                                                                         |           |            |          |           |           |         |          |       |               |                |              |             | 16,000    | 436,000    |           | 221,000    |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |           |           |         |          |       |               |                |              |             |           |            |           |            |
|                                                                                                         |           |            |          |           |           |         |          |       |               |                |              |             |           | 17,600,000 |           | 16,300,000 |

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Table B4.13-21 Cost Estimate - Lime Basins Medium Group - Buried M-1 Pits Subgroup  
Alternative 21: In Situ Thermal Treatment (In Situ Vitrification)

| Cost Item                                                | Cost Type | Start Year                      | End Year | Unit Cost | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | Annual Cost | 1995 (\$)  | 1995 (\$)  | 1995 (\$)  | PW Cost |
|----------------------------------------------------------|-----------|---------------------------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|------------|------------|---------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                 |           |                                 |          |           |           |          |       |               |                |              |             |             |            |            |            |         |
| H - Excavation of Borrow Material                        | LS        | 2                               | -        | 1.89      | /BCY      | 13,050   | BCY   | 1.000         | 1.000          | 1.000        |             |             | 28,000     | 19,000     | 27,000     |         |
| H - Transportation of Borrow Material to Backfill Area   | LS        | 2                               | -        | 0.86      | /BCY-MILE | 13,050   | BCY   | 1.000         | 1.500          | 1.000        |             |             | 19,000     | 16,000     | 16,000     |         |
| H - Backfill with Borrow Material                        | LS        | 2                               | -        | 1.72      | /BCY      | 13,050   | BCY   | 1.000         | 1.000          | 1.000        |             |             | 28,000     | 24,000     | 24,000     |         |
| H - Installation of 6 Inches of Topsoil                  | LS        | 2                               | -        | 3.24      | /SY       | 8,600    | SY    | 1.000         | 1.000          | 1.000        |             |             | 32,000     | 30,000     | 30,000     |         |
| H - Revegetation of Disturbed Areas                      | LS        | 2                               | -        | 0.18      | /SY       | 8,600    | SY    | 1.000         | 1.000          | 1.000        | Disturbance |             | 2,000      | 2,000      | 2,000      |         |
| A - No Action                                            | LS        | 1                               | -        | 0.00      | /SY       | 8,600    | SY    | 1.000         | 1.000          | 1.000        |             |             | 0          | 0          | 0          |         |
| Subtotal (I)                                             |           |                                 |          |           |           |          |       |               |                |              |             |             | 107,000    | 102,000    | 102,000    |         |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>               |           |                                 |          |           |           |          |       |               |                |              |             |             |            |            |            |         |
| COST CODE: LLSS                                          |           |                                 |          |           |           |          |       |               |                |              |             |             |            |            |            |         |
| Mob/Demob                                                | 3.3%      | $J = 0.033 * (I)$               |          |           |           |          |       |               |                |              |             |             |            |            |            |         |
| Indirects, Overhead & Profit                             | 39.0%     | $K = 0.390 * (I+J)$             |          |           |           |          |       |               |                |              |             |             |            |            |            |         |
| Engineering Design                                       | 0.5%      | $L = 0.005 * (I+J+K)$           |          |           |           |          |       |               |                |              |             |             |            |            |            |         |
| Resident Engineering                                     | 1.3%      | $M = 0.013 * (I+J+K+L)$         |          |           |           |          |       |               |                |              |             |             |            |            |            |         |
| Contingency                                              | 26.3%     | $N = 0.263 * (I+J+K+L+M)$       |          |           |           |          |       |               |                |              |             |             |            |            |            |         |
| Subtotal (O) = J+K+L+M+N                                 |           |                                 |          |           |           |          |       |               |                |              |             |             | 80,000     | 86,000     | 86,000     |         |
| <b>DIRECT SUBCONTRACTOR O&amp;M COSTS (OPERATIONS)</b>   |           |                                 |          |           |           |          |       |               |                |              |             |             |            |            |            |         |
| H - In Situ Vitrification                                | A         | 1                               | 2        | 860.25    | /BCY      | 29,000   | BCY   | 1.000         | 1.000          | 1.000        |             |             | 28,468,000 | 27,791,000 | 27,791,000 |         |
| Subtotal (II)                                            |           |                                 |          |           |           |          |       |               |                |              |             |             |            |            |            |         |
| <b>INDIRECT SUBCONTRACTOR O&amp;M COSTS (OPERATIONS)</b> |           |                                 |          |           |           |          |       |               |                |              |             |             |            |            |            |         |
| COST CODE: P                                             |           |                                 |          |           |           |          |       |               |                |              |             |             |            |            |            |         |
| Mob/Demob                                                | 0.0%      | $J1 = 0.000 * (II)$             |          |           |           |          |       |               |                |              |             |             |            |            |            |         |
| Contractor Markup                                        | 6.0%      | $K1 = 0.060 * (II+J1)$          |          |           |           |          |       |               |                |              |             |             |            |            |            |         |
| Engineering Design                                       | 1.0%      | $L1 = 0.010 * (II+J1+K1)$       |          |           |           |          |       |               |                |              |             |             |            |            |            |         |
| Resident Engineering                                     | 1.0%      | $M1 = 0.010 * (II+J1+K1+L1)$    |          |           |           |          |       |               |                |              |             |             |            |            |            |         |
| Contingency                                              | 30.0%     | $N1 = 0.300 * (II+J1+K1+L1+M1)$ |          |           |           |          |       |               |                |              |             |             |            |            |            |         |
| Subtotal (O1) = J1+K1+L1+M1+N1                           |           |                                 |          |           |           |          |       |               |                |              |             |             | 11,546,000 | 11,271,000 | 11,271,000 |         |
| TOTAL O&M COSTS (OPERATIONS) [OO = I+O+II+O1]            |           |                                 |          |           |           |          |       |               |                |              |             |             | 40,212,000 | 39,249,000 | 39,249,000 |         |

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Table B4.13-21 Cost Estimate - Lime Basins Medium Group - Buried M-1 Pits Subgroup  
Alternative 21: In Situ Thermal Treatment (In Situ Vitirification)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$) | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$)  | 1995 (\$) | PW Cost    |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|--------|----------|-------|---------------|----------------|--------------|-------------|-----------|------------|-----------|------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |           |        |          |       |               |                |              |             |           |            |           |            |
| H - Long Term Soil Monitoring, M-1 Pits                                                                 | A         | 2          | 30       | 12,000.00 | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 14,000    | 397,000    |           | 207,000    |
| HA - Site Reviews                                                                                       | A         | 2          | 30       | 5,400.00  | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000     | 179,000    |           | 83,000     |
|                                                                                                         |           |            |          |           |        |          |       |               |                |              |             | 20,000    | 578,000    |           | 301,000    |
| <b>Subtotal (P)</b>                                                                                     |           |            |          |           |        |          |       |               |                |              |             |           |            |           |            |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |           |        |          |       |               |                |              |             |           |            |           |            |
| Indirects, Overhead & Profit                                                                            |           |            |          |           |        |          |       |               |                |              |             | 8,000     | 225,000    |           | 117,000    |
| Contingency                                                                                             |           |            |          |           |        |          |       |               |                |              |             | 8,000     | 240,000    |           | 125,000    |
|                                                                                                         |           |            |          |           |        |          |       |               |                |              |             | 16,000    | 465,000    |           | 243,000    |
|                                                                                                         |           |            |          |           |        |          |       |               |                |              |             | 36,000    | 1,041,000  |           | 543,000    |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |           |        |          |       |               |                |              |             |           |            |           |            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |           |        |          |       |               |                |              |             |           |            |           |            |
|                                                                                                         |           |            |          |           |        |          |       |               |                |              |             |           | 42,500,000 |           | 41,100,000 |

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Table B4.14-1

Cost Estimate - South Plants Medium Group - South Plants Central Processing Area Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

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| Cost Item                            | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                        | LS        | 1          | --       | 0.00                   | /SY   | 220,000  | SY    | 1,000         | 1,000          | 1,000        |             |                          | 0                       | 0                    |
| B - No Action                        | LS        | 1          | --       | 0.00                   | /SY   | 3,600    | SY    | 1,000         | 1,000          | 1,000        |             |                          | 0                       | 0                    |
| A - No Action                        | LS        | 1          | --       | 0.00                   | /SY   | 87,000   | SY    | 1,000         | 1,000          | 1,000        |             |                          | 0                       | 0                    |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>SUBTOTAL (A)</b>                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>SUBTOTAL (G = B+C+D+E+F)</b>      |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b> |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |

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Table B4.14-1 Cost Estimate - South Plants Medium Group - South Plants Central Processing Area Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 220,000  | SY    | 1,000         | 1,000          | 1,000        |             |                          | 0                       | 0                    |
| B - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 3,600    | SY    | 1,000         | 1,000          | 1,000        |             |                          | 0                       | 0                    |
| A - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 87,000   | SY    | 1,000         | 1,000          | 1,000        |             |                          | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                                                                     |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Engineering Design                                                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Resident Engineering                                                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| HB - Long Term Soil Monitoring, South Plants Central Processing                                               | A         | 1          | 30       | 49,000.00              | /EA-YR | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 56,000                   | 1,678,000               | 888,000              |
| HBA - Site Reviews                                                                                            | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 6,000                    | 185,000                 | 96,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             | 112,000                  | 3,365,000               | 1,783,000            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             | 3,370,000                | 1,780,000               |                      |

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Table B4.14-1b Cost Estimate - South Plants Medium Group - South Plants Central Processing Area Subgroup  
 Alternative 1b: Direct Thermal Description (Direct Heating) and Direct Solidification/Stabilization (Cement-Based Solidification) of Principal Threat Volume; No Additional Action (Provisions of FFA)

| Cost Item                                                   | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |           |           |  |  |
|-------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|-----------|-----------|--|--|
| DIRECT CAPITAL COSTS                                        |           |                               |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |           |           |  |  |
| H - No Action (Limited)                                     | LS        | 1                             | --       | 0.00                   | /SY   | 220,000  | SY    | 1.000            | 1.000             | 1.000           |             | 0                        | 0                       | 0                    |           |           |  |  |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | --       | 5.72                   | /BCY  | 3,200    | BCY   | 1.000            | 1.000             | 1.000           |             | 21,000                   | 21,000                  | 20,000               |           |           |  |  |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                             | --       | 3.80                   | /BCY  | 3,200    | BCY   | 1.000            | 1.000             | 1.000           |             | 14,000                   | 14,000                  | 13,000               |           |           |  |  |
| B - No Action                                               | LS        | 1                             | --       | 0.00                   | /SY   | 3,600    | SY    | 1.000            | 1.000             | 1.000           |             | 0                        | 0                       | 0                    |           |           |  |  |
| Subtotal (A)                                                |           |                               |          |                        |       |          |       |                  |                   |                 |             |                          | 35,000                  | 32,000               |           |           |  |  |
| INDIRECT CAPITAL COSTS                                      |           |                               |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |           |           |  |  |
| COST CODE: LUS                                              |           |                               |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |           |           |  |  |
| Mob/Demob                                                   | 3.3%      | B = 0.033 * (A)               |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      | 1,000     | 1,000     |  |  |
| Indirects, Overhead & Profit                                | 39.0%     | C = 0.390 * (A+B)             |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      | 14,000    | 13,000    |  |  |
| Engineering Design                                          | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      | 1,000     | 1,000     |  |  |
| Resident Engineering                                        | 1.3%      | E = 0.013 * (A+B+C)           |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      | 1,000     | 1,000     |  |  |
| Contingency                                                 | 26.3%     | F = 0.263 * (A+B+C+D+E)       |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      | 14,000    | 13,000    |  |  |
| Subtotal (G = B+C+D+E+F)                                    |           |                               |          |                        |       |          |       |                  |                   |                 |             |                          | 31,000                  | 29,000               |           |           |  |  |
| DIRECT SUBCONTRACT CAPITAL COSTS                            |           |                               |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |           |           |  |  |
| H - Thermal Description (Saturated Soil)                    | A         | 1                             | 2        | 14.17                  | /BCY  | 320,000  | BCY   | 1.000            | 1.000             | 1.000           |             | 5,175,000                | 5,051,000               | 5,051,000            |           |           |  |  |
| H - Cement-Based Solidification                             | LS        | 2                             | --       | 3.35                   | /BCY  | 4,000    | BCY   | 1.000            | 1.000             | 1.000           |             | 15,000                   | 15,000                  | 15,000               |           |           |  |  |
| Subtotal (A1)                                               |           |                               |          |                        |       |          |       |                  |                   |                 |             |                          | 5,190,000               | 5,066,000            |           |           |  |  |
| INDIRECT SUBCONTRACT CAPITAL COSTS                          |           |                               |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |           |           |  |  |
| COST CODE: C                                                |           |                               |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |           |           |  |  |
| Mob/Demob                                                   | 2.0%      | B1 = 0.020 * (A1)             |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      | 104,000   | 101,000   |  |  |
| Contractor Markup                                           | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      | 529,000   | 517,000   |  |  |
| Engineering Design                                          | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      | 524,000   | 512,000   |  |  |
| Resident Engineering                                        | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      | 175,000   | 171,000   |  |  |
| Contingency                                                 | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      | 1,957,000 | 1,910,000 |  |  |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |                               |          |                        |       |          |       |                  |                   |                 |             |                          | 3,288,000               | 3,210,000            |           |           |  |  |
| TOTAL CAPITAL COSTS (H = A1+G1+G1)                          |           |                               |          |                        |       |          |       |                  |                   |                 |             |                          | 8,544,000               | 8,337,000            |           |           |  |  |
| HSPC-01B.WQ1<br>SOILS DATA                                  |           |                               |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      | 16-Jul-93 |           |  |  |

Table B4.14-1b Cost Estimate - South Plants Medium Group - South Plants Central Processing Area Subgroup  
Alternative 1b: Direct Thermal Desorption (Direct Heating) and Direct Solidification/Stabilization (Cement-Based Solidification) of Principal Threat Volume; No Additional Action (Provisions of FFA)

| Cost Item                                                              | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$)         | 1995 (\$)         | 1995 (\$) |
|------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|--------------|-------------------|-------------------|-----------|
|                                                                        |           |            |          | Unit Cost |           |          |       |               |                |              |              | Total Cost        | PW Cost           |           |
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                               |           |            |          |           |           |          |       |               |                |              |              |                   |                   |           |
| A - Drilling and Agent Screening Prior to Excavation                   | LS        | 2          | --       | 4.89      | /SY       | 180,000  | SY    | 1.000         | 1.000          | 1.000        |              | 1,004,000         | 857,000           |           |
| H - No Action (Limited)                                                | LS        | 1          | --       | 0.00      | /SY       | 220,000  | SY    | 1.000         | 1.000          | 1.000        |              | 0                 | 0                 |           |
| H - Soil Excavation                                                    | LS        | 3          | --       | 3.91      | /BCY      | 320,000  | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 1,713,000         | 1,554,000         |           |
| H - Transportation of Contaminated Soil to Thermal Desorption Facility | LS        | 3          | --       | 1.07      | /BCY-MILE | 320,000  | BCY   | 1.000         | 0.250          | 1.000        |              | 96,000            | 86,000            |           |
| H - Load Treated Soil for Transport to Hazardous Landfill              | LS        | 3          | --       | 1.55      | /BCY      | 3,200    | BCY   | 1.000         | 1.000          | 1.000        |              | 6,000             | 5,000             |           |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill | LS        | 3          | --       | 1.07      | /BCY-MILE | 3,200    | BCY   | 1.000         | 1.000          | 1.000        |              | 4,000             | 4,000             |           |
| H - On-Post Hazardous Waste Landfill (Particulates)                    | LS        | 3          | --       | 4.07      | /BCY      | 3,200    | BCY   | 1.000         | 1.000          | 1.000        |              | 15,000            | 13,000            |           |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill         | LS        | 3          | --       | 1.28      | /BCY      | 320,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 467,000           | 424,000           |           |
| H - Transportation of Treated Soil to Backfill Excavation              | LS        | 3          | --       | 0.86      | /BCY-MILE | 320,000  | BCY   | 1.000         | 0.250          | 1.000        |              | 79,000            | 71,000            |           |
| H - Backfill with Treated Soil                                         | LS        | 3          | --       | 1.72      | /BCY      | 320,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 628,000           | 570,000           |           |
| H - Soil Excavation                                                    | LS        | 3          | --       | 3.91      | /BCY      | 4,000    | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 21,000            | 19,000            |           |
| H - Transportation of Contaminated Soil to Solidification Facility     | LS        | 3          | --       | 1.07      | /BCY-MILE | 4,000    | BCY   | 1.000         | 0.250          | 1.000        |              | 1,000             | 1,000             |           |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill         | LS        | 3          | --       | 1.28      | /BCY      | 4,000    | BCY   | 1.200         | 1.000          | 1.000        |              | 7,000             | 6,000             |           |
| H - Transportation of Treated Soil to Backfill Excavation              | LS        | 3          | --       | 0.86      | /BCY-MILE | 4,000    | BCY   | 1.200         | 0.250          | 1.000        |              | 1,000             | 1,000             |           |
| H - Backfill with Treated Soil                                         | LS        | 3          | --       | 1.72      | /BCY      | 4,000    | BCY   | 1.200         | 1.000          | 1.000        |              | 8,000             | 8,000             |           |
| H - Installation of 6 Inches of Topsoil                                | LS        | 3          | --       | 3.24      | /SY       | 180,000  | SY    | 1.000         | 1.000          | 1.000        |              | 698,000           | 604,000           |           |
| H - Revegetation of Disturbed Areas                                    | LS        | 3          | --       | 0.18      | /SY       | 180,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance  | 41,000            | 37,000            |           |
| B - No Action                                                          | LS        | 1          | --       | 0.00      | /SY       | 3,600    | SY    | 1.000         | 1.000          | 1.000        |              | 0                 | 0                 |           |
| A - No Action                                                          | LS        | 1          | --       | 0.00      | /SY       | 87,000   | SY    | 1.000         | 1.000          | 1.000        |              | 0                 | 0                 |           |
| <b>Subtotal (I)</b>                                                    |           |            |          |           |           |          |       |               |                |              |              | <b>4,780,000</b>  | <b>4,383,000</b>  |           |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                             |           |            |          |           |           |          |       |               |                |              |              |                   |                   |           |
| Mod/Demob                                                              |           |            |          |           |           |          |       |               |                |              |              |                   |                   |           |
| Indirects, Overhead & Profit                                           |           |            |          | 3.9%      |           |          |       |               |                |              |              | 184,000           | 168,000           |           |
| Engineering Design                                                     |           |            |          | 0.5%      |           |          |       |               |                |              |              | 1,929,000         | 1,768,000         |           |
| Resident Engineering                                                   |           |            |          | 1.5%      |           |          |       |               |                |              |              | 34,000            | 32,000            |           |
| Contingency                                                            |           |            |          | 27.5%     |           |          |       |               |                |              |              | 103,000           | 95,000            |           |
|                                                                        |           |            |          |           |           |          |       |               |                |              |              | 1,928,000         | 1,767,000         |           |
| <b>Subtotal (O = J+K+L+M+N)</b>                                        |           |            |          |           |           |          |       |               |                |              |              | <b>4,178,000</b>  | <b>3,830,000</b>  |           |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |           |           |          |       |               |                |              |              |                   |                   |           |
| H - Thermal Desorption (Saturated Soil)                                | LS        | 3          | --       | 73.64     | /BCY      | 320,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 26,881,000        | 24,391,000        |           |
| H - Cement-Based Solidification                                        | LS        | 3          | --       | 70.10     | /BCY      | 4,000    | BCY   | 1.000         | 1.000          | 1.000        |              | 320,000           | 290,000           |           |
| <b>Subtotal (H)</b>                                                    |           |            |          |           |           |          |       |               |                |              |              | <b>27,211,000</b> | <b>24,681,000</b> |           |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                 |           |            |          |           |           |          |       |               |                |              |              |                   |                   |           |
| Mod/Demob                                                              |           |            |          |           |           |          |       |               |                |              |              |                   |                   |           |
| Contractor Markup                                                      |           |            |          | 0.0%      |           |          |       |               |                |              |              | 0                 | 0                 |           |
| Engineering Design                                                     |           |            |          | 10.0%     |           |          |       |               |                |              |              | 2,721,000         | 2,468,000         |           |
| Resident Engineering                                                   |           |            |          | 0.0%      |           |          |       |               |                |              |              | 0                 | 0                 |           |
| Contingency                                                            |           |            |          | 2.0%      |           |          |       |               |                |              |              | 599,000           | 543,000           |           |
|                                                                        |           |            |          | 40.0%     |           |          |       |               |                |              |              | 12,212,000        | 11,077,000        |           |
| <b>Subtotal (O1 = J1+K1+L1+M1+N1)</b>                                  |           |            |          |           |           |          |       |               |                |              |              | <b>15,532,000</b> | <b>14,088,000</b> |           |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+H+O1)</b>                |           |            |          |           |           |          |       |               |                |              |              | <b>51,682,000</b> | <b>46,953,000</b> |           |

Table B4.14-1b Cost Estimate - South Plants Medium Group - South Plants Central Processing Area Subgroup  
Alternative 1b: Direct Thermal Desorption (Direct Heating) and Direct Solidification/Stabilization (Cement-Based Solidification) of Principal Threat Volume; No Additional Action (Provisions of FFA)

| Cost Item                                                                                | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                       |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill Closure (Particulates)                              | A         | 3          | 30       | 0.13                   | /BCY-YR | 3,200    | BCY   | 1,000         | 1,000          | 1,000        |             | 500                      | 13,000                  | 7,000                |
| H - Long Term Monitoring of Solidified Soil                                              | A         | 3          | 30       | 0.25                   | /SY-YR  | 4,600    | SY    | 1,000         | 1,000          | 1,000        |             | 1,000                    | 37,000                  | 19,000               |
| HB - Long Term Soil Monitoring, South Plants Central Processing                          | A         | 3          | 30       | 49,000.00              | /EA-YR  | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 56,000                   | 1,596,000               | 783,000              |
| HBA - Site Reviews                                                                       | A         | 3          | 30       | 5,400.00               | /EA-YR  | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 6,000                    | 173,000                 | 87,000               |
| Subtotal (P)                                                                             |           |            |          |                        |         |          |       |               |                |              |             | 84,000                   | 1,786,000               | 808,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                             |           |            |          |                        |         |          |       |               |                |              |             | 25,000                   | 687,000                 | 353,000              |
| Contingency                                                                              |           |            |          |                        |         |          |       |               |                |              |             | 27,000                   | 746,000                 | 378,000              |
| Subtotal (S = Q+R)                                                                       |           |            |          |                        |         |          |       |               |                |              |             | 52,000                   | 1,443,000               | 731,000              |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                         |           |            |          |                        |         |          |       |               |                |              |             | 115,000                  | 3,231,000               | 1,837,000            |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (OPERATIONS & LONG-TERM ACTIVITIES) (U = H+OO+T) |           |            |          |                        |         |          |       |               |                |              |             |                          | 63,500,000              | 56,900,000           |

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Table B4.14-3 Cost Estimate - South Plants Medium Group - South Plants Central Processing Area Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                   | Cost Type | Start Year                    | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1992 (\$)  | 1995 (\$)  | 1995 (\$) | PW Cost |
|-------------------------------------------------------------|-----------|-------------------------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|------------|------------|-----------|---------|
| DIRECT CAPITAL COSTS                                        |           |                               |          |           |       |          |       |               |                |              |             |            |            |           |         |
| HB - On-Post Hazardous Waste Landfill                       | LS        | 2                             | --       | 5.72      | /BCY  | 620,000  | BCY   | 1.000         | 1.000          | 1.000        |             |            |            |           |         |
| HB - On-Post Hazardous Waste Landfill Closure               | LS        | 3                             | --       | 3.80      | /BCY  | 620,000  | BCY   | 1.000         | 1.000          | 1.000        |             |            |            |           |         |
| A - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | --       | 5.72      | /BCY  | 3        | BCY   | 1.000         | 1.000          | 1.000        |             |            |            |           |         |
| A - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                             | --       | 3.80      | /BCY  | 3        | BCY   | 1.000         | 1.000          | 1.000        |             |            |            |           |         |
| Subtotal (A)                                                |           |                               |          |           |       |          |       |               |                |              |             | 8,736,000  | 8,283,000  |           |         |
| INDIRECT CAPITAL COSTS                                      |           |                               |          |           |       |          |       |               |                |              |             |            |            |           |         |
| COST CODE: LIMS                                             |           |                               |          |           |       |          |       |               |                |              |             |            |            |           |         |
| Mob/Demob                                                   | 3.3%      | B = 0.033 * (A)               |          |           |       |          |       |               |                |              |             |            |            |           |         |
| Indirects, Overhead & Profit                                | 37.8%     | C = 0.378 * (A+B)             |          |           |       |          |       |               |                |              |             |            |            |           |         |
| Engineering Design                                          | 3.0%      | D = 0.030 * (A+B+C)           |          |           |       |          |       |               |                |              |             |            |            |           |         |
| Resident Engineering                                        | 1.3%      | E = 0.013 * (A+B+C)           |          |           |       |          |       |               |                |              |             |            |            |           |         |
| Contingency                                                 | 28.3%     | F = 0.283 * (A+B+C+D+E)       |          |           |       |          |       |               |                |              |             |            |            |           |         |
| Subtotal (G = B+C+D+E+F)                                    |           |                               |          |           |       |          |       |               |                |              |             | 5,873,000  | 5,487,000  |           |         |
| DIRECT SUBCONTRACT CAPITAL COSTS                            |           |                               |          |           |       |          |       |               |                |              |             |            |            |           |         |
| A - Incineration                                            | A         | 1                             | 2        | 36.37     | /BCY  | 290      | BCY   | 1.000         | 1.000          | 1.000        |             |            |            |           |         |
| Subtotal (A1)                                               |           |                               |          |           |       |          |       |               |                |              |             | 12,000     | 12,000     |           |         |
| INDIRECT SUBCONTRACT CAPITAL COSTS                          |           |                               |          |           |       |          |       |               |                |              |             |            |            |           |         |
| COST CODE: C                                                |           |                               |          |           |       |          |       |               |                |              |             |            |            |           |         |
| Mob/Demob                                                   | 2.0%      | B1 = 0.020 * (A1)             |          |           |       |          |       |               |                |              |             |            |            |           |         |
| Contractor Markup                                           | 10.0%     | C1 = 0.100 * (A1+B1)          |          |           |       |          |       |               |                |              |             |            |            |           |         |
| Engineering Design                                          | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |           |       |          |       |               |                |              |             |            |            |           |         |
| Resident Engineering                                        | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |           |       |          |       |               |                |              |             |            |            |           |         |
| Contingency                                                 | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |           |       |          |       |               |                |              |             |            |            |           |         |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |                               |          |           |       |          |       |               |                |              |             | 8,000      | 7,000      |           |         |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                         |           |                               |          |           |       |          |       |               |                |              |             | 12,628,000 | 11,799,000 |           |         |

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Table B4.14-3 Cost Estimate - South Plants Medium Group - South Plants Central Processing Area Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                                    | Cost Type | Start Year                    | End Year        | 1992 (\$) | Units     | Quantity | Units | Volume | Factor | Other | Factor | Description  | 1995 (\$)  | 1995 (\$) | 1995 (\$) | PW Cost    |
|------------------------------------------------------------------------------|-----------|-------------------------------|-----------------|-----------|-----------|----------|-------|--------|--------|-------|--------|--------------|------------|-----------|-----------|------------|
| DIRECT O&M COSTS (OPERATIONS)                                                |           |                               |                 |           |           |          |       |        |        |       |        |              |            |           |           |            |
| HB - Soil Excavation                                                         | LS        | 3                             | --              | 3.91      | /BCY      | 620,000  | BCY   | 1,000  | 1,000  | 1,200 | 1,000  | Odor Control | 3,320,000  |           |           | 3,011,000  |
| HB - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill | LS        | 3                             | --              | 1.07      | /BCY-MILE | 620,000  | BCY   | 1,000  | 1,500  | 1,000 | 1,000  |              | 1,136,000  |           |           | 1,030,000  |
| HB - On-Post Hazardous Waste Landfill                                        | LS        | 3                             | --              | 4.07      | /BCY      | 620,000  | BCY   | 1,000  | 1,000  | 1,000 | 1,000  |              | 2,660,000  |           |           | 2,612,000  |
| HB - Excavation of Borrow Material                                           | LS        | 3                             | --              | 1.89      | /BCY      | 620,000  | BCY   | 1,000  | 1,000  | 1,000 | 1,000  |              | 1,337,000  |           |           | 1,213,000  |
| HB - Transportation of Borrow Material to Backfill Area                      | LS        | 3                             | --              | 0.86      | /BCY-MILE | 620,000  | BCY   | 1,000  | 1,500  | 1,000 | 1,000  |              | 913,000    |           |           | 828,000    |
| HB - Backfill with Borrow Material                                           | LS        | 3                             | --              | 1.72      | /BCY      | 620,000  | BCY   | 1,000  | 1,000  | 1,000 | 1,000  |              | 1,217,000  |           |           | 1,104,000  |
| HB - Installation of 6 Inches of Topsoil                                     | LS        | 3                             | --              | 3.24      | /SY       | 220,000  | SY    | 1,000  | 1,000  | 1,100 | 1,000  | Disturbance  | 813,000    |           |           | 736,000    |
| HB - Revegetation of Disturbed Areas                                         | LS        | 3                             | --              | 0.18      | /SY       | 220,000  | SY    | 1,000  | 1,000  | 1,100 | 1,000  |              | 50,000     |           |           | 45,000     |
| A - Drilling and Agent Screening Prior to Excavation                         | LS        | 2                             | --              | 4.89      | /SY       | 87,000   | SY    | 1,000  | 1,000  | 1,000 | 1,000  |              | 485,000    |           |           | 462,000    |
| A - Excavation of Soil with Agent                                            | LS        | 3                             | --              | 4.55      | /BCY      | 290      | BCY   | 1,000  | 1,000  | 1,200 | 1,000  | Odor Control | 2,000      |           |           | 2,000      |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility     | LS        | 3                             | --              | 1.07      | /BCY-MILE | 290      | BCY   | 1,000  | 1,500  | 1,000 | 1,000  |              | 1,000      |           |           | 500        |
| A - Load Treated Soil for Transport to Hazardous Landfill                    | LS        | 3                             | --              | 1.55      | /BCY      | 3        | BCY   | 1,000  | 1,000  | 1,000 | 1,000  |              | 10         |           |           | 5          |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill       | LS        | 3                             | --              | 1.07      | /BCY-MILE | 3        | BCY   | 1,000  | 1,000  | 1,000 | 1,000  |              | 4          |           |           | 3          |
| A - On-Post Hazardous Waste Landfill (Particulates)                          | LS        | 3                             | --              | 4.07      | /BCY      | 3        | BCY   | 1,000  | 1,000  | 1,000 | 1,000  |              | 10         |           |           | 10         |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill               | LS        | 3                             | --              | 1.28      | /BCY      | 290      | BCY   | 1,000  | 1,000  | 1,000 | 1,000  |              | 400        |           |           | 400        |
| A - Transportation of Treated Soil to Backfill Excavation                    | LS        | 3                             | --              | 0.86      | /BCY-MILE | 290      | BCY   | 1,000  | 1,500  | 1,000 | 1,000  |              | 400        |           |           | 400        |
| A - Backfill with Treated Soil                                               | LS        | 3                             | --              | 1.72      | /BCY      | 290      | BCY   | 1,000  | 1,000  | 1,000 | 1,000  |              | 1,000      |           |           | 1,000      |
| Subtotal (I)                                                                 |           |                               |                 |           |           |          |       |        |        |       |        |              | 12,154,000 |           |           | 11,046,000 |
| INDIRECT O&M COSTS (OPERATIONS)                                              |           |                               |                 |           |           |          |       |        |        |       |        |              |            |           |           |            |
| Mob/Demob                                                                    | 4.5%      | J = 0.045 * (I)               | COST CODE: HLLS |           |           |          |       |        |        |       |        |              |            |           |           |            |
| Indirects Overhead & Profit                                                  | 39.0%     | K = 0.390 * (I+J)             |                 |           |           |          |       |        |        |       |        |              |            |           |           |            |
| Engineering Design                                                           | 0.5%      | L = 0.005 * (I+J+K)           |                 |           |           |          |       |        |        |       |        |              |            |           |           |            |
| Resident Engineering                                                         | 1.8%      | M = 0.018 * (I+J+K)           |                 |           |           |          |       |        |        |       |        |              |            |           |           |            |
| Contingency                                                                  | 30.0%     | N = 0.300 * (I+J+K+L+M)       |                 |           |           |          |       |        |        |       |        |              |            |           |           |            |
| Subtotal (O = J+K+L+M+N)                                                     |           |                               |                 |           |           |          |       |        |        |       |        |              | 11,313,000 |           |           | 10,282,000 |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                    |           |                               |                 |           |           |          |       |        |        |       |        |              |            |           |           |            |
| A - Incineration                                                             | LS        | 3                             | --              | 96.24     | /BCY      | 290      | BCY   | 1,000  | 1,000  | 1,000 | 1,000  |              | 32,000     |           |           | 28,000     |
| Subtotal (II)                                                                |           |                               |                 |           |           |          |       |        |        |       |        |              | 32,000     |           |           | 28,000     |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                  |           |                               |                 |           |           |          |       |        |        |       |        |              |            |           |           |            |
| Mob/Demob                                                                    | 0.0%      | J1 = 0.000 * (II)             | COST CODE: D    |           |           |          |       |        |        |       |        |              |            |           |           |            |
| Contractor Markup                                                            | 10.0%     | K1 = 0.100 * (II+J1)          |                 |           |           |          |       |        |        |       |        |              |            |           |           |            |
| Engineering Design                                                           | 0.0%      | L1 = 0.000 * (II+J1+K1)       |                 |           |           |          |       |        |        |       |        |              |            |           |           |            |
| Resident Engineering                                                         | 2.0%      | M1 = 0.020 * (II+J1+K1)       |                 |           |           |          |       |        |        |       |        |              |            |           |           |            |
| Contingency                                                                  | 40.0%     | N1 = 0.400 * (II+J1+K1+L1+M1) |                 |           |           |          |       |        |        |       |        |              |            |           |           |            |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                               |           |                               |                 |           |           |          |       |        |        |       |        |              | 18,000     |           |           | 16,000     |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O+II+O1)                                |           |                               |                 |           |           |          |       |        |        |       |        |              | 23,517,000 |           |           | 21,373,000 |



| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units             | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1993 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-------------------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |                   |          |       |               |                |              |             |                          |                         |                      |
| HR - On-Post Hazardous Waste Landfill Closure                                                          | A         | 3          | 30       | 0.13                   | /BCY-YR           | 620,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 82,000                   | 2,575,000               | 1,305,000            |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       | 0.13                   | /BCY-YR           | 3        | BCY   | 1.000         | 1.000          | 1.000        |             | 0                        | 10                      | 10                   |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |                        |                   |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |                   |          |       |               |                |              |             |                          | 2,575,000               | 1,305,000            |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |                        |                   |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                                        |           |            |          |                        |                   |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                           |           |            |          | 30.0%                  | Q = 0.390 * (P)   |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                            |           |            |          | 30.0%                  | R = 0.300 * (P+Q) |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (S = Q+R)</b>                                                                              |           |            |          |                        |                   |          |       |               |                |              |             |                          | 74,000                  | 1,053,000            |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |                        |                   |          |       |               |                |              |             |                          | 186,000                 | 2,358,000            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                        |                   |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |                   |          |       |               |                |              |             |                          | 40,800,000              | 35,500,000           |

**Table B4.14-6**  
**Cost Estimate - South Plants Medium Group - South Plants Central Processing Area Subgroup**  
**Alternative 6: Caps/Covers (Clay/Soil Cap)**

| Cost Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <div style="display: flex; justify-content: space-between;"> <div> <b>INDIRECT CAPITAL COSTS</b><br/> Mob/Demob<br/> Indirects, Overhead &amp; Profit<br/> Engineering Design<br/> Resident Engineering<br/> Contingency </div> <div> <b>COST CODE</b><br/> B = 0.033 * (A)<br/> C = 0.390 * (A+B)<br/> D = 0.030 * (A+B+C)<br/> E = 0.013 * (A+B+C)<br/> F = 0.263 * (A+B+C+D+E) </div> <div> <b>LUSS</b><br/> 3.3%<br/> 39.0%<br/> 3.0%<br/> 1.3%<br/> 26.3% </div> </div> |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |            |          |                        |       |          |       |               |                |              |             | 0                        | 0                       | 0                    |
| Subtotal (A)                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |           |            |          |                        |       |          |       |               |                |              |             | 0                        | 0                       | 0                    |
| <div style="display: flex; justify-content: space-between;"> <div> <b>INDIRECT CAPITAL COSTS</b><br/> Mob/Demob<br/> Indirects, Overhead &amp; Profit<br/> Engineering Design<br/> Resident Engineering<br/> Contingency </div> <div> <b>COST CODE</b><br/> B = 0.033 * (A)<br/> C = 0.390 * (A+B)<br/> D = 0.030 * (A+B+C)<br/> E = 0.013 * (A+B+C)<br/> F = 0.263 * (A+B+C+D+E) </div> <div> <b>LUSS</b><br/> 3.3%<br/> 39.0%<br/> 3.0%<br/> 1.3%<br/> 26.3% </div> </div> |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |            |          |                        |       |          |       |               |                |              |             | 0                        | 0                       | 0                    |
| Subtotal (G =B+C+D+E+F)                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |            |          |                        |       |          |       |               |                |              |             | 0                        | 0                       | 0                    |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

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Table BA.14-6 Cost Estimate - South Plants Medium Group - South Plants Central Processing Area Subgroup  
Alternative 6: Caps/Covers (Clay/Soil Cap)

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-----------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| HBA - Subgrade Preparation Prior to Installing Cap/Cover                                       | LS        | 1          | --       | 0.06                   | /SY       | 220,000  | SY    | 1,000            | 1,000             | 1,000           |             |                          | 15,000                  | 15,000               |
| HBA - Excavation of Borrow Material                                                            | LS        | 1          | --       | 1.89                   | /BCY      | 500,000  | BCY   | 1,000            | 1,000             | 1,000           |             |                          | 1,078,000               | 1,078,000            |
| HBA - Transportation of Borrow Material to Backfill Area                                       | LS        | 1          | --       | 0.86                   | /BCY-MILE | 500,000  | BCY   | 1,000            | 1,500             | 1,000           |             |                          | 738,000                 | 738,000              |
| HBA - Backfill with Borrow Material                                                            | LS        | 1          | --       | 1.72                   | /BCY      | 500,000  | BCY   | 1,000            | 1,000             | 1,000           |             |                          | 861,000                 | 861,000              |
| HBA - Installation of Clay/Soil Cap                                                            | LS        | 1          | --       | 23.30                  | /SY       | 220,000  | SY    | 1,000            | 1,000             | 1,000           |             |                          | 5,850,000               | 5,850,000            |
| HBA - Revegetation of Disturbed Areas                                                          | LS        | 1          | --       | 0.18                   | /SY       | 220,000  | SY    | 1,000            | 1,000             | 1,100           | Disturbance |                          | 50,000                  | 50,000               |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (I)                                                                                   |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| COST CODE                                                                                      |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| J = 0.033 * (I)                                                                                |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| K = 0.378 * (I+J)                                                                              |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| L = 0.005 * (I+J+K)                                                                            |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| M = 0.013 * (I+J+K)                                                                            |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| N = 0.283 * (I+J+K+L+M)                                                                        |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (O = J+K+L+M+N)                                                                       |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| HBA - Installation of Clay/Soil Cap                                                            | A         | 2          | 30       | 0.80                   | /SY-YR    | 220,000  | SY    | 1,000            | 1,000             | 1,000           |             | 201,000                  | 5,825,000               | 3,041,000            |
| HBA - Site Reviews                                                                             | A         | 2          | 30       | 5,400.00               | /EA-YR    | 1        | EA    | 1,000            | 1,000             | 1,000           |             | 6,000                    | 179,000                 | 93,000               |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (P)                                                                                   |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| COST CODE                                                                                      |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| Q = 0.390 * (P)                                                                                |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| R = 0.300 * (P+Q)                                                                              |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (S)                                                                                   |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal                                                                                       |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = I+T)                                              |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal                                                                                       |           |            |          |                        |           |          |       |                  |                   |                 |             |                          |                         |                      |





Table B4.14-6a Cost Estimate - South Plants Medium Group - South Plants Central Processing Area Subgroup  
Alternative 6a: Direct Thermal Desorption (Direct Heating) and Direct Solidification/Stabilization (Cement-Based Solidification) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$) | Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | Annual Cost | 1995 (\$)  | 1995 (\$) | PW Cost    |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|-----------|------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |           |           |       |          |       |               |                |              |             |             |            |           |            |
| H - On-Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 3          | 30       | 0.13      | /BCY-YR   | BCY   | 3,200    | BCY   | 1,000         | 1,000          | 1,000        |             | 500         | 13,000     |           | 7,000      |
| H - Long Term Monitoring of Solidified Soil                                                             | A         | 3          | 30       | 0.25      | /SY-YR    | SY    | 6,100    | SY    | 1,000         | 1,000          | 1,000        |             | 2,000       | 49,000     |           | 25,000     |
| HBA - Installation of Clay/Soil Cap                                                                     | A         | 3          | 30       | 0.80      | /SY-YR    | SY    | 230,000  | SY    | 1,000         | 1,000          | 1,000        |             | 210,000     | 5,879,000  |           | 2,979,000  |
| HBA - Site Reviews                                                                                      | A         | 3          | 30       | 5,400.00  | /EA-YR    | EA    | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 6,000       | 173,000    |           | 87,000     |
| Subtotal (P)                                                                                            |           |            |          |           |           |       |          |       |               |                |              |             | 218,000     | 6,114,000  |           | 3,098,000  |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |           |           |       |          |       |               |                |              |             |             |            |           |            |
| COST CODE: LLSL                                                                                         |           |            |          |           |           |       |          |       |               |                |              |             |             |            |           |            |
| Indirects, Overhead & Profit                                                                            |           |            |          |           |           |       |          |       |               |                |              |             | 85,000      | 2,384,000  |           | 1,208,000  |
| Contingency                                                                                             |           |            |          |           |           |       |          |       |               |                |              |             | 91,000      | 2,549,000  |           | 1,292,000  |
| Subtotal (S = Q+R)                                                                                      |           |            |          |           |           |       |          |       |               |                |              |             | 176,000     | 4,933,000  |           | 2,500,000  |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                                        |           |            |          |           |           |       |          |       |               |                |              |             | 395,000     | 11,048,000 |           | 5,598,000  |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |           |           |       |          |       |               |                |              |             |             |            |           |            |
| HSPC-06A.WQ1                                                                                            |           |            |          |           |           |       |          |       |               |                |              |             |             | 80,400,000 |           | 68,900,000 |
| SOILS DAA                                                                                               |           |            |          |           |           |       |          |       |               |                |              |             |             |            |           | 16-Jul-93  |

Table B4.14-13  
Cost Estimate - South Plants Medium Group - South Plants Central Processing Area Subgroup  
Alternative 13: Direct Thermal Desorption (Direct Heating); Direct Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                     | Cost Type | Start Year | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$)  | PW Cost    |           |
|---------------------------------------------------------------|-----------|------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|------------|------------|-----------|
| DIRECT CAPITAL COSTS                                          |           |            |          |           |       |          |       |               |                |              |             |           |            |            |           |
| HIB - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2          | --       | 5.72      | /BCY  | 5,800    | BCY   | 1,000         | 1,000          | 1,000        |             | 36,000    | 36,000     | 36,000     |           |
| HIB - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 4          | --       | 3.80      | /BCY  | 5,800    | BCY   | 1,000         | 1,000          | 1,000        |             | 25,000    | 25,000     | 22,000     |           |
| A - On-Post Hazardous Waste Landfill (Particulates)           | LS        | 2          | --       | 5.72      | /BCY  | 3        | BCY   | 1,000         | 1,000          | 1,000        |             | 20        | 20         | 20         |           |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)   | LS        | 3          | --       | 3.80      | /BCY  | 3        | BCY   | 1,000         | 1,000          | 1,000        |             | 10        | 10         | 10         |           |
| Subtotal (A)                                                  |           |            |          |           |       |          |       |               |                |              |             |           | 63,000     | 58,000     |           |
| INDIRECT CAPITAL COSTS                                        |           |            |          |           |       |          |       |               |                |              |             |           |            |            |           |
| MOB/DEMOL                                                     |           |            |          |           |       |          |       |               |                |              |             |           |            |            |           |
| Indirects, Overhead & Profit                                  | 3.3%      |            |          |           |       |          |       |               |                |              |             |           |            | 2,000      | 2,000     |
| Engineering Design                                            | 39.0%     |            |          |           |       |          |       |               |                |              |             |           |            | 25,000     | 23,000    |
| Resident Engineering                                          | 3.0%      |            |          |           |       |          |       |               |                |              |             |           |            | 3,000      | 2,000     |
| Contingency                                                   | 1.3%      |            |          |           |       |          |       |               |                |              |             |           |            | 1,000      | 1,000     |
| 28.3%                                                         |           |            |          |           |       |          |       |               |                |              |             |           | 25,000     | 23,000     |           |
| E = 0.013 * (A+B+C)                                           |           |            |          |           |       |          |       |               |                |              |             |           |            |            |           |
| F = 0.263 * (A+B+C+D+E)                                       |           |            |          |           |       |          |       |               |                |              |             |           |            |            |           |
| Subtotal (G = B+C+D+E+F)                                      |           |            |          |           |       |          |       |               |                |              |             |           | 56,000     | 51,000     |           |
| DIRECT SUBCONTRACT CAPITAL COSTS                              |           |            |          |           |       |          |       |               |                |              |             |           |            |            |           |
| H - Cement-Based Solidification                               | LS        | 2          | --       | 3.35      | /BCY  | 58,000   | BCY   | 1,000         | 1,000          | 1,200        |             | 268,000   | 253,000    |            |           |
| HIB - Thermal Desorption (Saturated Soil)                     | A         | 1          | 2        | 14.17     | /BCY  | 580,000  | BCY   | 1,000         | 1,000          | 1,000        |             | 9,379,000 | 8,155,000  |            |           |
| A - Incineration                                              | A         | 1          | 2        | 36.37     | /BCY  | 290      | BCY   | 1,000         | 1,000          | 1,000        |             | 12,000    | 12,000     |            |           |
| Subtotal (A1)                                                 |           |            |          |           |       |          |       |               |                |              |             |           | 9,657,000  | 9,421,000  |           |
| INDIRECT SUBCONTRACT CAPITAL COSTS                            |           |            |          |           |       |          |       |               |                |              |             |           |            |            |           |
| MOB/DEMOL                                                     |           |            |          |           |       |          |       |               |                |              |             |           |            |            |           |
| Contractor Markup                                             | 2.0%      |            |          |           |       |          |       |               |                |              |             |           |            | 193,000    | 186,000   |
| Engineering Design                                            | 10.0%     |            |          |           |       |          |       |               |                |              |             |           |            | 985,000    | 961,000   |
| Resident Engineering                                          | 9.0%      |            |          |           |       |          |       |               |                |              |             |           |            | 975,000    | 951,000   |
| Contingency                                                   | 3.0%      |            |          |           |       |          |       |               |                |              |             |           |            | 325,000    | 317,000   |
| 30.0%                                                         |           |            |          |           |       |          |       |               |                |              |             |           | 3,641,000  | 3,552,000  |           |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                |           |            |          |           |       |          |       |               |                |              |             |           | 6,119,000  | 5,989,000  |           |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                           |           |            |          |           |       |          |       |               |                |              |             |           | 15,695,000 | 15,469,000 |           |
| HSPC-13.W01                                                   |           |            |          |           |       |          |       |               |                |              |             |           |            |            | 16-Jul-93 |
| SOILS DAA                                                     |           |            |          |           |       |          |       |               |                |              |             |           |            |            |           |

Table B4.14-13 Cost Estimate - South Plants Medium Group - South Plants Central Processing Area Subgroup  
Alternative 13: Direct Thermal Desorption (Direct Heating); Direct Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                 | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$)  | 1995 (\$)  | 1995 (\$) | PW Cost    |
|---------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|--------------|------------|------------|-----------|------------|
| DIRECT O&M COSTS (OPERATIONS)                                             |           |            |          |           |           |          |       |               |                |              |              |            |            |           |            |
| HB - Soil Excavation                                                      | A         | 3          | 4        | 3.91      | /BCY      | 620,000  | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 3,320,000  |            |           | 2,698,000  |
| HB - Transportation of Contaminated Soil to Thermal Desorption Facility   | A         | 3          | 4        | 1.07      | /BCY-MILE | 620,000  | BCY   | 1.000         | 0.250          | 1.000        |              | 189,000    |            |           | 189,000    |
| HB - Load Treated Soil for Transport to Hazardous Landfill                | A         | 3          | 4        | 1.55      | /BCY      | 5,800    | BCY   | 1.000         | 1.000          | 1.000        |              | 10,000     |            |           | 9,000      |
| HB - Transportation of Particulates to On-Post Hazardous Waste Landfill   | A         | 3          | 4        | 1.07      | /BCY-MILE | 5,800    | BCY   | 1.000         | 1.000          | 1.000        |              | 7,000      |            |           | 6,000      |
| HB - On-Post Hazardous Waste Landfill (Particulates)                      | A         | 3          | 4        | 4.07      | /BCY      | 5,800    | BCY   | 1.000         | 1.000          | 1.000        |              | 27,000     |            |           | 24,000     |
| HB - Load Nonhazardous Treated Soil from Stockpile for Backfill           | A         | 3          | 4        | 1.28      | /BCY      | 580,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 847,000    |            |           | 750,000    |
| HB - Transportation of Treated Soil from Stockpile to Backfill Excavation | A         | 3          | 4        | 0.86      | /BCY-MILE | 580,000  | BCY   | 1.000         | 0.250          | 1.000        |              | 142,000    |            |           | 128,000    |
| HB - Backfill with Treated Soil                                           | A         | 3          | 4        | 1.72      | /BCY      | 580,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 1,138,000  |            |           | 1,008,000  |
| HB - Installation of 6 Inches of Topsoil                                  | A         | 3          | 4        | 3.24      | /SY       | 220,000  | SY    | 1.000         | 1.000          | 1.000        |              | 813,000    |            |           | 720,000    |
| HB - Revegetation of Disturbed Areas                                      | A         | 3          | 4        | 0.18      | /SY       | 220,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance  | 50,000     |            |           | 44,000     |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill            | A         | 3          | 7        | 1.28      | /BCY      | 58,000   | BCY   | 1.200         | 1.000          | 1.000        |              | 102,000    |            |           | 84,000     |
| H - Transportation of Treated Soil to Backfill Excavation                 | A         | 3          | 7        | 0.86      | /BCY-MILE | 58,000   | BCY   | 1.200         | 0.500          | 1.000        |              | 34,000     |            |           | 28,000     |
| H - Backfill with Treated Soil                                            | A         | 3          | 7        | 1.72      | /BCY      | 58,000   | BCY   | 1.200         | 1.000          | 1.000        |              | 137,000    |            |           | 113,000    |
| H - Soil Cover for Solidified Materials                                   | A         | 3          | 7        | 9.14      | /SY       | 44,000   | SY    | 1.000         | 1.000          | 1.000        |              | 459,000    |            |           | 378,000    |
| H - Revegetation of Disturbed Areas                                       | A         | 3          | 7        | 0.18      | /SY       | 44,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance  | 10,000     |            |           | 8,000      |
| A - Drilling and Agent Screening Prior to Excavation                      | LS        | 2          | --       | 4.89      | /SY       | 87,000   | SY    | 1.000         | 1.000          | 1.000        |              | 485,000    |            |           | 462,000    |
| A - Excavation of Soil with Agent                                         | LS        | 3          | --       | 4.55      | /BCY      | 290      | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 2,000      |            |           | 2,000      |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility  | LS        | 3          | --       | 1.07      | /BCY-MILE | 290      | BCY   | 1.000         | 0.250          | 1.000        |              | 100        |            |           | 100        |
| A - Load Treated Soil for Transport to Hazardous Landfill                 | LS        | 3          | --       | 1.55      | /BCY      | 3        | BCY   | 1.000         | 1.000          | 1.000        |              | 10         |            |           | 5          |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill    | LS        | 3          | --       | 1.07      | /BCY-MILE | 3        | BCY   | 1.000         | 1.000          | 1.000        |              | 4          |            |           | 3          |
| A - On-Post Hazardous Waste Landfill (Particulates)                       | LS        | 3          | --       | 4.07      | /BCY      | 3        | BCY   | 1.000         | 1.000          | 1.000        |              | 10         |            |           | 10         |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill            | LS        | 3          | --       | 1.28      | /BCY      | 290      | BCY   | 1.000         | 1.000          | 1.000        |              | 400        |            |           | 400        |
| A - Transportation of Treated Soil to Backfill Excavation                 | LS        | 3          | --       | 0.86      | /BCY-MILE | 290      | BCY   | 1.000         | 0.250          | 1.000        |              | 100        |            |           | 100        |
| A - Backfill with Treated Soil                                            | LS        | 3          | --       | 1.72      | /BCY      | 290      | BCY   | 1.000         | 1.000          | 1.000        |              | 1,000      |            |           | 1,000      |
| Subtotal (I)                                                              |           |            |          |           |           |          |       |               |                |              |              |            |            |           |            |
|                                                                           |           |            |          |           |           |          |       |               |                |              |              |            | 7,774,000  |           | 6,871,000  |
| INDIRECT O&M COSTS (OPERATIONS)                                           |           |            |          |           |           |          |       |               |                |              |              |            |            |           |            |
| Mod/Demob                                                                 |           |            |          |           |           |          |       |               |                |              |              |            |            |           |            |
| Indirects, Overhead & Profit                                              | 5.1%      |            |          |           |           |          |       |               |                |              |              |            |            |           |            |
| Engineering Design                                                        | 1.5%      |            |          |           |           |          |       |               |                |              |              |            |            |           |            |
| Resident Engineering                                                      | 2.3%      |            |          |           |           |          |       |               |                |              |              |            |            |           |            |
| Contingency                                                               | 32.5%     |            |          |           |           |          |       |               |                |              |              |            |            |           |            |
|                                                                           |           |            |          |           |           |          |       |               |                |              |              |            | 398,000    |           | 352,000    |
|                                                                           |           |            |          |           |           |          |       |               |                |              |              |            | 3,187,000  |           | 2,817,000  |
|                                                                           |           |            |          |           |           |          |       |               |                |              |              |            | 170,000    |           | 151,000    |
|                                                                           |           |            |          |           |           |          |       |               |                |              |              |            | 258,000    |           | 228,000    |
|                                                                           |           |            |          |           |           |          |       |               |                |              |              |            | 3,830,000  |           | 3,385,000  |
|                                                                           |           |            |          |           |           |          |       |               |                |              |              |            | 7,842,000  |           | 6,931,000  |
| DIRECT SUBCONTRACTOR O&M COSTS (OPERATIONS)                               |           |            |          |           |           |          |       |               |                |              |              |            |            |           |            |
| HB - Thermal Desorption (Saturated Soil)                                  | A         | 3          | 4        | 73.64     | /BCY      | 580,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 48,741,000 |            |           | 43,157,000 |
| H - Cement-Based Solidification                                           | A         | 3          | 7        | 70.10     | /BCY      | 58,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 4,640,000  |            |           | 3,828,000  |
| A - Incineration                                                          | LS        | 3          | --       | 96.24     | /BCY      | 290      | BCY   | 1.000         | 1.000          | 1.000        |              | 32,000     |            |           | 29,000     |
|                                                                           |           |            |          |           |           |          |       |               |                |              |              |            | 53,412,000 |           | 47,012,000 |
| INDIRECT SUBCONTRACTOR O&M COSTS (OPERATIONS)                             |           |            |          |           |           |          |       |               |                |              |              |            |            |           |            |
| Mod/Demob                                                                 |           |            |          |           |           |          |       |               |                |              |              |            |            |           |            |
| Contractor Markup                                                         | 0.0%      |            |          |           |           |          |       |               |                |              |              |            |            |           |            |
| Engineering Design                                                        | 10.0%     |            |          |           |           |          |       |               |                |              |              |            |            |           |            |
| Resident Engineering                                                      | 0.0%      |            |          |           |           |          |       |               |                |              |              |            |            |           |            |
| Contingency                                                               | 2.0%      |            |          |           |           |          |       |               |                |              |              |            |            |           |            |
|                                                                           |           |            |          |           |           |          |       |               |                |              |              |            | 0          |           | 0          |
|                                                                           |           |            |          |           |           |          |       |               |                |              |              |            | 5,341,000  |           | 4,701,000  |
|                                                                           |           |            |          |           |           |          |       |               |                |              |              |            | 0          |           | 0          |
|                                                                           |           |            |          |           |           |          |       |               |                |              |              |            | 1,175,000  |           | 1,034,000  |
|                                                                           |           |            |          |           |           |          |       |               |                |              |              |            | 23,971,000 |           | 21,099,000 |
|                                                                           |           |            |          |           |           |          |       |               |                |              |              |            | 30,496,000 |           | 28,834,000 |
|                                                                           |           |            |          |           |           |          |       |               |                |              |              |            | 89,516,000 |           | 87,648,000 |
| TOTAL O&M COSTS (OPERATIONS) [OO = I+O+J1+O1]                             |           |            |          |           |           |          |       |               |                |              |              |            |            |           |            |



Table B4.14-13 Cost Estimate - South Plants Medium Group - South Plants Central Processing Area Subgroup  
Alternative 13: Direct Thermal Desorption (Direct Heating); Direct Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates)                                           | A         | 4          | 30       | 0.13                   | /BCY-YR | 5,800    | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000                    | 23,000                  | 11,000               |
| H - Long Term Monitoring of Solidified Soil                                                            | A         | 7          | 30       | 0.25                   | /SY-YR  | 4,400    | SY    | 1,000         | 1,000          | 1,000        |             | 1,000                    | 30,000                  | 14,000               |
| H - Site Reviews                                                                                       | A         | 7          | 30       | 5,400.00               | /EA-YR  | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 6,000                    | 146,000                 | 67,000               |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       | 0.13                   | /BCY-YR | 3        | BCY   | 1,000         | 1,000          | 1,000        |             | 0                        | 10                      | 10                   |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             | 8,000                    | 201,000                 | 92,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                           |           |            |          |                        |         |          |       |               |                |              |             | 3,000                    | 78,000                  | 36,000               |
| Contingency                                                                                            |           |            |          |                        |         |          |       |               |                |              |             | 3,000                    | 84,000                  | 36,000               |
| <b>Subtotal (S = Q+R)</b>                                                                              |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             | 7,000                    | 162,000                 | 74,000               |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             | 15,000                   | 364,000                 | 166,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          | 116,000,000             | 103,000,000          |

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## Alternative 19: In Situ Thermal Treatment (RF/Microwave Heating); In Situ Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                   | Cost Type | Start Year | End Year | 1992 (\$)    | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)  | 1995 (\$)  | 1995 (\$)  | PW Cost    |
|-------------------------------------------------------------|-----------|------------|----------|--------------|-------|----------|-------|---------------|----------------|--------------|-------------|------------|------------|------------|------------|
| <b>DIRECT CAPITAL COSTS</b>                                 |           |            |          |              |       |          |       |               |                |              |             |            |            |            |            |
| A - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2          | --       | 5.72         | /BCY  | 3        | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 20         | 20         | 20         | 20         |
| A - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3          | --       | 3.80         | /BCY  | 3        | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 10         | 10         | 10         | 10         |
| Subtotal (A)                                                |           |            |          |              |       |          |       |               |                |              |             | 30         | 30         | 30         | 30         |
| <b>INDIRECT CAPITAL COSTS</b>                               |           |            |          |              |       |          |       |               |                |              |             |            |            |            |            |
| Mod/Demob                                                   |           |            |          |              |       |          |       |               |                |              |             |            |            |            |            |
| Indirects, Overhead & Profit                                |           |            |          |              |       |          |       |               |                |              |             |            |            |            |            |
| Engineering Design                                          |           |            |          |              |       |          |       |               |                |              |             |            |            |            |            |
| Resident Engineering                                        |           |            |          |              |       |          |       |               |                |              |             |            |            |            |            |
| Contingency                                                 |           |            |          |              |       |          |       |               |                |              |             |            |            |            |            |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                     |           |            |          |              |       |          |       |               |                |              |             |            |            |            |            |
| H1B - In Situ RF/Microwave Heating - Deep/Saturated         | LS        | 1          | --       | 7,066,000.00 | /UNIT | 1        | UNITS | 1.000         | 1.000          | 1.000        | 1.000       | 8,063,000  | 8,063,000  | 8,063,000  | 8,063,000  |
| A - Incineration                                            | A         | 1          | 2        | 36.37        | /BCY  | 290      | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 12,000     | 12,000     | 12,000     | 12,000     |
| Subtotal (A1)                                               |           |            |          |              |       |          |       |               |                |              |             | 8,075,000  | 8,075,000  | 8,075,000  | 8,075,000  |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                   |           |            |          |              |       |          |       |               |                |              |             |            |            |            |            |
| Mod/Demob                                                   |           |            |          |              |       |          |       |               |                |              |             |            |            |            |            |
| Contractor Markup                                           |           |            |          |              |       |          |       |               |                |              |             |            |            |            |            |
| Engineering Design                                          |           |            |          |              |       |          |       |               |                |              |             |            |            |            |            |
| Resident Engineering                                        |           |            |          |              |       |          |       |               |                |              |             |            |            |            |            |
| Contingency                                                 |           |            |          |              |       |          |       |               |                |              |             |            |            |            |            |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>                  |           |            |          |              |       |          |       |               |                |              |             |            |            |            |            |
|                                                             |           |            |          |              |       |          |       |               |                |              |             | 12,883,000 | 12,883,000 | 12,883,000 | 12,883,000 |

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Table BA.14.19 Cost Estimate - South Plants Medium Group - South Plants Central Processing Area Subgroup  
Alternative 19: In Situ Thermal Treatment (RF/Microwave Heating); In Situ Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                | Cost Type | Start Year | End Year | Unit Cost | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description   | Annual Cost | 1995 (\$)   | Total Cost  | 1995 (\$)   | PW Cost     |
|--------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|-------|----------|-------|---------------|----------------|--------------|---------------|-------------|-------------|-------------|-------------|-------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                 |           |            |          |           |           |       |          |       |               |                |              |               |             |             |             |             |             |
| HB - Installation of 6 inches of Topsoil                                 | A         | 1          | 14       | 3.24      | /SY       |       | 180,000  | SY    | 1,000         | 1,000          | 1,000        |               | 688,000     |             | 688,000     |             | 484,000     |
| HB - Revegetation of Disturbed Areas                                     | A         | 1          | 14       | 0.18      | /SY       |       | 180,000  | SY    | 1,000         | 1,000          | 1,000        | Disturbance   | 41,000      |             | 41,000      |             | 30,000      |
| H - Soil Cover for Solidified Materials                                  | LS        | 3          | --       | 9.14      | /SY       |       | 44,000   | SY    | 1,000         | 1,000          | 1,000        |               | 459,000     |             | 459,000     |             | 416,000     |
| H - Installation of 6 inches of Topsoil                                  | LS        | 3          | --       | 3.24      | /SY       |       | 44,000   | SY    | 1,000         | 1,000          | 1,000        |               | 163,000     |             | 163,000     |             | 148,000     |
| H - Revegetation of Disturbed Areas                                      | LS        | 3          | --       | 0.18      | /SY       |       | 44,000   | SY    | 1,000         | 1,000          | 1,000        | Disturbance   | 10,000      |             | 10,000      |             | 9,000       |
| A - Drilling and Agent Screening Prior to Excavation                     | LS        | 1          | --       | 4.89      | /SY       |       | 87,000   | SY    | 1,000         | 1,000          | 1,000        |               | 485,000     |             | 485,000     |             | 485,000     |
| A - Excavation of Soil with Agent                                        | LS        | 3          | --       | 4.55      | /BCY      |       | 290      | BCY   | 1,000         | 1,000          | 1,000        | Order Control | 2,000       |             | 2,000       |             | 2,000       |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility | LS        | 3          | --       | 1.07      | /BCY-MILE |       | 290      | BCY   | 1,000         | 0.250          | 1,000        |               | 100         |             | 100         |             | 100         |
| A - Load Treated Soil for Transport to Hazardous Landfill                | LS        | 3          | --       | 1.55      | /BCY      |       | 3        | BCY   | 1,000         | 1,000          | 1,000        |               | 10          |             | 10          |             | 5           |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill   | LS        | 3          | --       | 1.07      | /BCY-MILE |       | 3        | BCY   | 1,000         | 1,000          | 1,000        |               | 4           |             | 4           |             | 3           |
| A - On-Post Hazardous Waste Landfill (Particulates)                      | LS        | 3          | --       | 4.07      | /BCY      |       | 3        | BCY   | 1,000         | 1,000          | 1,000        |               | 10          |             | 10          |             | 10          |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill           | LS        | 3          | --       | 1.28      | /BCY      |       | 290      | BCY   | 1,000         | 1,000          | 1,000        |               | 400         |             | 400         |             | 400         |
| A - Transportation of Treated Soil to Backfill Excavation                | LS        | 3          | --       | 0.86      | /BCY-MILE |       | 290      | BCY   | 1,000         | 0.250          | 1,000        |               | 100         |             | 100         |             | 100         |
| A - Backfill with Treated Soil                                           | LS        | 3          | --       | 1.72      | /BCY      |       | 290      | BCY   | 1,000         | 1,000          | 1,000        |               | 1,000       |             | 1,000       |             | 1,000       |
| Subtotal (I)                                                             |           |            |          |           |           |       |          |       |               |                |              |               |             | 1,828,000   |             | 1,828,000   | 1,595,000   |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                               |           |            |          |           |           |       |          |       |               |                |              |               |             |             |             |             |             |
| Mob/Demob                                                                |           |            |          |           |           |       |          |       |               |                |              |               |             |             |             |             |             |
| Indirects, Overhead & Profit                                             |           |            |          |           |           |       |          |       |               |                |              |               |             |             |             |             |             |
| Engineering Design                                                       |           |            |          |           |           |       |          |       |               |                |              |               |             |             |             |             |             |
| Resident Engineering                                                     |           |            |          |           |           |       |          |       |               |                |              |               |             |             |             |             |             |
| Contingency                                                              |           |            |          |           |           |       |          |       |               |                |              |               |             |             |             |             |             |
| Subtotal (II)                                                            |           |            |          |           |           |       |          |       |               |                |              |               |             | 71,000      |             | 71,000      | 61,000      |
| Subtotal (O = J+K+L+M+N)                                                 |           |            |          |           |           |       |          |       |               |                |              |               |             | 784,000     |             | 784,000     | 663,000     |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                     |           |            |          |           |           |       |          |       |               |                |              |               |             |             |             |             |             |
| HB - In Situ RF/Microwave Heating - Deep/Saturated                       | A         | 1          | 14       | 229.41    | /BCY      |       | 580,000  | BCY   | 1,000         | 1,000          | 1,000        |               | 151,841,000 |             | 151,841,000 |             | 112,727,000 |
| H - In Situ Cement-Based Solidification                                  | LS        | 3          | --       | 60.38     | /BCY      |       | 58,000   | BCY   | 1,000         | 1,000          | 1,000        |               | 3,996,000   |             | 3,996,000   |             | 3,625,000   |
| A - Incineration                                                         | LS        | 3          | --       | 96.24     | /BCY      |       | 290      | BCY   | 1,000         | 1,000          | 1,000        |               | 32,000      |             | 32,000      |             | 29,000      |
| Subtotal (II)                                                            |           |            |          |           |           |       |          |       |               |                |              |               |             | 155,869,000 |             | 155,869,000 | 116,380,000 |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |           |           |       |          |       |               |                |              |               |             |             |             |             |             |
| Mob/Demob                                                                |           |            |          |           |           |       |          |       |               |                |              |               |             |             |             |             |             |
| Contractor Markup                                                        |           |            |          |           |           |       |          |       |               |                |              |               |             |             |             |             |             |
| Engineering Design                                                       |           |            |          |           |           |       |          |       |               |                |              |               |             |             |             |             |             |
| Resident Engineering                                                     |           |            |          |           |           |       |          |       |               |                |              |               |             |             |             |             |             |
| Contingency                                                              |           |            |          |           |           |       |          |       |               |                |              |               |             |             |             |             |             |
| Subtotal (I)                                                             |           |            |          |           |           |       |          |       |               |                |              |               |             | 0           |             | 0           | 0           |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                           |           |            |          |           |           |       |          |       |               |                |              |               |             | 9,352,000   |             | 9,352,000   | 6,983,000   |
| Subtotal (O2 = L1+J1+K1)                                                 |           |            |          |           |           |       |          |       |               |                |              |               |             | 826,000     |             | 826,000     | 617,000     |
| Subtotal (O3 = M1+J1+K1)                                                 |           |            |          |           |           |       |          |       |               |                |              |               |             | 1,652,000   |             | 1,652,000   | 1,224,000   |
| Subtotal (O4 = N1+J1+K1+L1+M1)                                           |           |            |          |           |           |       |          |       |               |                |              |               |             | 67,080,000  |             | 67,080,000  | 50,085,000  |
| Subtotal (O5 = J1+K1+L1+M1+N1)                                           |           |            |          |           |           |       |          |       |               |                |              |               |             | 78,910,000  |             | 78,910,000  | 58,919,000  |
| Subtotal (O6 = L1+J1+K1+O1)                                              |           |            |          |           |           |       |          |       |               |                |              |               |             | 238,359,000 |             | 238,359,000 | 178,406,000 |
| <b>TOTAL O&amp;M COSTS (OPERATIONS)</b>                                  |           |            |          |           |           |       |          |       |               |                |              |               |             |             |             |             |             |

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Table B4.14-19 Cost Estimate - South Plants Medium Group - South Plants Central Processing Area Subgroup  
Alternative 19: In Situ Thermal Treatment (RF/Microwave Heating); In Situ Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| H - Long Term Monitoring of In Situ Solidified Soil                                                     | A         | 3          | 30       | 0.25                   | /SY-YR  | 44,000   | SY    | 1.000         | 1.000          | 1.000        |             | 13,000                   | 351,000                 | 178,000              |
| H - Site Reviews                                                                                        | A         | 3          | 30       | 5,400,000              | /EA-YR  | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 173,000                 | 87,000               |
| B - No Action                                                                                           | A         | 12         | 30       | 0.00                   | /SY     | 3,600    | SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 3          | 30       | 0.13                   | /BCY-YR | 3        | BCY   | 1.000         | 1.000          | 1.000        |             | 0                        | 10                      | 10                   |
| <b>Subtotal (P)</b>                                                                                     |           |            |          |                        |         |          |       |               |                |              |             | 19,000                   | 524,000                 | 266,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: ULSL                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects: Overhead & Profit                                                                            |           |            |          |                        |         |          |       |               |                |              |             | 7,000                    | 204,000                 | 104,000              |
| Contingency                                                                                             |           |            |          |                        |         |          |       |               |                |              |             | 8,000                    | 219,000                 | 111,000              |
| <b>Subtotal (S = Q+R)</b>                                                                               |           |            |          |                        |         |          |       |               |                |              |             | 15,000                   | 423,000                 | 214,000              |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |               |                |              |             | 34,000                   | 947,000                 | 480,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |               |                |              |             | 252,000,000              |                         | 192,000,000          |

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Table B4.15-1 Cost Estimate - South Plants Medium Group - South Plants Ditches Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                     | Cost Type | Start Year | End Year                | 1992 (\$) |     | Quantity | Units | Volume |                | Other  |             | 1995 (\$)   |            | 1995 (\$) | PW Cost |
|-------------------------------|-----------|------------|-------------------------|-----------|-----|----------|-------|--------|----------------|--------|-------------|-------------|------------|-----------|---------|
|                               |           |            |                         | Unit Cost |     |          |       | Factor | Mileage Factor | Factor | Description | Annual Cost | Total Cost |           |         |
| DIRECT CAPITAL COSTS          |           |            |                         |           |     |          |       |        |                |        |             |             |            |           |         |
| H - No Action                 | LS        | 1          | --                      | 0.00      | /SY | 55,000   | SY    | 1,000  | 1,000          | 1,000  |             |             | 0          | 0         | 0       |
| B - No Action                 | LS        | 1          | --                      | 0.00      | /SY | 38,000   | SY    | 1,000  | 1,000          | 1,000  |             |             | 0          | 0         | 0       |
|                               |           |            |                         |           |     |          |       |        |                |        |             |             |            |           |         |
| Subtotal (A)                  |           |            |                         |           |     |          |       |        |                |        |             |             | 0          | 0         |         |
| INDIRECT CAPITAL COSTS        |           |            |                         |           |     |          |       |        |                |        |             |             |            |           |         |
| Mob/Demob                     | 3.3%      |            | B = 0.033 * (A)         |           | LSS |          |       |        |                |        |             |             |            |           |         |
| Indirects, Overhead & Profit  | 39.0%     |            | C = 0.390 * (A+B)       |           |     |          |       |        |                |        |             |             |            |           |         |
| Engineering Design            | 3.0%      |            | D = 0.030 * (A+B+C)     |           |     |          |       |        |                |        |             |             |            |           |         |
| Resident Engineering          | 1.3%      |            | E = 0.013 * (A+B+C)     |           |     |          |       |        |                |        |             |             |            |           |         |
| Contingency                   | 26.3%     |            | F = 0.263 * (A+B+C+D+E) |           |     |          |       |        |                |        |             |             |            |           |         |
| Subtotal (G = B+C+D+E+F)      |           |            |                         |           |     |          |       |        |                |        |             |             | 0          | 0         |         |
| TOTAL CAPITAL COSTS (H = A+G) |           |            |                         |           |     |          |       |        |                |        |             |             | 0          | 0         |         |

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Table B4.15-1 Cost Estimate - South Plants Medium Group - South Plants Ditches Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 55,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| B - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 38,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                                                                     |           |            |          |                        |        |          |       |               |                |              |             |                          |                         | 0                    |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         | 0                    |
| Engineering Design                                                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         | 0                    |
| Resident Engineering                                                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         | 0                    |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         | 0                    |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| HB - Long Term Soil Monitoring, South Plants Ditches                                                          | A         | 1          | 30       | 28,000.00              | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 32,000                   | 969,000                 | 508,000              |
| HB - Site Reviews                                                                                             | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 185,000                 | 98,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         | 0                    |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         | 0                    |
| <b>TOTAL O&amp;M COSTS (T = H+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| <b>HSFD-01.WQ1</b>                                                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| <b>SOILS DAA</b>                                                                                              |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |

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Table B4.15-1a Cost Estimate - South Plants Medium Group - South Plants Ditches Subgroup  
Alternative 1a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; No Additional Action (Provisions of FFA)

| Cost Item                                                   | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                                 |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - No Action (Limited)                                     | LS        | 1                             | --       | 0.00                   | /SY   | 55,000   | SY    | 1,000         | 1,000          | 1,000        |             |                          | 0                       | 0                    |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | --       | 5.72                   | /BCY  | 63       | BCY   | 1,000         | 1,000          | 1,000        |             |                          | 400                     | 400                  |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                             | --       | 3.80                   | /BCY  | 63       | BCY   | 1,000         | 1,000          | 1,000        |             |                          | 300                     | 200                  |
| B - No Action                                               | LS        | 1                             | --       | 0.00                   | /SY   | 38,000   | SY    | 1,000         | 1,000          | 1,000        |             |                          | 0                       | 0                    |
| Subtotal (A)                                                |           |                               |          |                        |       |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
| <b>INDIRECT CAPITAL COSTS</b>                               |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: ILSS                                             |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                   | 3.3%      | B = 0.033 * (A)               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                | 39.0%     | C = 0.390 * (A+B)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                          | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                        | 1.3%      | E = 0.013 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                 | 28.3%     | F = 0.283 * (A+B+C+D+E)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                    |           |                               |          |                        |       |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - Thermal Desorption (Dry Soil)                           | A         | 1                             | 2        | 14.17                  | /BCY  | 6,300    | BCY   | 1,000         | 1,000          | 1,000        |             |                          | 102,000                 | 99,000               |
| Subtotal (A1)                                               |           |                               |          |                        |       |          |       |               |                |              |             |                          | 102,000                 | 99,000               |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                   |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: C                                                |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                   | 2.0%      | B1 = 0.020 * (A1)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                           | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                          | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                        | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                 | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |                               |          |                        |       |          |       |               |                |              |             |                          | 65,000                  | 63,000               |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>                  |           |                               |          |                        |       |          |       |               |                |              |             |                          | 168,000                 | 164,000              |

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Table B4.15-1a Cost Estimate - South Plants Medium Group - South Plants Ditches Subgroup  
Alternative 1a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; No Additional Action (Provisions of FFA)

| Cost Item                                                              | Cost Type | Start Year | End Year | 1992(\$)<br>Unit Cost | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description                    | 1993 (\$)<br>Annual Cost | 1993 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|------------------------------------------------------------------------|-----------|------------|----------|-----------------------|-----------|----------|-------|---------------|----------------|--------------|--------------------------------|--------------------------|-------------------------|----------------------|
| DIRECT O&M COSTS (OPERATIONS)                                          |           |            |          |                       |           |          |       |               |                |              |                                |                          |                         |                      |
| H - No Action (Limited)                                                | LS        | 1          | --       | 0.00                  | /SY       | 55,000   | SY    | 1.000         | 1.000          | 1.000        |                                | 0                        | 0                       | 0                    |
| H - Soil Excavation                                                    | LS        | 3          | --       | 3.91                  | /BCY      | 6,300    | BCY   | 1.000         | 1.000          | 1.000        |                                | 28,000                   | 28,000                  | 25,000               |
| H - Transportation of Contaminated Soil to Thermal Desorption Facility | LS        | 3          | --       | 1.07                  | /BCY-MILE | 6,300    | BCY   | 1.000         | 0.500          | 1.000        |                                | 4,000                    | 4,000                   | 3,000                |
| H - Load Treated Soil for Transport to Hazardous Landfill              | LS        | 3          | --       | 1.55                  | /BCY      | 63       | BCY   | 1.000         | 1.000          | 1.000        |                                | 100                      | 100                     | 100                  |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill | LS        | 3          | --       | 1.07                  | /BCY-MILE | 63       | BCY   | 1.000         | 1.000          | 1.000        |                                | 100                      | 100                     | 100                  |
| H - On-Post Hazardous Waste Landfill (Particulates)                    | LS        | 3          | --       | 4.07                  | /BCY      | 63       | BCY   | 1.000         | 1.000          | 1.000        |                                | 300                      | 300                     | 300                  |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill         | LS        | 3          | --       | 1.28                  | /BCY      | 6,300    | BCY   | 1.000         | 1.000          | 1.000        |                                | 8,000                    | 8,000                   | 8,000                |
| H - Transportation of Treated Soil to Backfill Excavation              | LS        | 3          | --       | 0.86                  | /BCY-MILE | 6,300    | BCY   | 1.000         | 0.500          | 1.000        |                                | 3,000                    | 3,000                   | 3,000                |
| H - Backfill with Treated Soil                                         | LS        | 3          | --       | 1.72                  | /BCY      | 6,300    | BCY   | 1.000         | 1.000          | 1.000        |                                | 12,000                   | 12,000                  | 11,000               |
| H - Installation of 6 Inches of Topsoil                                | LS        | 3          | --       | 3.24                  | /SY       | 12,000   | SY    | 1.000         | 1.000          | 1.000        |                                | 44,000                   | 44,000                  | 40,000               |
| H - Revegetation of Disturbed Areas                                    | LS        | 3          | --       | 0.18                  | /SY       | 12,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance                    | 3,000                    | 3,000                   | 2,000                |
| B - No Action                                                          | LS        | 1          | --       | 0.00                  | /SY       | 38,000   | SY    | 1.000         | 1.000          | 1.000        |                                | 0                        | 0                       | 0                    |
| Subtotal (f)                                                           |           |            |          |                       |           |          |       |               |                |              |                                | 104,000                  | 104,000                 | 94,000               |
| INDIRECT O&M COSTS (OPERATIONS)                                        |           |            |          |                       |           |          |       |               |                |              |                                |                          |                         |                      |
| Mod/Demob                                                              |           |            |          |                       |           |          |       |               |                |              | COST CODE: MLSS                |                          |                         |                      |
| Indirects, Overhead & Profit                                           | 3.9%      |            |          |                       |           |          |       |               |                |              | $J = 0.039 * (f)$              |                          |                         |                      |
| Engineering Design                                                     | 40.3%     |            |          |                       |           |          |       |               |                |              | $K = 0.403 * (f+J)$            |                          |                         |                      |
| Resident Engineering                                                   | 0.5%      |            |          |                       |           |          |       |               |                |              | $L = 0.005 * (f+J+K)$          |                          |                         |                      |
| Contingency                                                            | 1.5%      |            |          |                       |           |          |       |               |                |              | $M = 0.015 * (f+J+K)$          |                          |                         |                      |
|                                                                        | 27.5%     |            |          |                       |           |          |       |               |                |              | $N = 0.275 * (f+J+K+L+M)$      |                          |                         |                      |
| Subtotal (O = J+K+L+M+N)                                               |           |            |          |                       |           |          |       |               |                |              |                                | 93,000                   | 93,000                  | 85,000               |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                              |           |            |          |                       |           |          |       |               |                |              |                                |                          |                         |                      |
| H - Thermal Desorption (Dry Soil)                                      | LS        | 3          | --       | 49.13                 | /BCY      | 6,300    | BCY   | 1.000         | 1.000          | 1.000        |                                | 353,000                  | 353,000                 | 320,000              |
| Subtotal (f)                                                           |           |            |          |                       |           |          |       |               |                |              |                                | 353,000                  | 353,000                 | 320,000              |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                            |           |            |          |                       |           |          |       |               |                |              |                                |                          |                         |                      |
| Mod/Demob                                                              |           |            |          |                       |           |          |       |               |                |              | COST CODE: D                   |                          |                         |                      |
| Contractor Markup                                                      | 0.0%      |            |          |                       |           |          |       |               |                |              | $J1 = 0.000 * (f)$             |                          |                         |                      |
| Engineering Design                                                     | 10.0%     |            |          |                       |           |          |       |               |                |              | $K1 = 0.100 * (f+J1)$          |                          |                         |                      |
| Resident Engineering                                                   | 0.0%      |            |          |                       |           |          |       |               |                |              | $L1 = 0.000 * (f+J1+K1)$       |                          |                         |                      |
| Contingency                                                            | 2.0%      |            |          |                       |           |          |       |               |                |              | $M1 = 0.020 * (f+J1+K1)$       |                          |                         |                      |
|                                                                        | 40.0%     |            |          |                       |           |          |       |               |                |              | $N1 = 0.400 * (f+J1+K1+L1+M1)$ |                          |                         |                      |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                         |           |            |          |                       |           |          |       |               |                |              |                                | 0                        | 0                       | 0                    |
|                                                                        |           |            |          |                       |           |          |       |               |                |              |                                | 36,000                   | 36,000                  | 32,000               |
|                                                                        |           |            |          |                       |           |          |       |               |                |              |                                | 0                        | 0                       | 0                    |
|                                                                        |           |            |          |                       |           |          |       |               |                |              |                                | 8,000                    | 8,000                   | 7,000                |
|                                                                        |           |            |          |                       |           |          |       |               |                |              |                                | 159,000                  | 159,000                 | 144,000              |
| Subtotal (OO = f+O+O1+O1)                                              |           |            |          |                       |           |          |       |               |                |              |                                | 202,000                  | 202,000                 | 183,000              |
| TOTAL O&M COSTS (OPERATIONS)                                           |           |            |          |                       |           |          |       |               |                |              |                                | 752,000                  | 752,000                 | 682,000              |

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Table B4.15-1a Cost Estimate - South Plants Medium Group - South Plants Ditches Subgroup  
 Alternative 1a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; No Additional Action (Provisions of FFA)

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$) | Units   | Quantity | Units | Volume | Mileage | Other | Factor | Factor | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|---------|----------|-------|--------|---------|-------|--------|--------|-----------|-----------|-----------|---------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |           |         |          |       |        |         |       |        |        |           |           |           |         |
| H - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       | 0.13      | /BCY-YR | 63       | BCY   | 1,000  | 1,000   | 1,000 | 1,000  | 1,000  | 10        | 300       | 100       |         |
| HB - Long Term Soil Monitoring, South Plants Ditches                                                   | A         | 3          | 30       | 28,000.00 | /EA-YR  | 1        | EA    | 1,000  | 1,000   | 1,000 | 1,000  | 1,000  | 32,000    | 685,000   | 453,000   |         |
| HB - Site Reviews                                                                                      | A         | 3          | 30       | 5,400.00  | /EA-YR  | 1        | EA    | 1,000  | 1,000   | 1,000 | 1,000  | 1,000  | 6,000     | 173,000   | 87,000    |         |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |           |         |          |       |        |         |       |        |        |           |           |           |         |
|                                                                                                        |           |            |          |           |         |          |       |        |         |       |        |        | 38,000    | 1,087,000 | 541,000   |         |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |           |         |          |       |        |         |       |        |        |           |           |           |         |
| COST CODE: LLSL                                                                                        |           |            |          |           |         |          |       |        |         |       |        |        |           |           |           |         |
| Indirects, Overhead & Profit 38.0% Q = 0.380 * (P)                                                     |           |            |          |           |         |          |       |        |         |       |        |        |           |           |           |         |
| Contingency 30.0% R = 0.300 * (P+Q)                                                                    |           |            |          |           |         |          |       |        |         |       |        |        |           |           |           |         |
|                                                                                                        |           |            |          |           |         |          |       |        |         |       |        |        | 15,000    | 418,000   | 211,000   |         |
|                                                                                                        |           |            |          |           |         |          |       |        |         |       |        |        | 16,000    | 445,000   | 228,000   |         |
|                                                                                                        |           |            |          |           |         |          |       |        |         |       |        |        | 31,000    | 861,000   | 437,000   |         |
| <b>Subtotal (S = Q+R)</b>                                                                              |           |            |          |           |         |          |       |        |         |       |        |        |           |           |           |         |
|                                                                                                        |           |            |          |           |         |          |       |        |         |       |        |        | 89,000    | 1,928,000 | 977,000   |         |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |           |         |          |       |        |         |       |        |        |           |           |           |         |
|                                                                                                        |           |            |          |           |         |          |       |        |         |       |        |        |           |           |           |         |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |           |         |          |       |        |         |       |        |        |           |           |           |         |
|                                                                                                        |           |            |          |           |         |          |       |        |         |       |        |        | 2,850,000 | 1,820,000 |           |         |

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Table B4.15-3 Cost Estimate - South Plants Medium Group - South Plants Ditches Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| HB - Ditch Excavation                                                                          | LS        | 2          | --       | 3.82      | /BCY      | 200,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 872,000   | 830,000   |           |
| HB - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill                   | LS        | 2          | --       | 1.07      | /BCY-MILE | 200,000  | BCY   | 1.000         | 1.500          | 1.000        |             | 366,000   | 348,000   |           |
| HB - On-Post Hazardous Waste Landfill                                                          | LS        | 2          | --       | 4.07      | /BCY      | 200,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 929,000   | 885,000   |           |
| HB - Excavation of Borrow Material                                                             | LS        | 2          | --       | 1.89      | /BCY      | 200,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 431,000   | 411,000   |           |
| HB - Transportation of Borrow Material to Backfill Area                                        | LS        | 2          | --       | 0.86      | /BCY-MILE | 200,000  | BCY   | 1.000         | 1.500          | 1.000        |             | 294,000   | 280,000   |           |
| HB - Backfill with Borrow Material                                                             | LS        | 2          | --       | 1.72      | /BCY      | 200,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 393,000   | 374,000   |           |
| HB - Installation of 6 Inches of Topsoil                                                       | LS        | 2          | --       | 3.24      | /SY       | 93,000   | SY    | 1.000         | 1.000          | 1.000        |             | 344,000   | 327,000   |           |
| HB - Revegetation of Disturbed Areas                                                           | LS        | 2          | --       | 0.18      | /SY       | 93,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance | 21,000    | 20,000    |           |
| Subtotal (I) = 3,850,000                                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| Mod/Demob                                                                                      |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| Indirects, Overhead & Profit                                                                   | 3.9%      |            |          |           |           |          |       |               |                |              |             |           |           |           |
| Engineering Design                                                                             | 38.0%     |            |          |           |           |          |       |               |                |              |             |           |           |           |
| Resident Engineering                                                                           | 0.5%      |            |          |           |           |          |       |               |                |              |             |           |           |           |
| Contingency                                                                                    | 1.5%      |            |          |           |           |          |       |               |                |              |             |           |           |           |
|                                                                                                | 27.5%     |            |          |           |           |          |       |               |                |              |             |           |           |           |
| Subtotal (O) = J+K+L+M+N                                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| HB - On-Post Hazardous Waste Landfill Closure                                                  | A         | 2          | 30       | 0.13      | /BCY-YR   | 200,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 30,000    | 860,000   | 448,000   |
| Subtotal (P) = 30,000                                                                          |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| Indirects, Overhead & Profit                                                                   | 38.0%     |            |          |           |           |          |       |               |                |              |             |           |           |           |
| Contingency                                                                                    | 30.0%     |            |          |           |           |          |       |               |                |              |             |           |           |           |
| Subtotal (S) = 660,000                                                                         |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| Subtotal (T) = 8,409,000                                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| Subtotal (U) = 12,500,000                                                                      |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (V = U+P) = 12,530,000                                                         |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (W = V+P) = 12,560,000                                                         |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (X = W+P) = 12,590,000                                                         |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (Y = X+P) = 12,620,000                                                         |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (Z = Y+P) = 12,650,000                                                         |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AA = Z+P) = 12,680,000                                                        |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AB = AA+P) = 12,710,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AC = AB+P) = 12,740,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AD = AC+P) = 12,770,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AE = AD+P) = 12,800,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AF = AE+P) = 12,830,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AG = AF+P) = 12,860,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AH = AG+P) = 12,890,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AI = AH+P) = 12,920,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AJ = AI+P) = 12,950,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AK = AJ+P) = 12,980,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AL = AK+P) = 13,010,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AM = AL+P) = 13,040,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AN = AM+P) = 13,070,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AO = AN+P) = 13,100,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AP = AO+P) = 13,130,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AQ = AP+P) = 13,160,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AR = AQ+P) = 13,190,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AS = AR+P) = 13,220,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AT = AS+P) = 13,250,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AU = AT+P) = 13,280,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AV = AU+P) = 13,310,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AW = AV+P) = 13,340,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AX = AW+P) = 13,370,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AY = AX+P) = 13,400,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (AZ = AY+P) = 13,430,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BA = AZ+P) = 13,460,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BB = BA+P) = 13,490,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BC = BB+P) = 13,520,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BD = BC+P) = 13,550,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BE = BD+P) = 13,580,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BF = BE+P) = 13,610,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BG = BF+P) = 13,640,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BH = BG+P) = 13,670,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BI = BH+P) = 13,700,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BJ = BI+P) = 13,730,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BK = BJ+P) = 13,760,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BL = BK+P) = 13,790,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BM = BL+P) = 13,820,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BN = BM+P) = 13,850,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BO = BN+P) = 13,880,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BP = BO+P) = 13,910,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BQ = BP+P) = 13,940,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BR = BQ+P) = 13,970,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BS = BR+P) = 14,000,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BT = BS+P) = 14,030,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BU = BT+P) = 14,060,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BV = BU+P) = 14,090,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BW = BV+P) = 14,120,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BX = BW+P) = 14,150,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BY = BX+P) = 14,180,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (BZ = BY+P) = 14,210,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (C0 = BZ+P) = 14,240,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (C1 = C0+P) = 14,270,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (C2 = C1+P) = 14,300,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (C3 = C2+P) = 14,330,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (C4 = C3+P) = 14,360,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (C5 = C4+P) = 14,390,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (C6 = C5+P) = 14,420,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (C7 = C6+P) = 14,450,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (C8 = C7+P) = 14,480,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (C9 = C8+P) = 14,510,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CA = C9+P) = 14,540,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CB = CA+P) = 14,570,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CC = CB+P) = 14,600,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CD = CC+P) = 14,630,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CE = CD+P) = 14,660,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CF = CE+P) = 14,690,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CG = CF+P) = 14,720,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CH = CG+P) = 14,750,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CI = CH+P) = 14,780,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CJ = CI+P) = 14,810,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CK = CJ+P) = 14,840,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CL = CK+P) = 14,870,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CM = CL+P) = 14,900,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CN = CM+P) = 14,930,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CO = CN+P) = 14,960,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CP = CO+P) = 14,990,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CQ = CP+P) = 15,020,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CR = CQ+P) = 15,050,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CS = CR+P) = 15,080,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CT = CS+P) = 15,110,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CU = CT+P) = 15,140,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CV = CU+P) = 15,170,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CW = CV+P) = 15,200,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CX = CW+P) = 15,230,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CY = CX+P) = 15,260,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (CZ = CY+P) = 15,290,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (D0 = CZ+P) = 15,320,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (D1 = D0+P) = 15,350,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (D2 = D1+P) = 15,380,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (D3 = D2+P) = 15,410,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (D4 = D3+P) = 15,440,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (D5 = D4+P) = 15,470,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (D6 = D5+P) = 15,500,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (D7 = D6+P) = 15,530,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (D8 = D7+P) = 15,560,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (D9 = D8+P) = 15,590,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DA = D9+P) = 15,620,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DB = DA+P) = 15,650,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DC = DB+P) = 15,680,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DD = DC+P) = 15,710,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DE = DD+P) = 15,740,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DF = DE+P) = 15,770,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DG = DF+P) = 15,800,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DH = DG+P) = 15,830,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DI = DH+P) = 15,860,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DJ = DI+P) = 15,890,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DK = DJ+P) = 15,920,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DL = DK+P) = 15,950,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DM = DL+P) = 15,980,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DN = DM+P) = 16,010,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DO = DN+P) = 16,040,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DP = DO+P) = 16,070,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DQ = DP+P) = 16,100,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DR = DQ+P) = 16,130,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DS = DR+P) = 16,160,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DT = DS+P) = 16,190,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DU = DT+P) = 16,220,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DV = DU+P) = 16,250,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DW = DV+P) = 16,280,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DX = DW+P) = 16,310,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DY = DX+P) = 16,340,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (DZ = DY+P) = 16,370,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (E0 = DZ+P) = 16,400,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (E1 = E0+P) = 16,430,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (E2 = E1+P) = 16,460,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (E3 = E2+P) = 16,490,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (E4 = E3+P) = 16,520,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (E5 = E4+P) = 16,550,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (E6 = E5+P) = 16,580,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (E7 = E6+P) = 16,610,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (E8 = E7+P) = 16,640,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (E9 = E8+P) = 16,670,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EA = E9+P) = 16,700,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EB = EA+P) = 16,730,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EC = EB+P) = 16,760,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (ED = EC+P) = 16,790,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EE = ED+P) = 16,820,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EF = EE+P) = 16,850,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EG = EF+P) = 16,880,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EH = EG+P) = 16,910,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EI = EH+P) = 16,940,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EJ = EI+P) = 16,970,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EK = EJ+P) = 17,000,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EL = EK+P) = 17,030,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EM = EL+P) = 17,060,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EN = EM+P) = 17,090,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EO = EN+P) = 17,120,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EP = EO+P) = 17,150,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EQ = EP+P) = 17,180,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (ER = EQ+P) = 17,210,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (ES = ER+P) = 17,240,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (ET = ES+P) = 17,270,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EU = ET+P) = 17,300,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EV = EU+P) = 17,330,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EW = EV+P) = 17,360,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EX = EW+P) = 17,390,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EY = EX+P) = 17,420,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (EZ = EY+P) = 17,450,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (F0 = EZ+P) = 17,480,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (F1 = F0+P) = 17,510,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (F2 = F1+P) = 17,540,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (F3 = F2+P) = 17,570,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (F4 = F3+P) = 17,600,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (F5 = F4+P) = 17,630,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (F6 = F5+P) = 17,660,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (F7 = F6+P) = 17,690,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (F8 = F7+P) = 17,720,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (F9 = F8+P) = 17,750,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FA = F9+P) = 17,780,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FB = FA+P) = 17,810,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FC = FB+P) = 17,840,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FD = FC+P) = 17,870,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FE = FD+P) = 17,900,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FF = FE+P) = 17,930,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FG = FF+P) = 17,960,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FH = FG+P) = 17,990,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FI = FH+P) = 18,020,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FJ = FI+P) = 18,050,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FK = FJ+P) = 18,080,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FL = FK+P) = 18,110,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FM = FL+P) = 18,140,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FN = FM+P) = 18,170,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FO = FN+P) = 18,200,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FP = FO+P) = 18,230,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FQ = FP+P) = 18,260,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FR = FQ+P) = 18,290,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FS = FR+P) = 18,320,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FT = FS+P) = 18,350,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FU = FT+P) = 18,380,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FV = FU+P) = 18,410,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FW = FV+P) = 18,440,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FX = FW+P) = 18,470,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FY = FX+P) = 18,500,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (FZ = FY+P) = 18,530,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (G0 = FZ+P) = 18,560,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (G1 = G0+P) = 18,590,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (G2 = G1+P) = 18,620,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (G3 = G2+P) = 18,650,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (G4 = G3+P) = 18,680,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (G5 = G4+P) = 18,710,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (G6 = G5+P) = 18,740,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (G7 = G6+P) = 18,770,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (G8 = G7+P) = 18,800,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (G9 = G8+P) = 18,830,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GA = G9+P) = 18,860,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GB = GA+P) = 18,890,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GC = GB+P) = 18,920,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GD = GC+P) = 18,950,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GE = GD+P) = 18,980,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GF = GE+P) = 19,010,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GG = GF+P) = 19,040,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GH = GG+P) = 19,070,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GI = GH+P) = 19,100,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GJ = GI+P) = 19,130,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GK = GJ+P) = 19,160,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GL = GK+P) = 19,190,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GM = GL+P) = 19,220,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GN = GM+P) = 19,250,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GO = GN+P) = 19,280,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GP = GO+P) = 19,310,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GQ = GP+P) = 19,340,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GR = GQ+P) = 19,370,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GS = GR+P) = 19,400,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GT = GS+P) = 19,430,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GU = GT+P) = 19,460,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GV = GU+P) = 19,490,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GW = GV+P) = 19,520,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GX = GW+P) = 19,550,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GY = GX+P) = 19,580,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (GZ = GY+P) = 19,610,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (H0 = GZ+P) = 19,640,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (H1 = H0+P) = 19,670,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (H2 = H1+P) = 19,700,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (H3 = H2+P) = 19,730,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (H4 = H3+P) = 19,760,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (H5 = H4+P) = 19,790,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (H6 = H5+P) = 19,820,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (H7 = H6+P) = 19,850,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (H8 = H7+P) = 19,880,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (H9 = H8+P) = 19,910,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (HA = H9+P) = 19,940,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (HB = HA+P) = 19,970,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (HC = HB+P) = 20,000,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (HD = HC+P) = 20,030,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (HE = HD+P) = 20,060,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (HF = HE+P) = 20,090,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (HG = HF+P) = 20,120,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (HH = HG+P) = 20,150,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (HI = HH+P) = 20,180,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (HJ = HI+P) = 20,210,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (HK = HJ+P) = 20,240,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (HL = HK+P) = 20,270,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (HM = HL+P) = 20,300,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (HN = HM+P) = 20,330,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (HO = HN+P) = 20,360,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (HP = HO+P) = 20,390,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (HQ = HP+P) = 20,420,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |
| TOTAL O&M COSTS (HR = HQ+P) = 20,450,000                                                       |           |            |          |           |           |          |       |               |                |              |             |           |           |           |

Table B4.15-6 Cost Estimate - South Plants Medium Group - South Plants Ditches Subgroup  
Alternative 6: Caps/Covers (Clay/Soil Cap)

| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------|-----------|------------|----------|------------------------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS          |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| INDIRECT CAPITAL COSTS        |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                     |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Indirects, Overhead & Profit  |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Engineering Design            |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Resident Engineering          |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Contingency                   |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Subtotal (A)                  |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |
| TOTAL CAPITAL COSTS (H = A+G) |           |            |          |                        |          |       |               |                |              |             |                          |                         |                      |
| HSPD-06.W01                   |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |
| SOILS DAA                     |           |            |          |                        |          |       |               |                |              |             |                          | 0                       | 0                    |

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Table B4.15-6 Cost Estimate - South Plants Medium Group - South Plants Ditches Subgroup  
Alternative 6: Caps/Covers (Clay/Soil Cap)

| Cost Item                                                    | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)  | 1995 (\$)  | 1995 (\$)  |
|--------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|------------|------------|------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                     |           |            |          |           |           |          |       |               |                |              |             |            |            |            |
| HB - Subgrade Preparation Prior to Installing Cap/Cover      | LS        | 1          | --       | 0.06      | /SY       | 93,000   | SY    | 1.000         | 1.000          | 1.000        |             | 6,000      | 6,000      | 6,000      |
| HB - Installation of Clay/Soil Cap                           | LS        | 1          | --       | 23.30     | /SY       | 93,000   | SY    | 1.000         | 1.000          | 1.000        |             | 2,473,000  | 2,473,000  | 2,473,000  |
| HB - Excavation of Borrow Material                           | LS        | 1          | --       | 1.89      | /BCY      | 260,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 581,000    | 581,000    | 581,000    |
| HB - Transportation of Borrow Material to Backfill Area      | LS        | 1          | --       | 0.86      | /BCY-MILE | 260,000  | BCY   | 1.000         | 1.500          | 1.000        |             | 383,000    | 383,000    | 383,000    |
| HB - Backfill with Borrow Material                           | LS        | 1          | --       | 1.72      | /BCY      | 260,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 510,000    | 510,000    | 510,000    |
| HB - Revegetation of Disturbed Areas                         | LS        | 1          | --       | 0.18      | /SY       | 93,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance | 21,000     | 21,000     | 21,000     |
| <b>Subtotal (I)</b>                                          |           |            |          |           |           |          |       |               |                |              |             | 3,954,000  | 3,954,000  | 3,954,000  |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |           |           |          |       |               |                |              |             |            |            |            |
| Mod/Demob                                                    |           |            |          |           |           |          |       |               |                |              |             | 128,000    | 128,000    | 128,000    |
| Indirects, Overhead & Profit                                 |           |            |          |           |           |          |       |               |                |              |             | 1,541,000  | 1,541,000  | 1,541,000  |
| Engineering Design                                           |           |            |          |           |           |          |       |               |                |              |             | 28,000     | 28,000     | 28,000     |
| Resident Engineering                                         |           |            |          |           |           |          |       |               |                |              |             | 98,000     | 98,000     | 98,000     |
| Contingency                                                  |           |            |          |           |           |          |       |               |                |              |             | 1,725,000  | 1,725,000  | 1,725,000  |
| <b>Subtotal (O = J+K+L+M+N)</b>                              |           |            |          |           |           |          |       |               |                |              |             | 3,521,000  | 3,521,000  | 3,521,000  |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>           |           |            |          |           |           |          |       |               |                |              |             |            |            |            |
| HB - Installation of Clay/Soil Cap                           | A         | 2          | 30       | 0.80      | /SY-YR    | 93,000   | SY    | 1.000         | 1.000          | 1.000        |             | 85,000     | 2,482,000  | 1,288,000  |
| HB - Site Reviews                                            | A         | 2          | 30       | 5,400.00  | /EA-YR    | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000      | 179,000    | 83,000     |
| <b>Subtotal (P)</b>                                          |           |            |          |           |           |          |       |               |                |              |             | 91,000     | 2,641,000  | 1,379,000  |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>         |           |            |          |           |           |          |       |               |                |              |             |            |            |            |
| Indirects, Overhead & Profit                                 |           |            |          |           |           |          |       |               |                |              |             | 38,000     | 1,030,000  | 539,000    |
| Contingency                                                  |           |            |          |           |           |          |       |               |                |              |             | 38,000     | 1,101,000  | 575,000    |
| <b>Subtotal (S)</b>                                          |           |            |          |           |           |          |       |               |                |              |             | 73,000     | 2,131,000  | 1,113,000  |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S)</b>                     |           |            |          |           |           |          |       |               |                |              |             | 185,000    | 12,247,000 | 9,967,000  |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b> |           |            |          |           |           |          |       |               |                |              |             | 12,200,000 | 29,700,000 | 29,700,000 |

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## Alternative 6b: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                   | Cost Type | Start Year                    | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$) |
|-------------------------------------------------------------|-----------|-------------------------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|-----------|
|                                                             |           |                               |          | Unit Cost |       |          |       |               |                |              |             | Annual Cost | Total Cost | PW Cost   |
| DIRECT CAPITAL COSTS                                        |           |                               |          |           |       |          |       |               |                |              |             |             |            |           |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | --       | 5.72      | /BCY  | 63       | BCY   | 1.000         | 1.000          | 1.000        |             |             | 400        | 400       |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                             | --       | 3.80      | /BCY  | 63       | BCY   | 1.000         | 1.000          | 1.000        |             |             | 300        | 200       |
| Subtotal (A)                                                |           |                               |          |           |       |          |       |               |                |              |             |             | 1,000      | 1,000     |
| INDIRECT CAPITAL COSTS                                      |           |                               |          |           |       |          |       |               |                |              |             |             |            |           |
| COST CODE: LLS                                              |           |                               |          |           |       |          |       |               |                |              |             |             |            |           |
| Mob/Demob                                                   | 3.3%      | B = 0.033 * (A)               |          |           |       |          |       |               |                |              |             |             |            |           |
| Indirects, Overhead & Profit                                | 36.5%     | C = 0.365 * (A+B)             |          |           |       |          |       |               |                |              |             |             |            |           |
| Engineering Design                                          | 3.0%      | D = 0.030 * (A+B+C)           |          |           |       |          |       |               |                |              |             |             |            |           |
| Resident Engineering                                        | 1.3%      | E = 0.013 * (A+B+C)           |          |           |       |          |       |               |                |              |             |             |            |           |
| Contingency                                                 | 26.3%     | F = 0.263 * (A+B+C+D+E)       |          |           |       |          |       |               |                |              |             |             |            |           |
| Subtotal (G = B+C+D+E+F)                                    |           |                               |          |           |       |          |       |               |                |              |             |             | 1,000      | 1,000     |
| DIRECT SUBCONTRACT CAPITAL COSTS                            |           |                               |          |           |       |          |       |               |                |              |             |             |            |           |
| H - Thermal Desorption (Dry Soil)                           | A         | 1                             | 2        | 14.17     | /BCY  | 6,300    | BCY   | 1.000         | 1.000          | 1.000        |             |             | 102,000    | 86,000    |
| Subtotal (A1)                                               |           |                               |          |           |       |          |       |               |                |              |             |             | 102,000    | 86,000    |
| INDIRECT SUBCONTRACT CAPITAL COSTS                          |           |                               |          |           |       |          |       |               |                |              |             |             |            |           |
| COST CODE: C                                                |           |                               |          |           |       |          |       |               |                |              |             |             |            |           |
| Mob/Demob                                                   | 2.0%      | B1 = 0.020 * (A1)             |          |           |       |          |       |               |                |              |             |             |            |           |
| Contractor Markup                                           | 10.0%     | C1 = 0.100 * (A1+B1)          |          |           |       |          |       |               |                |              |             |             |            |           |
| Engineering Design                                          | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |           |       |          |       |               |                |              |             |             |            |           |
| Resident Engineering                                        | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |           |       |          |       |               |                |              |             |             |            |           |
| Contingency                                                 | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |           |       |          |       |               |                |              |             |             |            |           |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |                               |          |           |       |          |       |               |                |              |             |             | 65,000     | 63,000    |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                         |           |                               |          |           |       |          |       |               |                |              |             |             | 166,000    | 164,000   |

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Table B4.15-6b Cost Estimate - South Plants Medium Group - South Plants Ditches Subgroup  
Alternative 6b: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                              | Cost Type | Start Year | End Year | 1992 (\$) | Units                         | Quantity | Volume Factor | Mileage Factor | Other Factor | Description | Annual Cost | 1995 (\$) | 1995 (\$) | PW Cost   |
|------------------------------------------------------------------------|-----------|------------|----------|-----------|-------------------------------|----------|---------------|----------------|--------------|-------------|-------------|-----------|-----------|-----------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                               |           |            |          |           |                               |          |               |                |              |             |             |           |           |           |
| H - Soil Excavation                                                    | LS        | 3          | --       | 3.91      | /BCY                          | 6,300    | 1.000         | 1.000          | 1.000        |             |             | 28,000    | 28,000    | 25,000    |
| H - Transportation of Contaminated Soil to Thermal Desorption Facility | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 6,300    | 1.000         | 0.500          | 1.000        |             |             | 4,000     | 4,000     | 3,000     |
| H - Load Treated Soil for Transport to Hazardous Landfill              | LS        | 3          | --       | 1.55      | /BCY                          | 63       | 1.000         | 1.000          | 1.000        |             |             | 100       | 100       | 100       |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 63       | 1.000         | 1.000          | 1.000        |             |             | 100       | 100       | 100       |
| H - On-Post Hazardous Waste Landfill (Particulates)                    | LS        | 3          | --       | 4.07      | /BCY                          | 63       | 1.000         | 1.000          | 1.000        |             |             | 300       | 300       | 300       |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill         | LS        | 3          | --       | 1.28      | /BCY                          | 6,300    | 1.000         | 1.000          | 1.000        |             |             | 9,000     | 9,000     | 8,000     |
| H - Transportation of Treated Soil to Backfill Excavation              | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 6,300    | 1.000         | 0.500          | 1.000        |             |             | 3,000     | 3,000     | 3,000     |
| H - Backfill with Treated Soil                                         | LS        | 3          | --       | 1.72      | /BCY                          | 6,300    | 1.000         | 1.000          | 1.000        |             |             | 12,000    | 12,000    | 11,000    |
| HB - Soil Excavation                                                   | LS        | 3          | --       | 3.91      | /BCY                          | 190,000  | 1.000         | 1.000          | 1.000        |             |             | 848,000   | 848,000   | 786,000   |
| HB - Transportation of Contaminated Soil to Consolidation Area         | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 190,000  | 1.000         | 0.750          | 1.000        |             |             | 174,000   | 174,000   | 156,000   |
| HB - Grade Filling w/Consolidated Soil Prior to Capping                | LS        | 3          | --       | 3.63      | /BCY                          | 190,000  | 1.000         | 1.000          | 1.000        |             |             | 787,000   | 787,000   | 714,000   |
| HB - Excavation of Borrow Material                                     | LS        | 3          | --       | 1.89      | /BCY                          | 190,000  | 1.000         | 1.000          | 1.000        |             |             | 410,000   | 410,000   | 372,000   |
| HB - Transportation of Borrow Material to Backfill Area                | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 190,000  | 1.000         | 1.500          | 1.000        |             |             | 280,000   | 280,000   | 254,000   |
| HB - Backfill with Borrow Material                                     | LS        | 3          | --       | 1.72      | /BCY                          | 190,000  | 1.000         | 1.000          | 1.000        |             |             | 373,000   | 373,000   | 336,000   |
| HB - Installation of 6 Inches of Topsoil                               | LS        | 3          | --       | 3.24      | /SY                           | 93,000   | 1.000         | 1.000          | 1.000        |             |             | 344,000   | 344,000   | 312,000   |
| HB - Re-vegetation of Disturbed Areas                                  | LS        | 3          | --       | 0.18      | /SY                           | 93,000   | 1.000         | 1.000          | 1.000        | Disturbance |             | 21,000    | 21,000    | 19,000    |
| Subtotal (I)                                                           |           |            |          |           |                               |          |               |                |              |             |             | 3,293,000 | 3,293,000 | 2,987,000 |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                             |           |            |          |           |                               |          |               |                |              |             |             |           |           |           |
| Mob/Demob                                                              |           |            |          | 3.9%      | J = 0.038 * (I)               |          |               |                |              |             |             | 128,000   | 128,000   | 116,000   |
| Indirects, Overhead & Profit                                           |           |            |          | 38.0%     | K = 0.380 * (I+J)             |          |               |                |              |             |             | 1,304,000 | 1,304,000 | 1,210,000 |
| Engineering Design                                                     |           |            |          | 0.5%      | L = 0.005 * (I+J+K)           |          |               |                |              |             |             | 24,000    | 24,000    | 22,000    |
| Resident Engineering                                                   |           |            |          | 1.5%      | M = 0.015 * (I+J+K)           |          |               |                |              |             |             | 71,000    | 71,000    | 65,000    |
| Contingency                                                            |           |            |          | 27.5%     | N = 0.275 * (I+J+K+L+M)       |          |               |                |              |             |             | 1,334,000 | 1,334,000 | 1,210,000 |
| Subtotal (O = J+K+L+M+N)                                               |           |            |          |           |                               |          |               |                |              |             |             | 2,861,000 | 2,861,000 | 2,622,000 |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |           |                               |          |               |                |              |             |             |           |           |           |
| H - Thermal Desorption (Dry Soil)                                      | LS        | 3          | --       | 49.13     | /BCY                          | 6,300    | 1.000         | 1.000          | 1.000        |             |             | 353,000   | 353,000   | 320,000   |
| Subtotal (I1)                                                          |           |            |          |           |                               |          |               |                |              |             |             | 353,000   | 353,000   | 320,000   |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                 |           |            |          |           |                               |          |               |                |              |             |             |           |           |           |
| Mob/Demob                                                              |           |            |          | 0.0%      | J1 = 0.000 * (I1)             |          |               |                |              |             |             | 0         | 0         | 0         |
| Contractor Markup                                                      |           |            |          | 10.0%     | K1 = 0.100 * (I1+J1)          |          |               |                |              |             |             | 36,000    | 36,000    | 32,000    |
| Engineering Design                                                     |           |            |          | 0.0%      | L1 = 0.000 * (I1+J1+K1)       |          |               |                |              |             |             | 0         | 0         | 0         |
| Resident Engineering                                                   |           |            |          | 2.0%      | M1 = 0.020 * (I1+J1+K1)       |          |               |                |              |             |             | 8,000     | 8,000     | 7,000     |
| Contingency                                                            |           |            |          | 40.0%     | N1 = 0.400 * (I1+J1+K1+L1+M1) |          |               |                |              |             |             | 156,000   | 156,000   | 144,000   |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                         |           |            |          |           |                               |          |               |                |              |             |             | 202,000   | 202,000   | 183,000   |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O+I1+O1)                          |           |            |          |           |                               |          |               |                |              |             |             | 6,739,000 | 6,739,000 | 6,112,000 |

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## Alternative 6b: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume: Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |                  |                   |                 |             |                          |                         |                      |
| HB - No Action                                                                                          | A         | 3          | 30       | 0.00                   | /SY     | 93,000   | 1,000            | 1,000             | 1,000           |             | 0                        | 0                       | 0                    |
| H - On-Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 3          | 30       | 0.13                   | /BCY-YR | 63       | 1,000            | 1,000             | 1,000           |             | 10                       | 300                     | 100                  |
| Subtotal (P)                                                                                            |           |            |          |                        |         |          |                  |                   |                 |             |                          |                         |                      |
| Subtotal (P)                                                                                            |           |            |          |                        |         |          |                  |                   |                 |             |                          |                         |                      |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |                  |                   |                 |             |                          |                         |                      |
| COST CODE: LLSL                                                                                         |           |            |          |                        |         |          |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                            |           |            |          |                        |         |          |                  |                   |                 |             | 4                        | 100                     | 100                  |
| Contingency                                                                                             |           |            |          |                        |         |          |                  |                   |                 |             | 4                        | 100                     | 100                  |
| Subtotal (S = Q+R)                                                                                      |           |            |          |                        |         |          |                  |                   |                 |             |                          |                         |                      |
| Subtotal (S = Q+R)                                                                                      |           |            |          |                        |         |          |                  |                   |                 |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |                  |                   |                 |             |                          |                         |                      |
| Subtotal (T = P+S)                                                                                      |           |            |          |                        |         |          |                  |                   |                 |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |                  |                   |                 |             |                          |                         |                      |
| Subtotal (U = H+OO+T)                                                                                   |           |            |          |                        |         |          |                  |                   |                 |             |                          |                         |                      |

TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)

6,910,000

6,280,000

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| Cost Item                                                     | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1993 (\$)<br>Total Cost | 1993 (\$)<br>PW Cost |           |           |
|---------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|-----------|-----------|
| DIRECT CAPITAL COSTS                                          |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |           |
| H1B - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | --       | 5.72                   | /BCY  | 2,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 13,000                   | 13,000                  | 12,000               |           |           |
| H1B - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                             | --       | 3.80                   | /BCY  | 2,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 9,000                    | 9,000                   | 8,000                |           |           |
| Subtotal (A)                                                  |           |                               |          |                        |       |          |       |               |                |              |             | 22,000                   | 22,000                  | 20,000               |           |           |
| INDIRECT CAPITAL COSTS                                        |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |           |
| COST CODE: LLSS                                               |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |           |
| Mob/Demob                                                     | 3.3%      | B = 0.033 * (A)               |          |                        |       |          |       |               |                |              |             |                          |                         | 1,000                | 1,000     | 1,000     |
| Indirects, Overhead & Profit                                  | 39.0%     | C = 0.390 * (A+B)             |          |                        |       |          |       |               |                |              |             |                          |                         | 8,000                | 8,000     | 8,000     |
| Engineering Design                                            | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         | 1,000                | 1,000     | 1,000     |
| Resident Engineering                                          | 1.3%      | E = 0.013 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         | 400                  | 400       | 400       |
| Contingency                                                   | 28.3%     | F = 0.263 * (A+B+C+D+E)       |          |                        |       |          |       |               |                |              |             |                          |                         | 8,000                | 8,000     | 8,000     |
| Subtotal (G = B+C+D+E+F)                                      |           |                               |          |                        |       |          |       |               |                |              |             | 19,000                   | 19,000                  | 18,000               |           |           |
| DIRECT SUBCONTRACT CAPITAL COSTS                              |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |           |
| H1B - Thermal Description (Dry Soil)                          | A         | 1                             | 2        | 14.17                  | /BCY  | 200,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 3,234,000                | 3,234,000               | 3,157,000            |           |           |
| Subtotal (A1)                                                 |           |                               |          |                        |       |          |       |               |                |              |             | 3,234,000                | 3,234,000               | 3,157,000            |           |           |
| INDIRECT SUBCONTRACT CAPITAL COSTS                            |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |           |
| COST CODE: C                                                  |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |           |
| Mob/Demob                                                     | 2.0%      | B1 = 0.020 * (A1)             |          |                        |       |          |       |               |                |              |             |                          |                         | 65,000               | 65,000    | 63,000    |
| Contractor Markup                                             | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |               |                |              |             |                          |                         | 330,000              | 330,000   | 322,000   |
| Engineering Design                                            | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         | 327,000              | 327,000   | 319,000   |
| Resident Engineering                                          | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         | 108,000              | 108,000   | 106,000   |
| Contingency                                                   | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |               |                |              |             |                          |                         | 1,219,000            | 1,219,000 | 1,190,000 |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                |           |                               |          |                        |       |          |       |               |                |              |             | 2,049,000                | 2,049,000               | 2,000,000            |           |           |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                           |           |                               |          |                        |       |          |       |               |                |              |             | 5,324,000                | 5,324,000               | 5,196,000            |           |           |

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Table B4.15-13a Cost Estimate - South Plants Medium Group - South Plants Ditches Subgroup  
Alternative 13a: Direct Thermal Description (Direct Heating)

| Cost Item                                                                | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor                 | Mileage Factor | Other Factor | Description | 1995 (\$)  | 1995 (\$)  | 1995 (\$)  |
|--------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|-------------------------------|----------------|--------------|-------------|------------|------------|------------|
| DIRECT O&M COSTS (OPERATIONS)                                            |           |            |          |           |           |          |       |                               |                |              |             |            |            |            |
| HB - Soil Excavation                                                     | LS        | 3          | --       | 3.91      | /BCY      | 200,000  | BCY   | 1.000                         | 1.000          | 1.000        |             | 692,000    | 692,000    | 692,000    |
| HB - Transportation of Contaminated Soil to Thermal Description Facility | LS        | 3          | --       | 1.07      | /BCY-MILE | 200,000  | BCY   | 1.000                         | 0.500          | 1.000        |             | 122,000    | 122,000    | 111,000    |
| HB - Load Treated Soil for Transport to Hazardous Landfill               | LS        | 3          | --       | 1.55      | /BCY      | 2,000    | BCY   | 1.000                         | 1.000          | 1.000        |             | 4,000      | 4,000      | 3,000      |
| HB - Transportation of Particulates to On-Post Hazardous Waste Landfill  | LS        | 3          | --       | 1.07      | /BCY-MILE | 2,000    | BCY   | 1.000                         | 1.000          | 1.000        |             | 2,000      | 2,000      | 2,000      |
| HB - On-Post Hazardous Waste Landfill (Particulates)                     | LS        | 3          | --       | 4.07      | /BCY      | 2,000    | BCY   | 1.000                         | 1.000          | 1.000        |             | 8,000      | 8,000      | 6,000      |
| HB - Load Nonhazardous Treated Soil from Stockpile for Backfill          | LS        | 3          | --       | 1.28      | /BCY      | 200,000  | BCY   | 1.000                         | 1.000          | 1.000        |             | 262,000    | 262,000    | 265,000    |
| HB - Transportation of Treated Soil to Backfill Excavation               | LS        | 3          | --       | 0.86      | /BCY-MILE | 200,000  | BCY   | 1.000                         | 0.500          | 1.000        |             | 98,000     | 98,000     | 86,000     |
| HB - Backfill with Treated Soil                                          | LS        | 3          | --       | 1.72      | /BCY      | 200,000  | BCY   | 1.000                         | 1.000          | 1.000        |             | 363,000    | 363,000    | 369,000    |
| HB - Installation of 6 Inches of Topsoil                                 | LS        | 3          | --       | 3.24      | /SY       | 93,000   | SY    | 1.000                         | 1.000          | 1.000        |             | 344,000    | 344,000    | 312,000    |
| HB - Revegetation of Disturbed Areas                                     | LS        | 3          | --       | 0.18      | /SY       | 93,000   | SY    | 1.000                         | 1.000          | 1.100        | Disturbance | 21,000     | 21,000     | 19,000     |
| Subtotal (I)                                                             |           |            |          |           |           |          |       |                               |                |              |             | 2,177,000  | 2,177,000  | 1,975,000  |
| INDIRECT O&M COSTS (OPERATIONS)                                          |           |            |          |           |           |          |       |                               |                |              |             |            |            |            |
| Mod/Demob                                                                |           |            |          | 4.5%      |           |          |       | COST CODE: MMMS               |                |              |             |            |            |            |
| Indirects, Overhead & Profit                                             |           |            |          | 39.0%     |           |          |       | J = 0.045 * (I)               |                |              |             |            |            |            |
| Engineering Design                                                       |           |            |          | 1.5%      |           |          |       | K = 0.380 * (I+J)             |                |              |             |            |            |            |
| Resident Engineering                                                     |           |            |          | 1.8%      |           |          |       | L = 0.015 * (I+J+K)           |                |              |             |            |            |            |
| Contingency                                                              |           |            |          | 28.8%     |           |          |       | M = 0.018 * (I+J+K)           |                |              |             |            |            |            |
|                                                                          |           |            |          |           |           |          |       | N = 0.288 * (I+J+K+L+M)       |                |              |             |            |            |            |
| Subtotal (O = J+K+L+M+N)                                                 |           |            |          |           |           |          |       |                               |                |              |             | 2,027,000  | 2,027,000  | 1,839,000  |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                |           |            |          |           |           |          |       |                               |                |              |             |            |            |            |
| HB - Thermal Description (Dry Soil)                                      | LS        | 3          | --       | 49.13     | /BCY      | 200,000  | BCY   | 1.000                         | 1.000          | 1.000        |             | 11,213,000 | 11,213,000 | 10,171,000 |
| Subtotal (II)                                                            |           |            |          |           |           |          |       |                               |                |              |             | 11,213,000 | 11,213,000 | 10,171,000 |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                              |           |            |          |           |           |          |       |                               |                |              |             |            |            |            |
| Mod/Demob                                                                |           |            |          | 0.0%      |           |          |       | COST CODE: D                  |                |              |             |            |            |            |
| Contractor Markup                                                        |           |            |          | 10.0%     |           |          |       | J1 = 0.000 * (I1)             |                |              |             |            |            |            |
| Engineering Design                                                       |           |            |          | 0.0%      |           |          |       | K1 = 0.100 * (I1+J1)          |                |              |             |            |            |            |
| Resident Engineering                                                     |           |            |          | 2.0%      |           |          |       | L1 = 0.000 * (I1+J1+K1)       |                |              |             |            |            |            |
| Contingency                                                              |           |            |          | 40.0%     |           |          |       | M1 = 0.020 * (I1+J1+K1)       |                |              |             |            |            |            |
|                                                                          |           |            |          |           |           |          |       | N1 = 0.400 * (I1+J1+K1+L1+M1) |                |              |             |            |            |            |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                           |           |            |          |           |           |          |       |                               |                |              |             | 0          | 0          | 0          |
|                                                                          |           |            |          |           |           |          |       |                               |                |              |             | 1,121,000  | 1,121,000  | 1,017,000  |
|                                                                          |           |            |          |           |           |          |       |                               |                |              |             | 0          | 0          | 0          |
|                                                                          |           |            |          |           |           |          |       |                               |                |              |             | 247,000    | 247,000    | 224,000    |
|                                                                          |           |            |          |           |           |          |       |                               |                |              |             | 5,032,000  | 5,032,000  | 4,565,000  |
| Subtotal (OO = I+O+II+O1)                                                |           |            |          |           |           |          |       |                               |                |              |             | 6,400,000  | 6,400,000  | 5,805,000  |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O+II+O1)                            |           |            |          |           |           |          |       |                               |                |              |             | 21,818,000 | 21,818,000 | 19,790,000 |

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Table B4.15-13a Cost Estimate - South Plants Medium Group - South Plants Ditches Subgroup  
Alternative 13a: Direct Thermal Desorption (Direct Heating)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       | 0.13                   | /BCY-YR | 2,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 300                      | 8,000                   | 4,000                |
| <b>Subtotal (P)</b>                                                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects: Overhead & Profit 30.0% Q = 0.390 * (P)                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Contingency 30.0% R = 0.300 * (P+Q)                                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (S = Q+R)</b>                                                                               |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             | 1,000                    | 15,000                  | 8,000                |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             | 27,200,000               | 25,000,000              |                      |

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| Cost Item                     | 1992 (\$) | Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | 1995 (\$)   |            | 1995 (\$) | PW Cost |
|-------------------------------|-----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|------------|-----------|---------|
|                               |           |           |       |          |       |               |                |              | Annual Cost | Total Cost |           |         |
| DIRECT CAPITAL COSTS          |           |           |       |          |       |               |                |              |             |            |           |         |
| H - No Action                 | LS        | 1         | --    | 73,000   | SY    | 1.000         | 1.000          | 1.000        |             | 0          | 0         | 0       |
| B - No Action                 | LS        | 1         | --    | 21,000   | SY    | 1.000         | 1.000          | 1.000        |             | 0          | 0         | 0       |
| Subtotal (A)                  |           |           |       |          |       |               |                |              |             |            |           |         |
| INDIRECT CAPITAL COSTS        |           |           |       |          |       |               |                |              |             |            |           |         |
| Mob/Demob                     | 3.3%      |           |       |          |       |               |                |              |             | 0          | 0         | 0       |
| Indirects, Overhead & Profit  | 38.0%     |           |       |          |       |               |                |              |             | 0          | 0         | 0       |
| Engineering Design            | 3.0%      |           |       |          |       |               |                |              |             | 0          | 0         | 0       |
| Resident Engineering          | 1.3%      |           |       |          |       |               |                |              |             | 0          | 0         | 0       |
| Contingency                   | 28.3%     |           |       |          |       |               |                |              |             | 0          | 0         | 0       |
| Subtotal (G = B+C+D+E+F)      |           |           |       |          |       |               |                |              |             |            |           |         |
| TOTAL CAPITAL COSTS (H = A+G) |           |           |       |          |       |               |                |              |             | 0          | 0         | 0       |

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 73,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| B - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 21,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (I)                                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Cost Code                                                                                                     | LLSS      |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| J = 0.033 * (I)                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| K = 0.390 * (I+J)                                                                                             |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| L = 0.005 * (I+J+K)                                                                                           |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| M = 0.013 * (I+J+K+L)                                                                                         |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| N = 0.283 * (I+J+K+L+M)                                                                                       |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Subtotal (O = J+K+L+M+N)                                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| HB - Long Term Soil Monitoring, South Plants Tank Farm                                                        | A         | 1          | 30       | 28,000.00              | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 32,000                   | 859,000                 | 508,000              |
| HB - Site Reviews                                                                                             | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 185,000                 | 98,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (P)                                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 38,000                  | 1,143,000            |
| Cost Code                                                                                                     | LLSL      |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Q = 0.390 * (P)                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 15,000                  | 236,000              |
| R = 0.300 * (P+Q)                                                                                             |           |            |          |                        |        |          |       |               |                |              |             |                          | 16,000                  | 253,000              |
| Subtotal (S)                                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 31,000                  | 489,000              |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             | 89,000                   | 2,065,000               | 1,095,000            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 2,070,000               | 1,090,000            |

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Table B4.16-3 Cost Estimate - South Plants Medium Group - South Plants Tank Farm Area Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                     | Cost Type | Start Year | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1992 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |
|-----------------------------------------------|-----------|------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|---------|
| DIRECT CAPITAL COSTS                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| HB - On-Post Hazardous Waste Landfill         | LS        | 1          | --       | 5.72      | /BCY  | 240,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 1,567,000 | 1,567,000 | 1,567,000 |         |
| HB - On-Post Hazardous Waste Landfill Closure | LS        | 2          | --       | 3.80      | /BCY  | 240,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 1,041,000 | 1,041,000 | 991,000   |         |
|                                               |           |            |          |           |       |          |       |               |                |              |             | 2,607,000 | 2,558,000 |           |         |
| INDIRECT CAPITAL COSTS                        |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Mod/Demob                                     |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Indirects, Overhead & Profit                  | 3.3%      |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Engineering Design                            | 39.0%     |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Resident Engineering                          | 3.0%      |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Contingency                                   | 1.3%      |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
|                                               | 28.3%     |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
|                                               |           |            |          |           |       |          |       |               |                |              |             | 85,000    | 83,000    |           |         |
|                                               |           |            |          |           |       |          |       |               |                |              |             | 1,060,000 | 1,030,000 |           |         |
|                                               |           |            |          |           |       |          |       |               |                |              |             | 112,000   | 110,000   |           |         |
|                                               |           |            |          |           |       |          |       |               |                |              |             | 47,000    | 46,000    |           |         |
|                                               |           |            |          |           |       |          |       |               |                |              |             | 1,024,000 | 1,005,000 |           |         |
|                                               |           |            |          |           |       |          |       |               |                |              |             | 2,318,000 | 2,274,000 |           |         |
|                                               |           |            |          |           |       |          |       |               |                |              |             | 4,925,000 | 4,831,000 |           |         |
| TOTAL CAPITAL COSTS (H = A+G)                 |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |

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Table B4.16-3 Cost Estimate - South Plants Medium Group - South Plants Tank Farm Area Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$)    | Units     | Quantity  | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1993 (\$) | 1995 (\$)  | PW Cost    |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|--------------|-----------|-----------|-------|---------------|----------------|--------------|--------------|-----------|------------|------------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |              |           |           |       |               |                |              |              |           |            |            |
| HB - Soil Excavation                                                                           | LS        | 2          | --       | 3.91         | /BCY      | 240,000   | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 1,266,000 | 1,224,000  |            |
| HB - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill                   | LS        | 2          | --       | 1.07         | /BCY-MILE | 240,000   | BCY   | 1.000         | 1.500          | 1.000        |              | 440,000   | 419,000    |            |
| HB - On-Post Hazardous Waste Landfill                                                          | LS        | 2          | --       | 4.07         | /BCY      | 240,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 1,115,000 | 1,082,000  |            |
| HB - Excavation of Borrow Material                                                             | LS        | 2          | --       | 1.89         | /BCY      | 240,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 518,000   | 493,000    |            |
| HB - Transportation of Borrow Material to Backfill Area                                        | LS        | 2          | --       | 0.86         | /BCY-MILE | 240,000   | BCY   | 1.000         | 1.500          | 1.000        |              | 353,000   | 336,000    |            |
| HB - Backfill with Borrow Material                                                             | LS        | 2          | --       | 1.72         | /BCY      | 240,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 471,000   | 449,000    |            |
| HB - Installation of 6 inches of Topsoil                                                       | LS        | 2          | --       | 3.24         | /SY       | 94,000    | SY    | 1.000         | 1.000          | 1.000        |              | 348,000   | 331,000    |            |
| HB - Revegetation of Disturbed Areas                                                           | LS        | 2          | --       | 0.18         | /SY       | 94,000    | SY    | 1.000         | 1.000          | 1.100        | Disturbance  | 21,000    | 20,000     |            |
|                                                                                                |           |            |          |              |           |           |       |               |                |              |              | 4,550,000 | 4,333,000  |            |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |              |           |           |       |               |                |              |              |           |            |            |
| Mod/Demob                                                                                      |           |            |          |              |           |           |       |               |                |              |              | 178,000   | 188,000    |            |
| Indirects, Overhead & Profit                                                                   |           |            |          | 3.9%         |           |           |       |               |                |              |              | 1,843,000 | 1,756,000  |            |
| Engineering Design                                                                             |           |            |          | 38.0%        |           |           |       |               |                |              |              | 33,000    | 31,000     |            |
| Resident Engineering                                                                           |           |            |          | 0.5%         |           |           |       |               |                |              |              | 89,000    | 84,000     |            |
| Contingency                                                                                    |           |            |          | 1.5%         |           |           |       |               |                |              |              | 1,843,000 | 1,755,000  |            |
|                                                                                                |           |            |          | 27.5%        |           |           |       |               |                |              |              |           |            |            |
|                                                                                                |           |            |          | Subtotal (I) |           | COST CODE |       | MLMS          |                |              |              | 3,984,000 | 3,804,000  |            |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |              |           |           |       |               |                |              |              |           |            |            |
| HB - On-Post Hazardous Waste Landfill Closure                                                  | A         | 2          | 30       | 0.13         | /BCY-YR   | 240,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 36,000    | 1,033,000  | 538,000    |
|                                                                                                |           |            |          |              |           |           |       |               |                |              |              | 36,000    | 1,033,000  | 538,000    |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |              |           |           |       |               |                |              |              |           |            |            |
| Indirects, Overhead & Profit                                                                   |           |            |          | 38.0%        |           |           |       |               |                |              |              | 14,000    | 403,000    | 210,000    |
| Contingency                                                                                    |           |            |          | 30.0%        |           |           |       |               |                |              |              | 15,000    | 431,000    | 225,000    |
|                                                                                                |           |            |          |              |           |           |       |               |                |              |              | 29,000    | 833,000    | 435,000    |
|                                                                                                |           |            |          |              |           |           |       |               |                |              |              | 84,000    | 10,410,000 | 9,111,000  |
|                                                                                                |           |            |          |              |           |           |       |               |                |              |              |           |            | 13,900,000 |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |              |           |           |       |               |                |              |              |           |            |            |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |              |           |           |       |               |                |              |              |           |            |            |

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Table B4.16-6 Cost Estimate - South Plants Medium Group - South Plants Tank Farm Area Subgroup  
Alternative 6: Caps/Covers (Clay/Soil Cap)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-----------|----------|-------|---------------|----------------|--------------|-------------|-------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |           |          |       |               |                |              |             |             |                         |                      |
| HB - Subgrade Preparation Prior to Installing Cap/Cover                                                       | LS        | 1          | --       | 0.06                   | /SY       | 94,000   | SY    | 1.000         | 1.000          | 1.000        | 1.000       | 6,000       | 6,000                   | 6,000                |
| HB - Excavation of Borrow Material                                                                            | LS        | 1          | --       | 1.89                   | /BCY      | 160,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 345,000     | 345,000                 | 345,000              |
| HB - Transportation of Borrow Material to Backfill Area                                                       | LS        | 1          | --       | 0.86                   | /BCY-MILE | 160,000  | BCY   | 1.000         | 1.500          | 1.000        | 1.000       | 236,000     | 236,000                 | 236,000              |
| HB - Backfill with Borrow Material                                                                            | LS        | 1          | --       | 1.72                   | /BCY      | 160,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 314,000     | 314,000                 | 314,000              |
| HB - Installation of Clay/Soil Cap                                                                            | LS        | 1          | --       | 23.30                  | /SY       | 94,000   | SY    | 1.000         | 1.000          | 1.000        | 1.000       | 2,489,000   | 2,489,000               | 2,489,000            |
| HB - Revegetation of Disturbed Areas                                                                          | LS        | 1          | --       | 0.18                   | /SY       | 94,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance | 21,000      | 21,000                  | 21,000               |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |           |          |       |               |                |              |             |             |                         |                      |
| Mod/Demob                                                                                                     |           |            |          |                        |           |          |       |               |                |              |             |             |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          | 3.3%                   |           |          |       |               |                |              |             |             |                         |                      |
| Engineering Design                                                                                            |           |            |          | 37.8%                  |           |          |       |               |                |              |             |             |                         |                      |
| Resident Engineering                                                                                          |           |            |          | 0.5%                   |           |          |       |               |                |              |             |             |                         |                      |
| Contingency                                                                                                   |           |            |          | 1.3%                   |           |          |       |               |                |              |             |             |                         |                      |
|                                                                                                               |           |            |          | 26.3%                  |           |          |       |               |                |              |             |             |                         |                      |
| <b>Subtotal (I)</b>                                                                                           |           |            |          |                        |           |          |       |               |                |              |             |             |                         |                      |
| <b>Subtotal (I) = J+K+L+M+N</b>                                                                               |           |            |          |                        |           |          |       |               |                |              |             |             |                         |                      |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |           |          |       |               |                |              |             |             |                         |                      |
| HB - Installation of Clay/Soil Cap                                                                            | A         | 2          | 30       | 0.80                   | /SY-YR    | 94,000   | SY    | 1.000         | 1.000          | 1.000        | 1.000       | 66,000      | 66,000                  | 66,000               |
| HB - Site Reviews                                                                                             | A         | 2          | 30       | 5,400.00               | /EA-YR    | 1        | EA    | 1.000         | 1.000          | 1.000        | 1.000       | 179,000     | 179,000                 | 93,000               |
| <b>Subtotal (O) = J+K+L+M+N</b>                                                                               |           |            |          |                        |           |          |       |               |                |              |             |             |                         |                      |
| <b>Subtotal (O) = J+K+L+M+N</b>                                                                               |           |            |          |                        |           |          |       |               |                |              |             |             |                         |                      |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |           |          |       |               |                |              |             |             |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          | 39.0%                  |           |          |       |               |                |              |             |             |                         |                      |
| Contingency                                                                                                   |           |            |          | 30.0%                  |           |          |       |               |                |              |             |             |                         |                      |
| <b>Subtotal (P)</b>                                                                                           |           |            |          |                        |           |          |       |               |                |              |             |             |                         |                      |
| <b>Subtotal (P) = Q+R+L+SL</b>                                                                                |           |            |          |                        |           |          |       |               |                |              |             |             |                         |                      |
| <b>Subtotal (S)</b>                                                                                           |           |            |          |                        |           |          |       |               |                |              |             |             |                         |                      |
| <b>Subtotal (S) = T+U+V+P+S</b>                                                                               |           |            |          |                        |           |          |       |               |                |              |             |             |                         |                      |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |           |          |       |               |                |              |             |             |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = I+T)</b>                                                  |           |            |          |                        |           |          |       |               |                |              |             |             |                         |                      |
| <b>HSPT-06 W01</b>                                                                                            |           |            |          |                        |           |          |       |               |                |              |             |             |                         |                      |
| <b>SOILS DAA</b>                                                                                              |           |            |          |                        |           |          |       |               |                |              |             |             |                         |                      |

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| Cost Item                                                    | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2          | --       | 5.72                   | /BCY  | 2,400    | BCY   | 1.000         | 1.000          | 1.000        |             | 16,000                   | 16,000                  | 15,000               |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3          | --       | 3.80                   | /BCY  | 2,400    | BCY   | 1.000         | 1.000          | 1.000        |             | 10,000                   | 10,000                  | 9,000                |
| <b>Subtotal (A)</b>                                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT CAPITAL COSTS</b>                                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| MOB/Demob                                                    |           |            |          |                        |       |          |       |               |                |              |             |                          |                         | 24,000               |
| Indirects, Overhead & Profit                                 |           |            |          |                        |       |          |       |               |                |              |             | 1,000                    | 1,000                   | 1,000                |
| Engineering Design                                           |           |            |          |                        |       |          |       |               |                |              |             | 10,000                   | 10,000                  | 10,000               |
| Resident Engineering                                         |           |            |          |                        |       |          |       |               |                |              |             | 1,000                    | 1,000                   | 1,000                |
| Contingency                                                  |           |            |          |                        |       |          |       |               |                |              |             | 500                      | 500                     | 400                  |
|                                                              |           |            |          |                        |       |          |       |               |                |              |             | 400                      | 400                     | 400                  |
|                                                              |           |            |          |                        |       |          |       |               |                |              |             | 10,000                   | 10,000                  | 10,000               |
| <b>Subtotal (B = B+C+D+E+F)</b>                              |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                      |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| HB - Thermal Desorption (Dry Soil)                           | A         | 1          | 2        | 14.17                  | /BCY  | 240,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 3,681,000                | 3,681,000               | 3,768,000            |
| <b>Subtotal (A1)</b>                                         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                    |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| MOB/Demob                                                    |           |            |          |                        |       |          |       |               |                |              |             |                          |                         | 78,000               |
| Contractor Markup                                            |           |            |          |                        |       |          |       |               |                |              |             | 396,000                  | 396,000                 | 396,000              |
| Engineering Design                                           |           |            |          |                        |       |          |       |               |                |              |             | 392,000                  | 392,000                 | 393,000              |
| Resident Engineering                                         |           |            |          |                        |       |          |       |               |                |              |             | 131,000                  | 131,000                 | 128,000              |
| Contingency                                                  |           |            |          |                        |       |          |       |               |                |              |             | 1,463,000                | 1,463,000               | 1,428,000            |
| <b>Subtotal (G1 = B1+C1+D1+E1+F1)</b>                        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (H)</b>                                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>6,389,000</b>                                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>16-Jan-93</b>                                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

| Cost Item                                                               | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)  | 1993 (\$)  | 1993 (\$)  |
|-------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|------------|------------|------------|
| DIRECT O&M COSTS (OPERATIONS)                                           |           |            |          |           |           |          |       |               |                |              |             |            |            |            |
| HB - Soil Excavation                                                    | LS        | 3          | --       | 3.91      | /BCY      | 240,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.200       | 1,285,000  | 1,188,000  | 1,188,000  |
| HB - Transportation of Contaminated Soil to Thermal Desorption Facility | LS        | 3          | --       | 1.07      | /BCY-MILE | 240,000  | BCY   | 1.000         | 0.500          | 1.000        | 1.000       | 147,000    | 133,000    | 133,000    |
| HB - Load Treated Soil for Transport to Hazardous Landfill              | LS        | 3          | --       | 1.35      | /BCY      | 2,400    | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 4,000      | 4,000      | 4,000      |
| HB - Transportation of Particulates to On-Post Hazardous Waste Landfill | LS        | 3          | --       | 1.07      | /BCY-MILE | 2,400    | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 3,000      | 3,000      | 3,000      |
| HB - On-Post Hazardous Waste Landfill (Particulates)                    | LS        | 3          | --       | 4.07      | /BCY      | 2,400    | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 11,000     | 11,000     | 11,000     |
| HB - Load Nonhazardous Treated Soil from Stockpile for Backfill         | LS        | 3          | --       | 1.28      | /BCY      | 240,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 361,000    | 318,000    | 318,000    |
| HB - Transportation of Treated Soil to Backfill Excavation              | LS        | 3          | --       | 0.86      | /BCY-MILE | 240,000  | BCY   | 1.000         | 0.500          | 1.000        | 1.000       | 118,000    | 107,000    | 107,000    |
| HB - Backfill with Treated Soil                                         | LS        | 3          | --       | 1.72      | /BCY      | 240,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 471,000    | 427,000    | 427,000    |
| HB - Installation of 6 Inches of Topsoil                                | LS        | 3          | --       | 3.24      | /SY       | 94,000   | SY    | 1.000         | 1.000          | 1.000        | 1.000       | 348,000    | 315,000    | 315,000    |
| HB - Revegetation of Disturbed Areas                                    | LS        | 3          | --       | 0.18      | /SY       | 94,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance | 21,000     | 19,000     | 19,000     |
| Subtotal (f)                                                            |           |            |          |           |           |          |       |               |                |              |             | 2,758,000  | 2,502,000  | 2,502,000  |
| INDIRECT O&M COSTS (OPERATIONS)                                         |           |            |          |           |           |          |       |               |                |              |             |            |            |            |
| Mod/Demob                                                               |           |            |          |           |           |          |       |               |                |              |             |            |            |            |
| Indirects, Overhead & Profit                                            |           |            |          | 3.8%      |           |          |       |               |                |              |             | 107,000    | 97,000     | 97,000     |
| Engineering Design                                                      |           |            |          | 38.0%     |           |          |       |               |                |              |             | 1,117,000  | 1,013,000  | 1,013,000  |
| Resident Engineering                                                    |           |            |          | 0.5%      |           |          |       |               |                |              |             | 20,000     | 18,000     | 18,000     |
| Contingency                                                             |           |            |          | 1.5%      |           |          |       |               |                |              |             | 80,000     | 54,000     | 54,000     |
|                                                                         |           |            |          | 27.5%     |           |          |       |               |                |              |             | 1,117,000  | 1,013,000  | 1,013,000  |
| Subtotal (g) = J+K+L+M+N                                                |           |            |          |           |           |          |       |               |                |              |             | 2,421,000  | 2,188,000  | 2,188,000  |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                               |           |            |          |           |           |          |       |               |                |              |             |            |            |            |
| HB - Thermal Desorption (Dry Soil)                                      | LS        | 3          | --       | 49.13     | /BCY      | 240,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 13,458,000 | 12,205,000 | 12,205,000 |
| Subtotal (h)                                                            |           |            |          |           |           |          |       |               |                |              |             | 13,458,000 | 12,205,000 | 12,205,000 |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                             |           |            |          |           |           |          |       |               |                |              |             |            |            |            |
| Mod/Demob                                                               |           |            |          |           |           |          |       |               |                |              |             |            |            |            |
| Contractor Markup                                                       |           |            |          | 0.0%      |           |          |       |               |                |              |             | 0          | 0          | 0          |
| Engineering Design                                                      |           |            |          | 10.0%     |           |          |       |               |                |              |             | 1,348,000  | 1,220,000  | 1,220,000  |
| Resident Engineering                                                    |           |            |          | 0.0%      |           |          |       |               |                |              |             | 0          | 0          | 0          |
| Contingency                                                             |           |            |          | 2.0%      |           |          |       |               |                |              |             | 288,000    | 268,000    | 268,000    |
|                                                                         |           |            |          | 40.0%     |           |          |       |               |                |              |             | 8,036,000  | 5,477,000  | 5,477,000  |
| Subtotal (i) = J1+K1+L1+M1+N1                                           |           |            |          |           |           |          |       |               |                |              |             | 7,681,000  | 6,986,000  | 6,986,000  |
| TOTAL O&M COSTS (OPERATIONS) (G+H+I)                                    |           |            |          |           |           |          |       |               |                |              |             | 28,315,000 | 23,888,000 | 23,888,000 |

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$) | Quantity | Units | Volume | Mileage | Other | Factor | Description | Annual Cost | 1995 (\$)  | 1995 (\$)  | 1995 (\$) | PW Cost    |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|----------|-------|--------|---------|-------|--------|-------------|-------------|------------|------------|-----------|------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |           |          |       |        |         |       |        |             |             |            |            |           |            |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates)                                           | A         | 3          | 30       | 0.13      | 2,400    | BCY   | 1,000  | 1,000   | 1,000 | 1,000  |             | 400         | 10,000     | 10,000     |           | 5,000      |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |           |          |       |        |         |       |        |             |             |            |            |           |            |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |           |          |       |        |         |       |        |             |             |            |            |           |            |
| Indirects, Overhead & Profit                                                                           |           |            |          |           |          |       |        |         |       |        |             | 100         | 4,000      | 4,000      |           | 2,000      |
| Contingency                                                                                            |           |            |          |           |          |       |        |         |       |        |             | 100         | 4,000      | 4,000      |           | 2,000      |
| <b>Subtotal (S = O+P)</b>                                                                              |           |            |          |           |          |       |        |         |       |        |             |             |            |            |           |            |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |           |          |       |        |         |       |        |             |             |            |            |           |            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |           |          |       |        |         |       |        |             |             |            |            |           |            |
|                                                                                                        |           |            |          |           |          |       |        |         |       |        |             |             | 32,700,000 | 32,700,000 |           | 30,100,000 |

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| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$)    | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$) | PW Cost   |
|-------------------------------|-----------|------------|----------|--------------|-------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|-----------|-----------|
|                               |           | Year       | Year     | Unit Cost    |       |          |       |               |                |              |             | Annual Cost | Total Cost |           |           |
| DIRECT CAPITAL COSTS          |           |            |          |              |       |          |       |               |                |              |             |             |            |           |           |
| H - Soil Vapor Extraction     | LS        | 1          | --       | 1,053,000.00 | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 1,202,000   | 1,202,000  |           | 1,202,000 |
| Subtotal (A)                  |           |            |          |              |       |          |       |               |                |              |             | 1,202,000   |            | 1,202,000 |           |
| INDIRECT CAPITAL COSTS        |           |            |          |              |       |          |       |               |                |              |             |             |            |           |           |
| Mod/Demob                     |           |            |          |              |       |          |       |               |                |              |             |             | 38,000     |           | 38,000    |
| Indirects, Overhead & Profit  |           |            |          |              |       |          |       |               |                |              |             |             | 484,000    |           | 484,000   |
| Engineering Design            |           |            |          |              |       |          |       |               |                |              |             |             | 52,000     |           | 52,000    |
| Resident Engineering          |           |            |          |              |       |          |       |               |                |              |             |             | 22,000     |           | 22,000    |
| Contingency                   |           |            |          |              |       |          |       |               |                |              |             |             | 472,000    |           | 472,000   |
| Subtotal (G =B+C+D+E+F)       |           |            |          |              |       |          |       |               |                |              |             | 1,088,000   |            | 1,088,000 |           |
| TOTAL CAPITAL COSTS (H = A+G) |           |            |          |              |       |          |       |               |                |              |             | 2,270,000   |            | 2,270,000 |           |

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Table B4.16-16a Cost Estimate - South Plants Medium Group - South Plants Tank Farm Area Subgroup  
Alternative 16a: In Situ Physical/Chemical Treatment (Vacuum Extraction)

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$) | 1995 (\$) | 1995 (\$) | PW Cost   |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|-----------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |           |           |          |       |               |                |              |             |           |           |           |           |
| H - Soil Vapor Extraction                                                                      | A         | 1          | 10       | 2.97      | /SY-YR    | 73,000   | SY    | 1.000         | 1.000          | 1.000        |             |           |           |           |           |
| B - Agricultural Practices                                                                     | LS        | 1          | --       | 0.20      | /SY       | 21,000   | SY    | 1.000         | 1.000          | 1.000        |             |           |           |           |           |
| H - Load Treated Soil for Transport to Hazardous Landfill                                      | LS        | 1          | --       | 1.55      | /BCY      | 98,720   | BCY   | 1.000         | 1.000          | 1.000        |             |           |           |           |           |
| H - Transportation of Contaminated Soil to Consolidation Area                                  | LS        | 1          | --       | 1.07      | /BCY-MILE | 98,720   | BCY   | 1.000         | 0.500          | 1.000        |             |           |           |           |           |
| H - Grade Filling w/Consolidated Soil Prior to Capping                                         | LS        | 1          | --       | 3.63      | /BCY      | 98,720   | BCY   | 1.000         | 1.000          | 1.000        |             |           |           |           |           |
| Subtotal (I)                                                                                   |           |            |          |           |           |          |       |               |                |              |             | 3,123,000 | 2,855,000 |           |           |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |           |           |          |       |               |                |              |             |           |           |           |           |
| Mob/Demob                                                                                      |           |            |          | 3.3%      |           |          |       |               |                |              |             |           |           |           |           |
| Indirects, Overhead & Profit                                                                   |           |            |          | 39.0%     |           |          |       |               |                |              |             |           |           |           |           |
| Engineering Design                                                                             |           |            |          | 0.5%      |           |          |       |               |                |              |             |           |           |           |           |
| Resident Engineering                                                                           |           |            |          | 1.8%      |           |          |       |               |                |              |             |           |           |           |           |
| Contingency                                                                                    |           |            |          | 30.0%     |           |          |       |               |                |              |             |           |           |           |           |
| Subtotal (O = J+K+L+M+N)                                                                       |           |            |          |           |           |          |       |               |                |              |             | 1,375,000 | 1,169,000 |           |           |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |           |           |          |       |               |                |              |             |           |           |           |           |
| H - No Action                                                                                  | A         | 11         | 30       | 0.00      | /SY       | 73,000   | SY    | 1.000         | 1.000          | 1.000        |             | 0         | 0         | 0         | 0         |
| B - Long Term Soil Monitoring, South Plants Tank Farm                                          | A         | 2          | 30       | 16,000.00 | /EA-YR    | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 18,000    | 530,000   | 276,000   | 276,000   |
| B - Site Reviews                                                                               | A         | 2          | 30       | 5,400.00  | /EA-YR    | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000     | 179,000   | 93,000    | 93,000    |
| Subtotal (P)                                                                                   |           |            |          |           |           |          |       |               |                |              |             | 24,000    | 708,000   | 370,000   |           |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |           |           |          |       |               |                |              |             |           |           |           |           |
| Indirects, Overhead & Profit                                                                   |           |            |          | 39.0%     |           |          |       |               |                |              |             | 10,000    | 276,000   | 144,000   | 144,000   |
| Contingency                                                                                    |           |            |          | 30.0%     |           |          |       |               |                |              |             | 10,000    | 295,000   | 154,000   | 154,000   |
| Subtotal (S)                                                                                   |           |            |          |           |           |          |       |               |                |              |             | 20,000    | 572,000   | 298,000   |           |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |           |           |          |       |               |                |              |             | 44,000    | 7,237,000 | 5,732,000 | 5,732,000 |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |           |           |          |       |               |                |              |             |           | 9,310,000 | 8,000,000 | 8,000,000 |

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| Cost Item                                 | Cost Type | Start Year | End Year | 1997 (\$) | Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | Annual Cost | 1997 (\$) | Total Cost | 1995 (\$) | PW Cost |
|-------------------------------------------|-----------|------------|----------|-----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-------------|-----------|------------|-----------|---------|
| <b>DIRECT CAPITAL COSTS</b>               |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>INDIRECT CAPITAL COSTS</b>             |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Mob/Demob                                 |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Indirects, Overhead & Profit              |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Engineering Design                        |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Resident Engineering                      |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Contingency                               |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>Subtotal (A)</b>                       |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>INDIRECT CAPITAL COSTS</b>             |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Mob/Demob                                 |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Indirects, Overhead & Profit              |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Engineering Design                        |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Resident Engineering                      |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Contingency                               |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>Subtotal (A)</b>                       |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b> |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Mob/Demob                                 |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Contractor Markup                         |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Engineering Design                        |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Resident Engineering                      |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Contingency                               |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>Subtotal (A)</b>                       |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b> |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Mob/Demob                                 |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Contractor Markup                         |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Engineering Design                        |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Resident Engineering                      |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Contingency                               |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>Subtotal (A)</b>                       |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>TOTAL CAPITAL COSTS (H = A+G+I+G1)</b> |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>HSPT-19A.WOI</b>                       |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>SOILS DAA</b>                          |           |            |          |           |           |       |          |       |               |                |              |             |           |             |           |            |           |         |

**Table B4.16-19a**  
**Cost Estimate - South Plants Medium Group - South Plants Tank Farm Area Subgroup Alternative 19a: In Situ Thermal Treatment (RF/Microwave Heating)**



Table B4.16-19a Cost Estimate - South Plants Medium Group - South Plants Tank Farm Area Subgroup  
Alternative 19a: In Situ Thermal Treatment (RF/Microwave Heating)

| Cost Item                                                                                                | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|----------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                       |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                                                                                            | A         | 4          | 30       | 0.00                   | /SY    | 73,000   | SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| R - Long Term Soil Monitoring, South Plants Tank Farm                                                    | A         | 1          | 30       | 16,000.00              | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 16,000                   | 548,000                 | 280,000              |
| B - Site Reviews                                                                                         | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 185,000                 | 98,000               |
| <b>Subtotal (P)</b>                                                                                      |           |            |          |                        |        |          |       |               |                |              |             | 24,000                   | 733,000                 | 388,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| <b>COST CODE: LLSL</b>                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                             |           |            |          |                        |        |          |       |               |                |              |             | 10,000                   | 288,000                 | 151,000              |
| Contingency                                                                                              |           |            |          |                        |        |          |       |               |                |              |             | 10,000                   | 306,000                 | 162,000              |
| <b>Subtotal (S = Q+R)</b>                                                                                |           |            |          |                        |        |          |       |               |                |              |             | 20,000                   | 591,000                 | 313,000              |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                              |           |            |          |                        |        |          |       |               |                |              |             | 44,000                   | 1,324,000               | 702,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = It+00+T)</b> |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                          |           |            |          |                        |        |          |       |               |                |              |             | 86,400,000               | 86,400,000              | 80,800,000           |

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Table B4.17-1 Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                    | Cost Type | Start Year | End Year | 1992 (\$)               |      | Units | Quantity | Units | Volume Mileage |        | Other Factor | 1995 (\$)   |            | 1995 (\$) | PW Cost |
|------------------------------|-----------|------------|----------|-------------------------|------|-------|----------|-------|----------------|--------|--------------|-------------|------------|-----------|---------|
|                              |           |            |          | Unit Cost               |      |       |          |       | Factor         | Factor |              | Annual Cost | Total Cost |           |         |
| DIRECT CAPITAL COSTS         |           |            |          |                         |      |       |          |       |                |        |              |             |            |           |         |
| H - No Action                | LS        | 1          | --       |                         | 0.00 | /SY   | 120,000  | SY    | 1,000          | 1,000  | 1,000        |             | 0          | 0         | 0       |
| B - No Action                | LS        | 1          | --       |                         | 0.00 | /SY   | 500,000  | SY    | 1,000          | 1,000  | 1,000        |             | 0          | 0         | 0       |
| A - No Action                | LS        | 1          | --       |                         | 0.00 | /SY   | 43,000   | SY    | 1,000          | 1,000  | 1,000        |             | 0          | 0         | 0       |
| U - No Action                | LS        | 1          | --       |                         | 0.00 | /SY   | 15,000   | SY    | 1,000          | 1,000  | 1,000        |             | 0          | 0         | 0       |
| Subtotal (A)                 |           |            |          |                         |      |       |          |       |                |        |              |             | 0          | 0         |         |
| INDIRECT CAPITAL COSTS       |           |            |          |                         |      |       |          |       |                |        |              |             |            |           |         |
| Mod/Demob                    | LSS       |            |          |                         |      |       |          |       |                |        |              |             |            |           |         |
| Indirects, Overhead & Profit | 3.3%      | COST CODE  |          | B = 0.033 * (A)         |      |       |          |       |                |        |              |             |            |           |         |
| Engineering Design           | 36.0%     |            |          | C = 0.360 * (A+E)       |      |       |          |       |                |        |              |             |            |           |         |
| Resident Engineering         | 3.0%      |            |          | D = 0.030 * (A+B+C)     |      |       |          |       |                |        |              |             |            |           |         |
| Contingency                  | 1.3%      |            |          | E = 0.013 * (A+B+C)     |      |       |          |       |                |        |              |             |            |           |         |
|                              | 26.3%     |            |          | F = 0.263 * (A+B+C+D+E) |      |       |          |       |                |        |              |             |            |           |         |
| Subtotal (G =B+C+D+E+F)      |           |            |          |                         |      |       |          |       |                |        |              |             | 0          | 0         |         |

Table B4.17-1 Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                                                                                      | Cost Type    | Start Year | End Year | 1992 (\$)                | Units  | Quantity | Units               | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$) |           |           |           |
|------------------------------------------------------------------------------------------------|--------------|------------|----------|--------------------------|--------|----------|---------------------|---------------|----------------|--------------|-------------|-------------|------------|-----------|-----------|-----------|-----------|
|                                                                                                |              |            |          | Unit Cost                |        |          |                     |               |                |              |             | Annual Cost | Total Cost | PW Cost   |           |           |           |
| DIRECT O&M COSTS (OPERATIONS)                                                                  |              |            |          |                          |        |          |                     |               |                |              |             |             |            |           |           |           |           |
| H - No Action                                                                                  | LS           | 1          | --       | 0.00                     | /SY    | 120,000  | SY                  | 1.000         | 1.000          | 1.000        |             |             | 0          | 0         |           |           |           |
| B - No Action                                                                                  | LS           | 1          | --       | 0.00                     | /SY    | 500,000  | SY                  | 1.000         | 1.000          | 1.000        |             |             | 0          | 0         |           |           |           |
| A - No Action                                                                                  | LS           | 1          | --       | 0.00                     | /SY    | 43,000   | SY                  | 1.000         | 1.000          | 1.000        |             |             | 0          | 0         |           |           |           |
| U - No Action                                                                                  | LS           | 1          | --       | 0.00                     | /SY    | 15,000   | SY                  | 1.000         | 1.000          | 1.000        |             |             | 0          | 0         |           |           |           |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |              |            |          |                          |        |          |                     |               |                |              |             |             |            |           |           |           |           |
|                                                                                                | Subtotal (I) |            |          | COST CODE                |        |          | LLSS                |               |                |              |             |             | 0          | 0         |           |           |           |
| Mob/Demob                                                                                      | 3.3%         |            |          | J = 0.033 * (I)          |        |          | K = 0.390 * (I+J)   |               |                |              |             |             | 0          | 0         |           |           |           |
| Indirects, Overhead & Profit                                                                   | 39.0%        |            |          | L = 0.005 * (I+J+K)      |        |          | M = 0.013 * (I+J+K) |               |                |              |             |             | 0          | 0         |           |           |           |
| Engineering Design                                                                             | 0.5%         |            |          | N = 0.263 * (I+J+K+L+M)  |        |          |                     |               |                |              |             |             | 0          | 0         |           |           |           |
| Resident Engineering                                                                           | 1.3%         |            |          | Subtotal (O = J+K+L+M+N) |        |          |                     |               |                |              |             |             | 0          | 0         |           |           |           |
| Contingency                                                                                    | 26.3%        |            |          |                          |        |          |                     |               |                |              |             |             | 0          | 0         |           |           |           |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |              |            |          |                          |        |          |                     |               |                |              |             |             |            |           |           |           |           |
| HIB - Long Term Soil Monitoring, South Plants Balance of Areas                                 | A            | 1          | 30       | 146,000.00               | /EA-YR | 1        | EA                  | 1.000         | 1.000          | 1.000        |             | 167,000     | 4,998,000  | 2,849,000 |           |           |           |
| HBAU - Site Reviews                                                                            | A            | 1          | 30       | 5,400.00                 | /EA-YR | 1        | EA                  | 1.000         | 1.000          | 1.000        |             | 6,000       | 185,000    | 96,000    |           |           |           |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |              |            |          |                          |        |          |                     |               |                |              |             |             |            |           |           |           |           |
|                                                                                                | Subtotal (P) |            |          | COST CODE                |        |          | LLSL                |               |                |              |             |             | 173,000    | 5,183,000 | 2,747,000 |           |           |
| Indirects, Overhead & Profit                                                                   | 39.0%        |            |          | Q = 0.390 * (P)          |        |          | R = 0.300 * (P+Q)   |               |                |              |             |             | 87,000     | 2,021,000 | 1,071,000 |           |           |
| Contingency                                                                                    | 30.0%        |            |          |                          |        |          |                     |               |                |              |             |             | 72,000     | 2,161,000 | 1,145,000 |           |           |
| Subtotal (S)                                                                                   |              |            |          |                          |        |          |                     |               |                |              |             |             |            |           | 139,000   | 4,183,000 | 2,217,000 |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |              |            |          |                          |        |          |                     |               |                |              |             |             |            |           | 312,000   | 9,366,000 | 4,963,000 |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |              |            |          |                          |        |          |                     |               |                |              |             |             |            |           | 9,370,000 | 4,960,000 |           |

[Note: Total O&M Annual Cost Only Includes Long-Term Activities]

Table B4.17-1a Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
Alternative 1a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume, No Additional Action (Provisions of FFA)

| Cost Item                                                   | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                        |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - No Action (Limited)                                     | LS        | 1                             | --       | 0.00                   | /SY   | 120,000  | SY    | 1,000         | 1,000          | 1,000        |             | 0                        | 0                       | 0                    |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                             | --       | 3.80                   | /BCY  | 190      | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000                    | 1,000                   | 1,000                |
| B - No Action                                               | LS        | 1                             | --       | 0.00                   | /SY   | 500,000  | SY    | 1,000         | 1,000          | 1,000        |             | 0                        | 0                       | 0                    |
| Subtotal (A)                                                |           |                               |          |                        |       |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
| INDIRECT CAPITAL COSTS                                      |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSS                                             |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                   | 3.3%      | B = 0.033 * (A)               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                | 38.0%     | C = 0.380 * (A+B)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                          | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                        | 1.3%      | E = 0.013 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                 | 28.3%     | F = 0.283 * (A+B+C+D+E)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                    |           |                               |          |                        |       |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
| DIRECT SUBCONTRACT CAPITAL COSTS                            |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - Thermal Desorption (Dry Soil)                           | A         | 1                             | 2        | 14.17                  | /BCY  | 19,000   | BCY   | 1,000         | 1,000          | 1,000        |             | 307,000                  | 307,000                 | 300,000              |
| Subtotal (A1)                                               |           |                               |          |                        |       |          |       |               |                |              |             |                          | 307,000                 | 300,000              |
| INDIRECT SUBCONTRACT CAPITAL COSTS                          |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: C                                                |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                   | 2.0%      | B1 = 0.020 * (A1)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                           | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                          | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                        | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                 | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |                               |          |                        |       |          |       |               |                |              |             |                          | 195,000                 | 180,000              |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                         |           |                               |          |                        |       |          |       |               |                |              |             |                          | 503,000                 | 491,000              |

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Table B4.17-1a Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
Alternative 1a: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; No Additional Action (Provisions of FFA)

| Cost Item                                                              | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume | Mileage | Other | Factor | Description   | 1995 (\$)   | 1995 (\$)  | 1995 (\$) |
|------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|--------|---------|-------|--------|---------------|-------------|------------|-----------|
|                                                                        |           |            |          | Unit Cost |           |          |       | Factor |         |       |        |               | Annual Cost | Total Cost | PW Cost   |
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                               |           |            |          |           |           |          |       |        |         |       |        |               |             |            |           |
| A - Drilling and Agent Screening Prior to Excavation                   | LS        | 2          | --       | 4.89      | /SY       | 17,000   | SY    | 1,000  | 1,000   | 1,000 | 1,000  |               | 16,000      | 16,000     | 90,000    |
| U - UXO Clearance by Geophysics                                        | LS        | 2          | --       | 0.85      | /SY       | 17,000   | SY    | 1,000  | 1,000   | 1,000 | 1,000  |               | 16,000      | 16,000     | 18,000    |
| H - No Action (Limited)                                                | LS        | 1          | --       | 0.00      | /SY       | 120,000  | SY    | 1,000  | 1,000   | 1,000 | 1,000  |               | 0           | 0          | 0         |
| H - Soil Excavation                                                    | LS        | 3          | --       | 3.91      | /BCY      | 19,000   | BCY   | 1,000  | 1,000   | 1,000 | 1,000  | Older Control | 102,000     | 102,000    | 92,000    |
| H - Transportation of Contaminated Soil to Thermal Desorption Facility | LS        | 3          | --       | 1.07      | /BCY-MILE | 19,000   | BCY   | 1,000  | 0.500   | 1,000 | 1,000  |               | 12,000      | 11,000     | 11,000    |
| H - Load Treated Soil for Transport to Hazardous Landfill              | LS        | 3          | --       | 1.55      | /BCY      | 19,000   | BCY   | 1,000  | 1,000   | 1,000 | 1,000  |               | 34,000      | 34,000     | 30,000    |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill | LS        | 3          | --       | 1.07      | /BCY-MILE | 190      | BCY   | 1,000  | 1,000   | 1,000 | 1,000  |               | 200         | 200        | 200       |
| H - On-Post Hazardous Waste Landfill (Particulates)                    | LS        | 3          | --       | 4.07      | /BCY      | 190      | BCY   | 1,000  | 1,000   | 1,000 | 1,000  |               | 1,000       | 1,000      | 1,000     |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill         | LS        | 3          | --       | 1.28      | /BCY      | 190      | BCY   | 1,000  | 1,000   | 1,000 | 1,000  |               | 300         | 300        | 300       |
| H - Transportation of Treated Soil to Backfill Excavation              | LS        | 3          | --       | 0.86      | /BCY-MILE | 19,000   | BCY   | 1,000  | 0.500   | 1,000 | 1,000  |               | 9,000       | 9,000      | 8,000     |
| H - Backfill with Treated Soil                                         | LS        | 3          | --       | 1.72      | /BCY      | 19,000   | BCY   | 1,000  | 1,000   | 1,000 | 1,000  |               | 37,000      | 37,000     | 34,000    |
| H - Installation of 6 Inches of Topsoil                                | LS        | 3          | --       | 3.24      | /SY       | 17,000   | SY    | 1,000  | 1,000   | 1,000 | 1,000  |               | 63,000      | 63,000     | 57,000    |
| H - Revegetation of Disturbed Areas                                    | LS        | 3          | --       | 0.18      | /SY       | 17,000   | SY    | 1,000  | 1,000   | 1,000 | 1,000  | Disturbance   | 4,000       | 4,000      | 3,000     |
| B - No Action                                                          | LS        | 1          | --       | 0.00      | /SY       | 500,000  | SY    | 1,000  | 1,000   | 1,000 | 1,000  |               | 0           | 0          | 0         |
| A - No Action                                                          | LS        | 1          | --       | 0.00      | /SY       | 43,000   | SY    | 1,000  | 1,000   | 1,000 | 1,000  |               | 0           | 0          | 0         |
| U - No Action                                                          | LS        | 1          | --       | 0.00      | /SY       | 15,000   | SY    | 1,000  | 1,000   | 1,000 | 1,000  |               | 0           | 0          | 0         |
| <b>Subtotal (I)</b>                                                    |           |            |          |           |           |          |       |        |         |       |        |               |             |            |           |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                             |           |            |          |           |           |          |       |        |         |       |        |               |             |            |           |
| Mob/Demob                                                              |           |            |          | 3.9%      |           |          |       |        |         |       |        |               |             |            |           |
| Indirects, Overhead & Profit                                           |           |            |          | 40.3%     |           |          |       |        |         |       |        |               | 14,000      | 14,000     | 13,000    |
| Engineering Design                                                     |           |            |          | 0.5%      |           |          |       |        |         |       |        |               | 156,000     | 156,000    | 144,000   |
| Resident Engineering                                                   |           |            |          | 1.5%      |           |          |       |        |         |       |        |               | 3,000       | 3,000      | 3,000     |
| Contingency                                                            |           |            |          | 27.5%     |           |          |       |        |         |       |        |               | 8,000       | 8,000      | 8,000     |
| <b>Subtotal (O = J+K+L+M+N)</b>                                        |           |            |          |           |           |          |       |        |         |       |        |               |             |            |           |
| <b>Subtotal (I)</b>                                                    |           |            |          |           |           |          |       |        |         |       |        |               |             |            |           |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |           |           |          |       |        |         |       |        |               |             |            |           |
| H - Thermal Desorption (Dry Soil)                                      | LS        | 3          | --       | 49.13     | /BCY      | 19,000   | BCY   | 1,000  | 1,000   | 1,000 | 1,000  |               | 1,065,000   | 1,065,000  | 988,000   |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                 |           |            |          |           |           |          |       |        |         |       |        |               |             |            |           |
| Mob/Demob                                                              |           |            |          | 0.0%      |           |          |       |        |         |       |        |               |             |            |           |
| Contractor Markup                                                      |           |            |          | 10.0%     |           |          |       |        |         |       |        |               | 107,000     | 107,000    | 97,000    |
| Engineering Design                                                     |           |            |          | 0.0%      |           |          |       |        |         |       |        |               | 0           | 0          | 0         |
| Resident Engineering                                                   |           |            |          | 2.0%      |           |          |       |        |         |       |        |               | 23,000      | 23,000     | 21,000    |
| Contingency                                                            |           |            |          | 40.0%     |           |          |       |        |         |       |        |               | 478,000     | 478,000    | 434,000   |
| <b>Subtotal (O1 = J1+K1+L1+M1+N1)</b>                                  |           |            |          |           |           |          |       |        |         |       |        |               |             |            |           |
| <b>Subtotal (O1 = J1+K1+L1+M1+N1)</b>                                  |           |            |          |           |           |          |       |        |         |       |        |               |             |            |           |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+O1+O1)</b>               |           |            |          |           |           |          |       |        |         |       |        |               |             |            |           |
| <b>Subtotal (OO = I+O+O1+O1)</b>                                       |           |            |          |           |           |          |       |        |         |       |        |               |             |            |           |
| <b>Subtotal (OO = I+O+O1+O1)</b>                                       |           |            |          |           |           |          |       |        |         |       |        |               |             |            |           |



Table B4.17-3 Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                             | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1992 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                                  |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill                                 | LS        | 2                             | --       | 5.72                   | /BCY  | 720,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 4,700,000               | 4,478,000            |
| HB - On-Post Hazardous Waste Landfill Closure                         | LS        | 4                             | --       | 3.80                   | /BCY  | 720,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 3,122,000               | 2,887,000            |
| A - On-Post Hazardous Waste Landfill (Particulates)                   | LS        | 2                             | --       | 5.72                   | /BCY  | 1        | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 10                      | 10                   |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS        | 4                             | --       | 3.80                   | /BCY  | 1        | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 4                       | 4                    |
| U - On-Post Solid Waste Landfill                                      | LS        | 2                             | --       | 4.32                   | /BCY  | 5,000    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 25,000                  | 23,000               |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS        | 4                             | --       | 3.70                   | /BCY  | 5,000    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 21,000                  | 19,000               |
| Subtotal (A)                                                          |           |                               |          |                        |       |          |       |               |                |              |             | 7,868,000                | 7,215,000               |                      |
| INDIRECT CAPITAL COSTS                                                |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LIMS                                                       |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                             | 3.3%      | B = 0.033 * (A)               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                          | 37.8%     | C = 0.378 * (A+B)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                    | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                  | 1.3%      | E = 0.013 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                           | 26.3%     | F = 0.263 * (A+B+C+D+E)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                              |           |                               |          |                        |       |          |       |               |                |              |             | 6,660,000                | 6,291,000               |                      |
| DIRECT SUBCONTRACT CAPITAL COSTS                                      |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| A - Incineration                                                      | A         | 1                             | 2        | 36.37                  | /BCY  | 140      | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 6,000                   | 6,000                |
| Subtotal (A1)                                                         |           |                               |          |                        |       |          |       |               |                |              |             | 6,000                    | 6,000                   |                      |
| INDIRECT SUBCONTRACT CAPITAL COSTS                                    |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: C                                                          |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                             | 2.0%      | B1 = 0.020 * (A1)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                                     | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                    | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                  | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                           | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                        |           |                               |          |                        |       |          |       |               |                |              |             | 4,000                    | 4,000                   |                      |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                                   |           |                               |          |                        |       |          |       |               |                |              |             | 14,737,000               | 13,515,000              |                      |

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Table B4.17-3 Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                                    | Cost Type | Start Year                    | End Year | 1992 (\$) | Unit Cost | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$) | Annual Cost | 1995 (\$) | Total Cost | 1995 (\$) | PW Cost    |           |  |           |  |           |
|------------------------------------------------------------------------------|-----------|-------------------------------|----------|-----------|-----------|-----------|----------|-------|---------------|----------------|--------------|--------------|-----------|-------------|-----------|------------|-----------|------------|-----------|--|-----------|--|-----------|
| DIRECT O&M COSTS (OPERATIONS)                                                |           |                               |          |           |           |           |          |       |               |                |              |              |           |             |           |            |           |            |           |  |           |  |           |
| HB - Soil Excavation                                                         | LS        | 3                             | --       |           | 3.91      | /BCY      | 720,000  | BCY   | 1,000         | 1,000          | 1,200        | Odor Control | 3,655,000 |             | 3,655,000 |            | 3,487,000 |            |           |  |           |  |           |
| HB - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill | LS        | 3                             | --       |           | 1.07      | /BCY-MILE | 720,000  | BCY   | 1,000         | 1,500          | 1,000        |              | 1,319,000 |             | 1,319,000 |            | 1,198,000 |            |           |  |           |  |           |
| HB - On-Post Hazardous Waste Landfill                                        | LS        | 3                             | --       |           | 4.07      | /BCY      | 720,000  | BCY   | 1,000         | 1,000          | 1,000        |              | 3,344,000 |             | 3,344,000 |            | 3,033,000 |            |           |  |           |  |           |
| HB - Excavation of Borrow Material                                           | LS        | 3                             | --       |           | 1.89      | /BCY      | 720,000  | BCY   | 1,000         | 1,000          | 1,000        |              | 1,553,000 |             | 1,553,000 |            | 1,408,000 |            |           |  |           |  |           |
| HB - Transportation of Borrow Material to Backfill Area                      | LS        | 3                             | --       |           | 0.86      | /BCY-MILE | 720,000  | BCY   | 1,000         | 1,500          | 1,000        |              | 1,080,000 |             | 1,080,000 |            | 981,000   |            |           |  |           |  |           |
| HB - Backfill with Borrow Material                                           | LS        | 3                             | --       |           | 1.72      | /BCY      | 720,000  | BCY   | 1,000         | 1,000          | 1,000        |              | 1,413,000 |             | 1,413,000 |            | 1,262,000 |            |           |  |           |  |           |
| HB - Installation of 6 Inches of Topsoil                                     | LS        | 3                             | --       |           | 3.24      | /SY       | 620,000  | SY    | 1,000         | 1,000          | 1,000        |              | 2,292,000 |             | 2,292,000 |            | 2,079,000 |            |           |  |           |  |           |
| HB - Revegetation of Disturbed Areas                                         | LS        | 3                             | --       |           | 0.18      | /SY       | 620,000  | SY    | 1,000         | 1,000          | 1,000        | Disturbance  | 140,000   |             | 140,000   |            | 127,000   |            |           |  |           |  |           |
| A - Drilling and Agent Screening Prior to Excavation                         | LS        | 2                             | --       |           | 4.89      | /SY       | 43,000   | SY    | 1,000         | 1,000          | 1,000        |              | 240,000   |             | 240,000   |            | 228,000   |            |           |  |           |  |           |
| A - Excavation of Soil with Agent                                            | LS        | 3                             | --       |           | 4.55      | /BCY      | 140      | BCY   | 1,000         | 1,000          | 1,200        | Odor Control | 1,000     |             | 1,000     |            | 1,000     |            |           |  |           |  |           |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility     | LS        | 3                             | --       |           | 1.07      | /BCY-MILE | 140      | BCY   | 1,000         | 1,500          | 1,000        |              | 300       |             | 300       |            | 200       |            |           |  |           |  |           |
| A - Load Treated Soil for Transport to Hazardous Landfill                    | LS        | 3                             | --       |           | 1.55      | /BCY      | 1        | BCY   | 1,000         | 1,000          | 1,000        |              | 2         |             | 2         |            | 2         |            |           |  |           |  |           |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill       | LS        | 3                             | --       |           | 1.07      | /BCY-MILE | 1        | BCY   | 1,000         | 1,000          | 1,000        |              | 1         |             | 1         |            | 1         |            |           |  |           |  |           |
| A - On-Post Hazardous Waste Landfill (Particulates)                          | LS        | 3                             | --       |           | 4.07      | /BCY      | 1        | BCY   | 1,000         | 1,000          | 1,000        |              | 5         |             | 5         |            | 4         |            |           |  |           |  |           |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill               | LS        | 3                             | --       |           | 1.28      | /BCY      | 140      | BCY   | 1,000         | 0.500          | 1,000        |              | 100       |             | 100       |            | 100       |            |           |  |           |  |           |
| A - Transportation of Treated Soil to Backfill Excavation                    | LS        | 3                             | --       |           | 0.86      | /BCY-MILE | 140      | BCY   | 1,000         | 0.500          | 1,000        |              | 100       |             | 100       |            | 100       |            |           |  |           |  |           |
| A - Backfill with Treated Soil                                               | LS        | 3                             | --       |           | 1.72      | /BCY      | 140      | BCY   | 1,000         | 1,000          | 1,000        |              | 300       |             | 300       |            | 200       |            |           |  |           |  |           |
| U - UXO Clearance by Geophysics                                              | LS        | 2                             | --       |           | 0.85      | /SY       | 15,000   | SY    | 1,000         | 1,000          | 1,000        |              | 15,000    |             | 15,000    |            | 14,000    |            |           |  |           |  |           |
| U - Removal of Soil with UXO                                                 | LS        | 3                             | --       |           | 70.57     | /BCY      | 49       | BCY   | 1,000         | 1,000          | 1,000        |              | 4,000     |             | 4,000     |            | 4,000     |            |           |  |           |  |           |
| U - Excavation of Debris from Surface Soil                                   | LS        | 3                             | --       |           | 3.91      | /BCY      | 5,000    | BCY   | 1,000         | 1,000          | 1,300        | Productivity | 28,000    |             | 28,000    |            | 28,000    |            |           |  |           |  |           |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill  | LS        | 3                             | --       |           | 0.71      | /BCY-MILE | 5,000    | BCY   | 1,000         | 1,500          | 1,000        | Productivity | 8,000     |             | 8,000     |            | 7,000     |            |           |  |           |  |           |
| U - On-Post Solid Waste Landfill                                             | LS        | 3                             | --       |           | 4.07      | /BCY      | 5,000    | BCY   | 1,000         | 1,000          | 1,000        |              | 23,000    |             | 23,000    |            | 21,000    |            |           |  |           |  |           |
| Subtotal (I)                                                                 |           |                               |          |           |           |           |          |       |               |                |              |              |           | 15,297,000  |           | 15,297,000 |           | 13,886,000 |           |  |           |  |           |
| INDIRECT O&M COSTS (OPERATIONS)                                              |           |                               |          |           |           |           |          |       |               |                |              |              |           |             |           |            |           |            |           |  |           |  |           |
| Mod/Demob                                                                    | 5.1%      | J = 0.051 * (I)               |          |           |           |           |          |       |               |                |              |              |           |             |           |            |           |            |           |  |           |  |           |
| Indirects, Overhead & Profit                                                 | 39.0%     | K = 0.390 * (I+J)             |          |           |           |           |          |       |               |                |              |              |           |             |           |            |           |            | 794,000   |  | 794,000   |  | 712,000   |
| Engineering Design                                                           | 1.5%      | L = 0.015 * (I+J+K)           |          |           |           |           |          |       |               |                |              |              |           |             |           |            |           |            | 6,271,000 |  | 6,271,000 |  | 5,683,000 |
| Resident Engineering                                                         | 2.0%      | M = 0.020 * (I+J+K)           |          |           |           |           |          |       |               |                |              |              |           |             |           |            |           |            | 335,000   |  | 335,000   |  | 304,000   |
| Contingency                                                                  | 31.3%     | N = 0.313 * (I+J+K+L+M)       |          |           |           |           |          |       |               |                |              |              |           |             |           |            |           |            | 447,000   |  | 447,000   |  | 406,000   |
| Subtotal (O = J+K+L+M+N)                                                     |           |                               |          |           |           |           |          |       |               |                |              |              |           | 7,229,000   |           | 7,229,000  |           | 6,563,000  |           |  |           |  |           |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                    |           |                               |          |           |           |           |          |       |               |                |              |              |           | 15,087,000  |           | 15,087,000 |           | 13,679,000 |           |  |           |  |           |
| A - Incineration                                                             | LS        | 3                             | --       |           | 96.24     | /BCY      | 140      | BCY   | 1,000         | 1,000          | 1,000        |              | 15,000    |             | 15,000    |            | 14,000    |            |           |  |           |  |           |
| U - Packaging and Transportation of HE Filled UXO to Army Off-Post Facility  | LS        | 3                             | --       |           | 59.50     | /BCY      | 49       | BCY   | 1,000         | 1,000          | 1,000        |              | 3,000     |             | 3,000     |            | 3,000     |            |           |  |           |  |           |
| Subtotal (I1)                                                                |           |                               |          |           |           |           |          |       |               |                |              |              |           | 19,000      |           | 19,000     |           | 17,000     |           |  |           |  |           |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                  |           |                               |          |           |           |           |          |       |               |                |              |              |           |             |           |            |           |            |           |  |           |  |           |
| Mod/Demob                                                                    | 0.0%      | J1 = 0.000 * (I1)             |          |           |           |           |          |       |               |                |              |              |           |             |           |            |           |            | 0         |  | 0         |  | 0         |
| Contractor Markup                                                            | 10.0%     | K1 = 0.100 * (I1+J1)          |          |           |           |           |          |       |               |                |              |              |           |             |           |            |           |            | 2,000     |  | 2,000     |  | 2,000     |
| Engineering Design                                                           | 0.0%      | L1 = 0.000 * (I1+J1+K1)       |          |           |           |           |          |       |               |                |              |              |           |             |           |            |           |            | 0         |  | 0         |  | 0         |
| Resident Engineering                                                         | 2.0%      | M1 = 0.020 * (I1+J1+K1)       |          |           |           |           |          |       |               |                |              |              |           |             |           |            |           |            | 400       |  | 400       |  | 400       |
| Contingency                                                                  | 40.0%     | N1 = 0.400 * (I1+J1+K1+L1+M1) |          |           |           |           |          |       |               |                |              |              |           |             |           |            |           |            | 8,000     |  | 8,000     |  | 8,000     |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                               |           |                               |          |           |           |           |          |       |               |                |              |              |           | 11,000      |           | 11,000     |           | 10,000     |           |  |           |  |           |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O+I1+O1)                                |           |                               |          |           |           |           |          |       |               |                |              |              |           | 30,393,000  |           | 30,393,000 |           | 27,590,000 |           |  |           |  |           |



Table B4.17-3 Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1997 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill Closure                                                          | A         | 4          | 30       | 0.13                   | /BCY-YR | 720,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 107,000                  | 2,884,000               | 1,419,000            |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 4          | 30       | 0.13                   | /BCY-YR | 1        | BCY   | 1.000         | 1.000          | 1.000        |             | 0                        | 4                       | 2                    |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                                  | A         | 4          | 30       | 0.13                   | /BCY-YR | 5,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 1,000                    | 20,000                  | 10,000               |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          | 109,000                 | 2,904,000            |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          | 42,000                  | 1,133,000            |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          | 45,000                  | 1,211,000            |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          | 87,000                  | 2,344,000            |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          | 194,000                 | 5,248,000            |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          |                         | 1,429,000            |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          | 30,400,000              | 43,700,000           |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |

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| Cost Item                                                                                      | Cost Type | Start Year | End Year | Units     | Quantity  | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |             |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|-------------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |           |           |       |               |                |              |             |                          |                         |                      |             |
| U - UXO Clearance In Surface Soil by Geophysics                                                | LS        | 1          | --       | /SY       | 15,000    | SY    | 1.000         | 1.000          | 1.000        |             |                          | 4,000                   | 4,000                |             |
| HBAU - Subgrade Preparation Prior to Installing Cap/Cover                                      | A         | 1          | 2        | /SY       | 1,300,000 | SY    | 1.000         | 1.000          | 1.000        |             |                          | 86,000                  | 87,000               |             |
| HBAU - Installation of Clay/Soil Cap                                                           | A         | 1          | 2        | /SY       | 1,300,000 | SY    | 1.000         | 1.000          | 1.000        |             |                          | 34,566,000              | 33,743,000           |             |
| HBAU - Excavation of Borrow Material                                                           | A         | 1          | 2        | /BCY      | 1,900,000 | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 4,098,000               | 4,000,000            |             |
| HBAU - Transportation of Borrow Material to Backfill Area                                      | A         | 1          | 2        | /BCY-MILE | 1,900,000 | BCY   | 1.000         | 1.500          | 1.000        |             |                          | 2,797,000               | 2,730,000            |             |
| HBAU - Backfill with Borrow Material                                                           | A         | 1          | 2        | /BCY      | 1,900,000 | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 3,729,000               | 3,641,000            |             |
| HBAU - Revegetation of Disturbed Areas                                                         | A         | 1          | 2        | /SY       | 620,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance |                          | 140,000                 | 137,000              |             |
|                                                                                                |           |            |          |           |           |       |               |                |              |             |                          | 45,423,000              | 44,342,000           |             |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |           |           |       |               |                |              |             |                          |                         |                      |             |
| Mod/Demob                                                                                      |           |            |          |           |           |       |               |                |              |             |                          | 1,478,000               | 1,441,000            |             |
| Indirects, Overhead & Profit                                                                   |           |            |          |           |           |       |               |                |              |             |                          | 17,705,000              | 17,283,000           |             |
| Engineering Design                                                                             |           |            |          |           |           |       |               |                |              |             |                          | 323,000                 | 315,000              |             |
| Resident Engineering                                                                           |           |            |          |           |           |       |               |                |              |             |                          | 808,000                 | 788,000              |             |
| Contingency                                                                                    |           |            |          |           |           |       |               |                |              |             |                          | 17,255,000              | 16,845,000           |             |
|                                                                                                |           |            |          |           |           |       |               |                |              |             |                          | 37,567,000              | 36,672,000           |             |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |           |           |       |               |                |              |             |                          |                         |                      |             |
| HBAU - Installation of Clay/Soil Cap                                                           | A         | 3          | 30       | /SY-YR    | 1,300,000 | SY    | 1.000         | 1.000          | 1.000        |             | 1,187,000                | 33,231,000              | 16,839,000           |             |
| HBAU - Site Reviews                                                                            | A         | 3          | 30       | /EA-YR    | 1         | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 173,000                 | 87,000               |             |
|                                                                                                |           |            |          |           |           |       |               |                |              |             |                          | 1,193,000               | 33,403,000           | 16,927,000  |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |           |           |       |               |                |              |             |                          |                         |                      |             |
| Indirects, Overhead & Profit                                                                   |           |            |          |           |           |       |               |                |              |             | 465,000                  | 13,027,000              | 6,801,000            |             |
| Contingency                                                                                    |           |            |          |           |           |       |               |                |              |             | 487,000                  | 13,829,000              | 7,056,000            |             |
|                                                                                                |           |            |          |           |           |       |               |                |              |             |                          | 953,000                 | 26,856,000           | 13,880,000  |
|                                                                                                |           |            |          |           |           |       |               |                |              |             |                          | 2,156,000               | 143,350,000          | 111,601,000 |
|                                                                                                |           |            |          |           |           |       |               |                |              |             |                          | 143,000,000             | 112,000,000          |             |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |           |           |       |               |                |              |             |                          |                         |                      |             |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |           |           |       |               |                |              |             |                          |                         |                      |             |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |           |           |       |               |                |              |             |                          |                         |                      |             |
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Table B4.17-46  
Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
Alternative 6b: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                             | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill (Particulates)                   | LS        | 2          | --       | 5.72                   | /BCY  | 190      | BCY   | 1.000         | 1.000          | 1.000        |             | 1,000                    | 1,000                   | 1,000                |
| H - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS        | 3          | --       | 3.80                   | /BCY  | 190      | BCY   | 1.000         | 1.000          | 1.000        |             | 1,000                    | 1,000                   | 1,000                |
| A - On-Post Hazardous Waste Landfill (Particulates)                   | LS        | 2          | --       | 5.72                   | /BCY  | 1        | BCY   | 1.000         | 1.000          | 1.000        |             | 10                       | 10                      | 10                   |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS        | 3          | --       | 3.80                   | /BCY  | 1        | BCY   | 1.000         | 1.000          | 1.000        |             | 4                        | 4                       | 4                    |
| U - On-Post Solid Waste Landfill                                      | LS        | 2          | --       | 4.32                   | /BCY  | 5,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 25,000                   | 25,000                  | 23,000               |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS        | 3          | --       | 3.70                   | /BCY  | 5,000    | BCY   | 1.000         | 1.000          | 1.000        |             | 21,000                   | 21,000                  | 19,000               |
| Subtotal (A)                                                          |           |            |          |                        |       |          |       |               |                |              |             | 48,000                   | 45,000                  |                      |
| INDIRECT CAPITAL COSTS                                                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                    |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                           |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                              |           |            |          |                        |       |          |       |               |                |              |             | 43,000                   | 40,000                  |                      |
| DIRECT SUBCONTRACT CAPITAL COSTS                                      |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - Thermal Desorption (Dry Soil)                                     | A         | 1          | 2        | 14.17                  | /BCY  | 19,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 307,000                  | 300,000                 | 300,000              |
| A - Incineration                                                      | A         | 1          | 2        | 36.37                  | /BCY  | 140      | BCY   | 1.000         | 1.000          | 1.000        |             | 6,000                    | 6,000                   | 6,000                |
| Subtotal (A1)                                                         |           |            |          |                        |       |          |       |               |                |              |             | 313,000                  | 306,000                 |                      |
| INDIRECT SUBCONTRACT CAPITAL COSTS                                    |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                                     |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                    |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                           |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                        |           |            |          |                        |       |          |       |               |                |              |             | 198,000                  | 194,000                 |                      |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                                   |           |            |          |                        |       |          |       |               |                |              |             | 802,000                  | 583,000                 |                      |

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Table B4.17-6b Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
Alternative 6b: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                                   | Cost Type | Start Year | End Year | 1992 (\$) | Unit Cost | Units                         | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description   | 1995 (\$)  | Annual Cost | 1995 (\$)  | Total Cost | 1995 (\$)  | PW Cost |
|-----------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|-------------------------------|----------|-------|---------------|----------------|--------------|---------------|------------|-------------|------------|------------|------------|---------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                    |           |            |          |           |           |                               |          |       |               |                |              |               |            |             |            |            |            |         |
| H - Soil Excavation                                                         | LS        | 3          | --       | --        | 3.91      | /BCY                          | 19,000   | BCY   | 1.000         | 1.000          | 1.000        | Other Control | 102,000    |             | 102,000    |            | 92,000     |         |
| H - Transportation of Contaminated Soil to Thermal Desorption Facility      | LS        | 3          | --       | --        | 1.07      | /BCY-MILE                     | 19,000   | BCY   | 1.000         | 1.000          | 1.000        |               | 23,000     |             | 23,000     |            | 21,000     |         |
| H - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3          | --       | --        | 1.55      | /BCY                          | 190      | BCY   | 1.000         | 1.000          | 1.000        |               | 300        |             | 300        |            | 300        |         |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill      | LS        | 3          | --       | --        | 1.07      | /BCY-MILE                     | 190      | BCY   | 1.000         | 1.000          | 1.000        |               | 200        |             | 200        |            | 200        |         |
| H - On-Post Hazardous Waste Landfill (Particulates)                         | LS        | 3          | --       | --        | 4.07      | /BCY                          | 190      | BCY   | 1.000         | 1.000          | 1.000        |               | 1,000      |             | 1,000      |            | 1,000      |         |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill              | LS        | 3          | --       | --        | 1.28      | /BCY                          | 19,000   | BCY   | 1.000         | 1.000          | 1.000        |               | 28,000     |             | 28,000     |            | 25,000     |         |
| H - Transportation of Treated Soil to Backfill Excavation                   | LS        | 3          | --       | --        | 0.86      | /BCY-MILE                     | 19,000   | BCY   | 1.000         | 1.000          | 1.000        |               | 18,000     |             | 18,000     |            | 17,000     |         |
| H - Backfill with Treated Soil                                              | LS        | 3          | --       | --        | 1.72      | /BCY                          | 19,000   | BCY   | 1.000         | 1.000          | 1.000        |               | 37,000     |             | 37,000     |            | 34,000     |         |
| HB - Soil Excavation                                                        | LS        | 3          | --       | --        | 3.91      | /BCY                          | 700,000  | BCY   | 1.000         | 1.000          | 1.000        | Other Control | 3,748,000  |             | 3,748,000  |            | 3,400,000  |         |
| HB - Transportation of Contaminated Soil to Consolidation Area              | LS        | 3          | --       | --        | 1.07      | /BCY-MILE                     | 700,000  | BCY   | 1.000         | 0.750          | 1.000        |               | 841,000    |             | 841,000    |            | 591,000    |         |
| HB - Grade Filling w/Consolidated Soil Prior to Capping                     | LS        | 3          | --       | --        | 3.63      | /BCY                          | 700,000  | BCY   | 1.000         | 1.000          | 1.000        |               | 2,630,000  |             | 2,630,000  |            | 2,630,000  |         |
| HB - Excavation of Borrow Material                                          | LS        | 3          | --       | --        | 1.89      | /BCY                          | 700,000  | BCY   | 1.000         | 1.000          | 1.000        |               | 1,510,000  |             | 1,510,000  |            | 1,369,000  |         |
| HB - Transportation of Borrow Material to Backfill Area                     | LS        | 3          | --       | --        | 0.86      | /BCY-MILE                     | 700,000  | BCY   | 1.000         | 1.000          | 1.000        |               | 1,030,000  |             | 1,030,000  |            | 835,000    |         |
| HB - Backfill with Borrow Material                                          | LS        | 3          | --       | --        | 1.72      | /BCY                          | 700,000  | BCY   | 1.000         | 1.000          | 1.000        |               | 1,374,000  |             | 1,374,000  |            | 1,246,000  |         |
| HB - Installation of 6 Inches of Topsoil                                    | LS        | 3          | --       | --        | 3.24      | /SY                           | 620,000  | SY    | 1.000         | 1.000          | 1.000        |               | 2,292,000  |             | 2,292,000  |            | 2,079,000  |         |
| HB - Revegetation of Disturbed Areas                                        | LS        | 3          | --       | --        | 0.18      | /SY                           | 620,000  | SY    | 1.000         | 1.000          | 1.000        | Disturbance   | 140,000    |             | 140,000    |            | 127,000    |         |
| A - Excavation of Soil with Agent                                           | LS        | 3          | --       | --        | 4.55      | /BCY                          | 140      | BCY   | 1.000         | 1.000          | 1.000        | Other Control | 1,000      |             | 1,000      |            | 1,000      |         |
| A - Drilling and Agent Screening Prior to Excavation                        | LS        | 2          | --       | --        | 4.89      | /SY                           | 43,000   | SY    | 1.000         | 1.000          | 1.000        |               | 240,000    |             | 240,000    |            | 228,000    |         |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility    | LS        | 3          | --       | --        | 1.07      | /BCY-MILE                     | 140      | BCY   | 1.000         | 1.000          | 1.000        |               | 200        |             | 200        |            | 200        |         |
| A - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3          | --       | --        | 1.55      | /BCY                          | 1        | BCY   | 1.000         | 1.000          | 1.000        |               | 2          |             | 2          |            | 2          |         |
| A - On-Post Hazardous Waste Landfill (Particulates)                         | LS        | 3          | --       | --        | 1.07      | /BCY-MILE                     | 1        | BCY   | 1.000         | 1.000          | 1.000        |               | 1          |             | 1          |            | 1          |         |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill              | LS        | 3          | --       | --        | 4.07      | /BCY                          | 1        | BCY   | 1.000         | 1.000          | 1.000        |               | 5          |             | 5          |            | 4          |         |
| A - Transportation of Treated Soil to Backfill Excavation                   | LS        | 3          | --       | --        | 1.28      | /BCY                          | 140      | BCY   | 1.000         | 1.000          | 1.000        |               | 200        |             | 200        |            | 200        |         |
| A - Backfill with Treated Soil                                              | LS        | 3          | --       | --        | 0.86      | /BCY-MILE                     | 140      | BCY   | 1.000         | 1.000          | 1.000        |               | 100        |             | 100        |            | 100        |         |
| U - UXO Clearance by Geophysics                                             | LS        | 3          | --       | --        | 1.72      | /BCY                          | 140      | BCY   | 1.000         | 1.000          | 1.000        |               | 300        |             | 300        |            | 200        |         |
| U - Removal of Soil with UXO                                                | LS        | 2          | --       | --        | 0.85      | /SY                           | 15,000   | SY    | 1.000         | 1.000          | 1.000        |               | 15,000     |             | 15,000     |            | 14,000     |         |
| U - Excavation of Debris from Surface Soil                                  | LS        | 3          | --       | --        | 70.57     | /BCY                          | 49       | BCY   | 1.000         | 1.000          | 1.000        |               | 4,000      |             | 4,000      |            | 4,000      |         |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill | LS        | 3          | --       | --        | 3.91      | /BCY                          | 5,000    | BCY   | 1.000         | 1.000          | 1.300        | Productivity  | 29,000     |             | 29,000     |            | 26,000     |         |
| U - On-Post Solid Waste Landfill                                            | LS        | 3          | --       | --        | 0.71      | /BCY-MILE                     | 5,000    | BCY   | 1.000         | 1.500          | 1.300        | Productivity  | 8,000      |             | 8,000      |            | 7,000      |         |
| Subtotal (I)                                                                |           |            |          |           | 4.07      | /BCY                          | 5,000    | BCY   | 1.000         | 1.000          | 1.000        |               | 23,000     |             | 23,000     |            | 21,000     |         |
| Subtotal (I)                                                                |           |            |          |           |           |                               |          |       |               |                |              |               | 14,186,000 |             | 14,186,000 |            | 12,880,000 |         |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |            |          |           |           |                               |          |       |               |                |              |               |            |             |            |            |            |         |
| Mob/Demob                                                                   |           |            |          |           | 4.5%      | J = 0.045 * (I)               |          |       |               |                |              |               | 637,000    |             | 637,000    |            | 579,000    |         |
| Indirects, Overhead & Profit                                                |           |            |          |           | 39.0%     | K = 0.390 * (I+J)             |          |       |               |                |              |               | 5,773,000  |             | 5,773,000  |            | 5,241,000  |         |
| Engineering Design                                                          |           |            |          |           | 0.5%      | L = 0.005 * (I+J+K)           |          |       |               |                |              |               | 103,000    |             | 103,000    |            | 93,000     |         |
| Resident Engineering                                                        |           |            |          |           | 1.8%      | M = 0.018 * (I+J+K)           |          |       |               |                |              |               | 360,000    |             | 360,000    |            | 327,000    |         |
| Contingency                                                                 |           |            |          |           | 30.0%     | N = 0.300 * (I+J+K+L+M)       |          |       |               |                |              |               | 6,312,000  |             | 6,312,000  |            | 5,730,000  |         |
| Subtotal (O)                                                                |           |            |          |           |           |                               |          |       |               |                |              |               | 13,186,000 |             | 13,186,000 |            | 11,970,000 |         |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                        |           |            |          |           |           |                               |          |       |               |                |              |               |            |             |            |            |            |         |
| H - Thermal Desorption (Dry Soil)                                           | LS        | 3          | --       | --        | 49.13     | /BCY                          | 19,000   | BCY   | 1.000         | 1.000          | 1.000        |               | 1,085,000  |             | 1,085,000  |            | 998,000    |         |
| A - Incineration                                                            | LS        | 3          | --       | --        | 96.24     | /BCY                          | 140      | BCY   | 1.000         | 1.000          | 1.000        |               | 15,000     |             | 15,000     |            | 14,000     |         |
| U - Packaging and Transportation of HE Filled Uro to Army Off-Post Facil    | LS        | 3          | --       | --        | 59.50     | /BCY                          | 49       | BCY   | 1.000         | 1.000          | 1.000        |               | 3,000      |             | 3,000      |            | 3,000      |         |
| Subtotal (I)                                                                |           |            |          |           |           |                               |          |       |               |                |              |               | 1,084,000  |             | 1,084,000  |            | 983,000    |         |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |            |          |           |           |                               |          |       |               |                |              |               |            |             |            |            |            |         |
| Mob/Demob                                                                   |           |            |          |           | 0.0%      | J1 = 0.000 * (I1)             |          |       |               |                |              |               | 0          |             | 0          |            | 0          |         |
| Contractor Markup                                                           |           |            |          |           | 10.0%     | K1 = 0.100 * (I1+J1)          |          |       |               |                |              |               | 108,000    |             | 108,000    |            | 98,000     |         |
| Engineering Design                                                          |           |            |          |           | 0.0%      | L1 = 0.000 * (I1+J1+K1)       |          |       |               |                |              |               | 0          |             | 0          |            | 0          |         |
| Resident Engineering                                                        |           |            |          |           | 2.0%      | M1 = 0.020 * (I1+J1+K1)       |          |       |               |                |              |               | 24,000     |             | 24,000     |            | 22,000     |         |
| Contingency                                                                 |           |            |          |           | 40.0%     | N1 = 0.400 * (I1+J1+K1+L1+M1) |          |       |               |                |              |               | 466,000    |             | 466,000    |            | 441,000    |         |
| Subtotal (O1)                                                               |           |            |          |           |           |                               |          |       |               |                |              |               | 619,000    |             | 619,000    |            | 561,000    |         |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O+I1+O1)                               |           |            |          |           |           |                               |          |       |               |                |              |               | 29,064,000 |             | 29,064,000 |            | 26,375,000 |         |

Alternative 6b: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |            |
|-----------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|------------|
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                 |           |            |          |                        |       |          |       |                  |                 |             |                          |                         |                      |            |
| H - On-Post Hazardous Waste Landfill Closure (Particulates)                             | A         | 3          | 30       | 0.13<br>/BCY-YR        |       | 190      | BCY   | 1,000            | 1,000           | 1,000       | 30                       | 1,000                   | 400                  |            |
| HB - No Action                                                                          | A         | 3          | 30       | 0.00<br>/SY            |       | 630,000  | SY    | 1,000            | 1,000           | 1,000       | 0                        | 0                       | 0                    |            |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                             | A         | 3          | 30       | 0.13<br>/BCY-YR        |       | 1        | BCY   | 1,000            | 1,000           | 1,000       | 0                        | 4                       | 2                    |            |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                   | A         | 3          | 30       | 0.13<br>/BCY-YR        |       | 5,000    | BCY   | 1,000            | 1,000           | 1,000       | 1,000                    | 21,000                  | 11,000               |            |
| Subtotal (P)                                                                            |           |            |          |                        |       |          |       |                  |                 |             | 1,000                    | 22,000                  | 11,000               |            |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                               |           |            |          |                        |       |          |       |                  |                 |             |                          |                         |                      |            |
| Indirects, Overhead & Profit                                                            |           |            |          | 38.0%                  |       |          |       |                  |                 |             | 300                      | 8,000                   | 4,000                |            |
| Contingency                                                                             |           |            |          | 30.0%                  |       |          |       |                  |                 |             | 300                      | 9,000                   | 5,000                |            |
| Subtotal (S = Q+R)                                                                      |           |            |          |                        |       |          |       |                  |                 |             | 1,000                    | 17,000                  | 8,000                |            |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                        |           |            |          |                        |       |          |       |                  |                 |             | 1,000                    | 39,000                  | 20,000               |            |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (OPERATIONS & LONG-TERM ACTIVITIES) (U = H+O+T) |           |            |          |                        |       |          |       |                  |                 |             |                          |                         |                      |            |
|                                                                                         |           |            |          |                        |       |          |       |                  |                 |             |                          |                         | 29,700,000           | 27,000,000 |

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| Cost Item                                                             | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                                           |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill (Particulates)                  | LS        | 2          | --       | 5.72                   | /BCY  | 6,300    | BCY   | 1,000            | 1,000             | 1,000           |             | 41,000                   | 38,000                  |                      |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates)          | LS        | 5          | --       | 3.80                   | /BCY  | 6,300    | BCY   | 1,000            | 1,000             | 1,000           |             | 27,000                   | 22,000                  |                      |
| A - On-Post Hazardous Waste Landfill (Particulates)                   | LS        | 2          | --       | 5.72                   | /BCY  | 1        | BCY   | 1,000            | 1,000             | 1,000           |             | 10                       | 10                      |                      |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS        | 3          | --       | 3.80                   | /BCY  | 1        | BCY   | 1,000            | 1,000             | 1,000           |             | 4                        | 4                       |                      |
| U - On-Post Solid Waste Landfill                                      | LS        | 2          | --       | 4.32                   | /BCY  | 5,000    | BCY   | 1,000            | 1,000             | 1,000           |             | 25,000                   | 23,000                  |                      |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS        | 3          | --       | 3.70                   | /BCY  | 5,000    | BCY   | 1,000            | 1,000             | 1,000           |             | 21,000                   | 19,000                  |                      |
| Subtotal (A)                                                          |           |            |          |                        |       |          |       |                  |                   |                 |             | 114,000                  | 104,000                 |                      |
| <b>INDIRECT CAPITAL COSTS</b>                                         |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mobile/Demob                                                          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design                                                    |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering                                                  |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                                                           |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                              |           |            |          |                        |       |          |       |                  |                   |                 |             | 102,000                  | 83,000                  |                      |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                               |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| H - Cement-Based Solidification                                       | LS        | 2          | --       | 3.35                   | /BCY  | 112,000  | BCY   | 1,000            | 1,000             | 1,000           |             | 428,000                  | 408,000                 |                      |
| HB - Thermal Desorption (Dry Soil)                                    | A         | 1          | 2        | 14.17                  | /BCY  | 630,000  | BCY   | 1,000            | 1,000             | 1,000           |             | 10,187,000               | 9,945,000               |                      |
| A - Incineration                                                      | A         | 1          | 2        | 36.37                  | /BCY  | 140      | BCY   | 1,000            | 1,000             | 1,000           |             | 6,000                    | 6,000                   |                      |
| Subtotal (A1)                                                         |           |            |          |                        |       |          |       |                  |                   |                 |             | 10,821,000               | 10,359,000              |                      |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                             |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mobile/Demob                                                          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contractor Markup                                                     |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design                                                    |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering                                                  |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                                                           |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                        |           |            |          |                        |       |          |       |                  |                   |                 |             | 8,730,000                | 8,583,000               |                      |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                                   |           |            |          |                        |       |          |       |                  |                   |                 |             | 17,557,000               | 17,118,000              |                      |

Table B4.17-13 Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
Alternative 13: Direct Thermal Desorption (Direct Heating); Direct Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                    | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units                        | Quantity | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|------------------------------------------------------------------------------|-----------|------------|----------|------------------------|------------------------------|----------|---------------|----------------|--------------|--------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                     |           |            |          |                        |                              |          |               |                |              |              |                          |                         |                      |
| HB - Soil Excavation                                                         | A         | 3          | 5        | 3.91                   | /BCY                         | 720,000  | 1.000         | 1.000          | 1.200        | Odor Control | 3,855,000                | 3,855,000               | 3,333,000            |
| HB - Transportation of Contaminated Soil to Thermal Desorption Facility      | A         | 3          | 5        | 1.07                   | /BCY-MILE                    | 720,000  | 1.000         | 0.500          | 1.000        |              | 440,000                  | 440,000                 | 380,000              |
| HB - Load Treated Soil for Transport to Hazardous Landfill                   | A         | 3          | 5        | 1.55                   | /BCY                         | 6,300    | 1.000         | 1.000          | 1.000        |              | 11,000                   | 11,000                  | 10,000               |
| HB - Transportation of Periculates to On-Post Hazardous Waste Landfill       | A         | 3          | 5        | 1.07                   | /BCY-MILE                    | 6,300    | 1.000         | 1.000          | 1.000        |              | 8,000                    | 8,000                   | 7,000                |
| HB - On-Post Hazardous Waste Landfill (Particulates)                         | A         | 3          | 5        | 4.07                   | /BCY                         | 6,300    | 1.000         | 1.000          | 1.000        |              | 28,000                   | 28,000                  | 25,000               |
| HB - Load Nonhazardous Treated Soil from Stockpile for Backfill              | A         | 3          | 5        | 1.28                   | /BCY                         | 630,000  | 1.000         | 1.000          | 1.000        |              | 820,000                  | 820,000                 | 796,000              |
| HB - Transportation of Treated Soil from Stockpile for Backfill              | A         | 3          | 5        | 0.86                   | /BCY-MILE                    | 630,000  | 1.000         | 0.500          | 1.000        |              | 309,000                  | 309,000                 | 287,000              |
| HB - Backfill with Treated Soil                                              | A         | 3          | 5        | 1.72                   | /BCY                         | 630,000  | 1.000         | 1.000          | 1.000        |              | 1,237,000                | 1,237,000               | 1,089,000            |
| HB - Revegetation of Disturbed Areas                                         | A         | 3          | 12       | 0.18                   | /SY                          | 620,000  | 1.000         | 1.000          | 1.100        | Disturbance  | 140,000                  | 140,000                 | 103,000              |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill               | A         | 3          | 12       | 1.28                   | /BCY                         | 112,000  | 1.000         | 1.000          | 1.000        |              | 196,000                  | 196,000                 | 144,000              |
| H - Transportation of Treated Soil to Backfill Excavation                    | A         | 3          | 12       | 0.86                   | /BCY-MILE                    | 112,000  | 1.000         | 1.000          | 1.000        |              | 132,000                  | 132,000                 | 97,000               |
| H - Backfill with Treated Soil                                               | A         | 3          | 12       | 1.72                   | /BCY                         | 112,000  | 1.000         | 1.000          | 1.000        |              | 284,000                  | 284,000                 | 194,000              |
| H - Drilling and Agent Screening Prior to Excavation                         | LS        | 2          | --       | 4.89                   | /SY                          | 43,000   | 1.000         | 1.000          | 1.100        | Disturbance  | 264,000                  | 264,000                 | 251,000              |
| A - Excavation of Soil with Agent                                            | LS        | 3          | --       | 4.55                   | /BCY                         | 140      | 1.000         | 1.000          | 1.200        | Odor Control | 1,000                    | 1,000                   | 1,000                |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility     | LS        | 3          | --       | 1.07                   | /BCY-MILE                    | 140      | 1.000         | 0.500          | 1.000        |              | 100                      | 100                     | 100                  |
| A - Load Treated Soil for Transport to Hazardous Landfill                    | LS        | 3          | --       | 1.55                   | /BCY                         | 1        | 1.000         | 1.000          | 1.000        |              | 2                        | 2                       | 1                    |
| A - On-Post Hazardous Waste Landfill (Particulates)                          | LS        | 3          | --       | 1.07                   | /BCY-MILE                    | 1        | 1.000         | 1.000          | 1.000        |              | 1                        | 1                       | 1                    |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill               | LS        | 3          | --       | 4.07                   | /BCY                         | 1        | 1.000         | 1.000          | 1.000        |              | 5                        | 5                       | 4                    |
| A - Transportation of Treated Soil to Backfill Excavation                    | LS        | 3          | --       | 1.28                   | /BCY                         | 140      | 1.000         | 1.000          | 1.000        |              | 200                      | 200                     | 200                  |
| A - Backfill with Treated Soil                                               | LS        | 3          | --       | 0.86                   | /BCY-MILE                    | 140      | 1.000         | 0.500          | 1.000        |              | 100                      | 100                     | 100                  |
| A - UXO Clearance by Geophysics                                              | LS        | 3          | --       | 1.72                   | /BCY                         | 140      | 1.000         | 1.000          | 1.000        |              | 300                      | 300                     | 200                  |
| U - Removal of Soil with UXO                                                 | LS        | 3          | --       | 0.85                   | /SY                          | 15,000   | 1.000         | 1.000          | 1.000        |              | 15,000                   | 15,000                  | 14,000               |
| U - Excavation of Debris from Surface Soil                                   | LS        | 3          | --       | 70.57                  | /BCY                         | 49       | 1.000         | 1.000          | 1.000        |              | 4,000                    | 4,000                   | 4,000                |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill  | LS        | 3          | --       | 3.91                   | /BCY                         | 5,000    | 1.000         | 1.000          | 1.300        | Productivity | 28,000                   | 28,000                  | 26,000               |
| U - On-Post Solid Waste Landfill                                             | LS        | 3          | --       | 0.71                   | /BCY-MILE                    | 5,000    | 1.000         | 1.500          | 1.000        | Productivity | 7,000                    | 7,000                   | 7,000                |
| Subtotal (f)                                                                 |           |            |          | 4.07                   | /BCY                         | 5,000    | 1.000         | 1.000          | 1.000        |              | 23,000                   | 23,000                  | 21,000               |
| Subtotal (f)                                                                 |           |            |          |                        |                              |          |               |                |              |              | 7,895,000                | 7,895,000               | 6,749,000            |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                   |           |            |          |                        |                              |          |               |                |              |              |                          |                         |                      |
| Mob/Demob                                                                    |           |            |          | 5.1%                   | J = 0.051 * (f)              |          |               |                |              |              | 404,000                  | 404,000                 | 346,000              |
| Indirects, Overhead & Profit                                                 |           |            |          | 39.0%                  | K = 0.390 * (f+J)            |          |               |                |              |              | 3,233,000                | 3,233,000               | 2,767,000            |
| Engineering Design                                                           |           |            |          | 1.5%                   | L = 0.015 * (f+J+K)          |          |               |                |              |              | 173,000                  | 173,000                 | 148,000              |
| Resident Engineering                                                         |           |            |          | 2.3%                   | M = 0.023 * (f+J+K)          |          |               |                |              |              | 259,000                  | 259,000                 | 222,000              |
| Contingency                                                                  |           |            |          | 32.5%                  | N = 0.325 * (f+J+K+L+M)      |          |               |                |              |              | 3,885,000                | 3,885,000               | 3,326,000            |
| Subtotal (Q) = J+K+L+M+N                                                     |           |            |          |                        |                              |          |               |                |              |              | 7,954,000                | 7,954,000               | 6,808,000            |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                         |           |            |          |                        |                              |          |               |                |              |              |                          |                         |                      |
| HB - Thermal Desorption (Dry Soil)                                           | A         | 3          | 5        | 49.13                  | /BCY                         | 630,000  | 1.000         | 1.000          | 1.000        |              | 35,321,000               | 35,321,000              | 30,538,000           |
| H - Cement-Based Solidification                                              | A         | 3          | 12       | 70.10                  | /BCY                         | 112,000  | 1.000         | 1.000          | 1.000        |              | 8,980,000                | 8,980,000               | 6,989,000            |
| A - Incineration                                                             | LS        | 3          | --       | 96.24                  | /BCY                         | 140      | 1.000         | 1.000          | 1.000        |              | 15,000                   | 15,000                  | 14,000               |
| U - Packaging and Transportation of HE Filled Urns to Army Off-Post Facility | LS        | 3          | --       | 59.50                  | /BCY                         | 49       | 1.000         | 1.000          | 1.000        |              | 3,000                    | 3,000                   | 3,000                |
| Subtotal (f)                                                                 |           |            |          |                        |                              |          |               |                |              |              | 44,299,000               | 44,299,000              | 37,142,000           |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                       |           |            |          |                        |                              |          |               |                |              |              |                          |                         |                      |
| Mob/Demob                                                                    |           |            |          | 0.0%                   | J1 = 0.000 * (f)             |          |               |                |              |              | 0                        | 0                       | 0                    |
| Contractor Markup                                                            |           |            |          | 10.0%                  | K1 = 0.100 * (f+J1)          |          |               |                |              |              | 4,430,000                | 4,430,000               | 3,714,000            |
| Engineering Design                                                           |           |            |          | 0.0%                   | L1 = 0.000 * (f+J1+K1)       |          |               |                |              |              | 0                        | 0                       | 0                    |
| Resident Engineering                                                         |           |            |          | 2.0%                   | M1 = 0.020 * (f+J1+K1)       |          |               |                |              |              | 875,000                  | 875,000                 | 817,000              |
| Contingency                                                                  |           |            |          | 40.0%                  | N1 = 0.400 * (f+J1+K1+L1+M1) |          |               |                |              |              | 19,882,000               | 19,882,000              | 16,669,000           |
| Subtotal (Q1) = J1+K1+L1+M1+N1                                               |           |            |          |                        |                              |          |               |                |              |              | 25,286,000               | 25,286,000              | 21,201,000           |
| Subtotal (Q1) = J1+K1+L1+M1+N1                                               |           |            |          |                        |                              |          |               |                |              |              | 85,424,000               | 85,424,000              | 71,900,000           |

TOTAL O&M COSTS (OPERATIONS) (QO = f+Q1+Q11)

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Table B4.17-13 Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
 Alternative 13: Direct Thermal Description (Direct Heating): Direct Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |         |          |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates)                                           | A         | 5          | 30       | 0.13                   | /BCY-YR | 6,300    | 1.000         | 1.000          | 1.000        |             | 1,000                    | 24,000                  | 12,000               |
| H - Long Term Monitoring of Solidified Soil                                                            | A         | 12         | 30       | 0.25                   | /SY-YR  | 20,000   | 1.000         | 1.000          | 1.000        |             | 6,000                    | 108,000                 | 42,000               |
| H - Site Reviews                                                                                       | A         | 3          | 30       | 5,400.00               | /EA-YR  | 1        | 1.000         | 1.000          | 1.000        |             | 6,000                    | 173,000                 | 87,000               |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       | 0.13                   | /BCY-YR | 1        | 1.000         | 1.000          | 1.000        |             | 0                        | 4                       | 2                    |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                                  | A         | 3          | 30       | 0.13                   | /BCY-YR | 5,000    | 1.000         | 1.000          | 1.000        |             | 1,000                    | 21,000                  | 11,000               |
| Subtotal (P)                                                                                           |           |            |          |                        |         |          |               |                |              |             | 14,000                   | 328,000                 | 152,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |                        |         |          |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                           |           |            |          |                        |         |          |               |                |              |             | 5,000                    | 127,000                 | 59,000               |
| Contingency                                                                                            |           |            |          |                        |         |          |               |                |              |             | 6,000                    | 136,000                 | 63,000               |
| Subtotal (S = Q+P)                                                                                     |           |            |          |                        |         |          |               |                |              |             | 11,000                   | 263,000                 | 123,000              |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |                        |         |          |               |                |              |             | 24,000                   | 598,000                 | 274,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                        |         |          |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |               |                |              |             |                          | 104,000,000             | 89,300,000           |

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Table B4.17-19 Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
Alternative 19: In Situ Thermal Treatment (RF/Microwave Heating); In Situ Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                             | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1993 (\$)<br>Total Cost | 1993 (\$)<br>PW Cost |
|-----------------------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                                           |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| A - On-Post Hazardous Waste Landfill (Particulates)                   | LS        | 2          | --       | 5.72                   | /BCY  | 1        | BCY   | 1,000         | 1,000          | 1,000        | 1,000       |                          | 10                      | 10                   |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS        | 3          | --       | 3.80                   | /BCY  | 1        | BCY   | 1,000         | 1,000          | 1,000        | 1,000       |                          | 4                       | 4                    |
| U - On-Post Solid Waste Landfill                                      | LS        | 2          | --       | 4.32                   | /BCY  | 5,000    | BCY   | 1,000         | 1,000          | 1,000        | 1,000       |                          | 25,000                  | 23,000               |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS        | 3          | --       | 3.70                   | /BCY  | 5,000    | BCY   | 1,000         | 1,000          | 1,000        | 1,000       |                          | 21,000                  | 19,000               |
| Subtotal (A)                                                          |           |            |          |                        |       |          |       |               |                |              |             |                          | 46,000                  | 43,000               |
| <b>INDIRECT CAPITAL COSTS</b>                                         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LUSS                                                       |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                             |           |            |          |                        |       |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
| Indirects, Overhead & Profit                                          |           |            |          |                        |       |          |       |               |                |              |             |                          | 18,000                  | 17,000               |
| Engineering Design                                                    |           |            |          |                        |       |          |       |               |                |              |             |                          | 2,000                   | 2,000                |
| Resident Engineering                                                  |           |            |          |                        |       |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
| Contingency                                                           |           |            |          |                        |       |          |       |               |                |              |             |                          | 18,000                  | 17,000               |
| Subtotal (B = B+C+D+E+F)                                              |           |            |          |                        |       |          |       |               |                |              |             |                          | 41,000                  | 38,000               |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                               |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| HB - In Situ RF/Microwave Heating - Deep                              | LS        | 1          | --       | 7,065,000.00           | /UNIT | 1        | UNITS | 1,000         | 1,000          | 1,000        | 1,000       |                          | 8,063,000               | 8,063,000            |
| A - Incineration                                                      | A         | 1          | 2        | 36.37                  | /BCY  | 140      | BCY   | 1,000         | 1,000          | 1,000        | 1,000       |                          | 6,000                   | 6,000                |
| Subtotal (A1)                                                         |           |            |          |                        |       |          |       |               |                |              |             |                          | 8,069,000               | 8,069,000            |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: K                                                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                             |           |            |          |                        |       |          |       |               |                |              |             |                          | 161,000                 | 161,000              |
| Contractor Markup                                                     |           |            |          |                        |       |          |       |               |                |              |             |                          | 484,000                 | 484,000              |
| Engineering Design                                                    |           |            |          |                        |       |          |       |               |                |              |             |                          | 1,047,000               | 1,047,000            |
| Resident Engineering                                                  |           |            |          |                        |       |          |       |               |                |              |             |                          | 131,000                 | 131,000              |
| Contingency                                                           |           |            |          |                        |       |          |       |               |                |              |             |                          | 2,971,000               | 2,971,000            |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                        |           |            |          |                        |       |          |       |               |                |              |             |                          | 4,804,000               | 4,804,000            |
| <b>TOTAL CAPITAL COSTS (H = A+B+G1+G1)</b>                            |           |            |          |                        |       |          |       |               |                |              |             |                          | 12,959,000              | 12,953,000           |

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Table B4.17-19 Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
 Alternative 19: In Situ Thermal Treatment (RF/Microwave Heating); In Situ Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                               | Cost Type         | Start Year | End Year | 1992 (\$) | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)   | 1995 (\$) | 1995 (\$) |
|-----------------------------------------------------------------------------------------|-------------------|------------|----------|-----------|---------|----------|-------|---------------|----------------|--------------|-------------|-------------|-----------|-----------|
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                 |                   |            |          |           |         |          |       |               |                |              |             |             |           |           |
| H - Long Term Monitoring of In Situ Solidified Soil                                     | A                 | 3          | 30       | 0.25      | /SV-YR  | 20,000   | SV    | 1,000         | 1,000          | 1,000        |             | 6,000       | 160,000   | 61,000    |
| H - Site Reviews                                                                        | A                 | 3          | 30       | 5,400.00  | /EA-YR  | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 6,000       | 173,000   | 87,000    |
| B - No Action                                                                           | A                 | 10         | 30       | 0.00      | /SY     | 500,000  | SY    | 1,000         | 1,000          | 1,000        |             | 0           | 0         | 0         |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                             | A                 | 3          | 30       | 0.13      | /BCY-YR | 1        | BCY   | 1,000         | 1,000          | 1,000        |             | 0           | 4         | 2         |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                   | A                 | 3          | 30       | 0.13      | /BCY-YR | 5,000    | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000       | 21,000    | 11,000    |
| Subtotal (P)                                                                            |                   |            |          |           |         |          |       |               |                |              |             | 13,000      | 353,000   | 179,000   |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                               |                   |            |          |           |         |          |       |               |                |              |             |             |           |           |
| Indirects, Overhead & Profit                                                            | COST CODE: LLSL   |            |          |           |         |          |       |               |                |              |             |             |           |           |
| Contingency                                                                             | Q = 0.380 * (P)   |            |          |           |         |          |       |               |                |              |             |             |           |           |
|                                                                                         | R = 0.300 * (P+Q) |            |          |           |         |          |       |               |                |              |             |             |           |           |
| Subtotal (S = Q+R)                                                                      |                   |            |          |           |         |          |       |               |                |              |             | 5,000       | 136,000   | 70,000    |
|                                                                                         |                   |            |          |           |         |          |       |               |                |              |             | 5,000       | 147,000   | 75,000    |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                        |                   |            |          |           |         |          |       |               |                |              |             | 10,000      | 285,000   | 144,000   |
|                                                                                         |                   |            |          |           |         |          |       |               |                |              |             | 23,000      | 638,000   | 323,000   |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (OPERATIONS & LONG-TERM ACTIVITIES) (U = H+O+T) |                   |            |          |           |         |          |       |               |                |              |             |             |           |           |
|                                                                                         |                   |            |          |           |         |          |       |               |                |              |             | 246,000,000 |           |           |
|                                                                                         |                   |            |          |           |         |          |       |               |                |              |             | 199,000,000 |           |           |

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Table B4.17-20 Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
Alternative 20: In Situ Thermal Treatment (Surface Soil Heating); Direct Thermal Description (Direct Heating); Direct Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                             | Cost Type | Start Year                    | End Year | 1992 (\$)  | Units | Quantity | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$)  |           |           |
|-----------------------------------------------------------------------|-----------|-------------------------------|----------|------------|-------|----------|---------------|----------------|--------------|-------------|-------------|------------|------------|-----------|-----------|
|                                                                       |           |                               |          | Unit Cost  |       |          |               |                |              |             | Annual Cost | Total Cost | PW Cost    |           |           |
| DIRECT CAPITAL COSTS                                                  |           |                               |          |            |       |          |               |                |              |             |             |            |            |           |           |
| HB - On-Post Hazardous Waste Landfill (Particulates)                  | LS        | 2                             | --       | 5.72       | /BCY  | 4,000    | 1.000         | 1.000          | 1.000        |             |             | 28,000     | 25,000     |           |           |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates)          | LS        | 3                             | --       | 3.80       | /BCY  | 4,000    | 1.000         | 1.000          | 1.000        |             |             | 17,000     | 16,000     |           |           |
| A - On-Post Hazardous Waste Landfill (Particulates)                   | LS        | 2                             | --       | 5.72       | /BCY  | 1        | 1.000         | 1.000          | 1.000        |             |             | 10         | 10         |           |           |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS        | 3                             | --       | 3.80       | /BCY  | 1        | 1.000         | 1.000          | 1.000        |             |             | 4          | 4          |           |           |
| U - On-Post Solid Waste Landfill                                      | LS        | 2                             | --       | 4.32       | /BCY  | 5,000    | 1.000         | 1.000          | 1.000        |             |             | 25,000     | 23,000     |           |           |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS        | 3                             | --       | 3.70       | /BCY  | 5,000    | 1.000         | 1.000          | 1.000        |             |             | 21,000     | 19,000     |           |           |
| Subtotal (A)                                                          |           |                               |          |            |       |          |               |                |              |             |             | 89,000     | 83,000     |           |           |
| INDIRECT CAPITAL COSTS                                                |           |                               |          |            |       |          |               |                |              |             |             |            |            |           |           |
| COST CODE: LLSS                                                       |           |                               |          |            |       |          |               |                |              |             |             |            |            |           |           |
| Mod/Demob                                                             | 3.3%      | B = 0.033 * (A)               |          |            |       |          |               |                |              |             |             |            |            | 3,000     | 3,000     |
| Indirects, Overhead & Profit                                          | 38.0%     | C = 0.380 * (A+B)             |          |            |       |          |               |                |              |             |             |            |            | 36,000    | 34,000    |
| Engineering Design                                                    | 3.0%      | D = 0.030 * (A+B+C)           |          |            |       |          |               |                |              |             |             |            |            | 4,000     | 4,000     |
| Resident Engineering                                                  | 1.3%      | E = 0.013 * (A+B+C)           |          |            |       |          |               |                |              |             |             |            |            | 2,000     | 1,000     |
| Contingency                                                           | 28.3%     | F = 0.283 * (A+B+C+D+E)       |          |            |       |          |               |                |              |             |             |            |            | 35,000    | 33,000    |
| Subtotal (G = B+C+D+E+F)                                              |           |                               |          |            |       |          |               |                |              |             |             | 79,000     | 74,000     |           |           |
| DIRECT SUBCONTRACT CAPITAL COSTS                                      |           |                               |          |            |       |          |               |                |              |             |             |            |            |           |           |
| HB - In Situ Surface Soil Heating                                     | LS        | 1                             | --       | 951,200.00 | /UNIT | 2        | 1.000         | 1.000          | 1.000        |             |             | 2,171,000  | 2,171,000  |           |           |
| HB - Thermal Description (Dry Soil)                                   | A         | 1                             | 2        | 14.17      | /BCY  | 400,000  | 1.000         | 1.000          | 1.000        |             |             | 6,468,000  | 6,314,000  |           |           |
| H - Cement-Based Solidification                                       | LS        | 2                             | --       | 3.35       | /BCY  | 112,000  | 1.000         | 1.000          | 1.000        |             |             | 428,000    | 408,000    |           |           |
| A - Incineration                                                      | A         | 1                             | 2        | 36.37      | /BCY  | 140      | 1.000         | 1.000          | 1.000        |             |             | 6,000      | 6,000      |           |           |
| Subtotal (A1)                                                         |           |                               |          |            |       |          |               |                |              |             |             | 9,073,000  | 8,689,000  |           |           |
| INDIRECT SUBCONTRACT CAPITAL COSTS                                    |           |                               |          |            |       |          |               |                |              |             |             |            |            |           |           |
| COST CODE: N                                                          |           |                               |          |            |       |          |               |                |              |             |             |            |            |           |           |
| Mod/Demob                                                             | 2.0%      | B1 = 0.020 * (A1)             |          |            |       |          |               |                |              |             |             |            |            | 181,000   | 178,000   |
| Contractor Markup                                                     | 9.0%      | C1 = 0.090 * (A1+B1)          |          |            |       |          |               |                |              |             |             |            |            | 833,000   | 817,000   |
| Engineering Design                                                    | 7.0%      | D1 = 0.070 * (A1+B1+C1)       |          |            |       |          |               |                |              |             |             |            |            | 706,000   | 693,000   |
| Resident Engineering                                                  | 2.8%      | E1 = 0.028 * (A1+B1+C1)       |          |            |       |          |               |                |              |             |             |            |            | 272,000   | 272,000   |
| Contingency                                                           | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |            |       |          |               |                |              |             |             |            |            | 3,321,000 | 3,257,000 |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                        |           |                               |          |            |       |          |               |                |              |             |             | 5,319,000  | 5,217,000  |           |           |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                                   |           |                               |          |            |       |          |               |                |              |             |             | 14,561,000 | 14,273,000 |           |           |
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Table BA.17-20 Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
Alternative 20: In Situ Thermal Treatment (Surface Soil Heating); Direct Thermal Desorption (Direct Heating); Direct Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                   | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units                         | Quantity | Volume Factor | Mileage Factor | Other Factor | Description | 1992 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------------|-----------|------------|----------|------------------------|-------------------------------|----------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                    |           |            |          |                        |                               |          |               |                |              |             |                          |                         |                      |
| HB - Soil Excavation                                                        | LS        | 3          | --       | 3.91                   | /BCY                          | 480,000  | BCY           | 1.000          | 1.000        | 1.200       | Odor Control             | 2,570,000               | 2,331,000            |
| HB - Load Treated Soil for Transport to Thermal Desorption Facility         | LS        | 3          | --       | 1.07                   | /BCY-MILE                     | 400,000  | BCY           | 1.000          | 0.500        | 1.000       |                          | 244,000                 | 222,000              |
| HB - Load Treated Soil for Transport to Hazardous Landfill                  | LS        | 3          | --       | 1.55                   | /BCY                          | 4,000    | BCY           | 1.000          | 1.000        | 1.000       |                          | 7,000                   | 6,000                |
| HB - Transportation of Particulates to On-Post Hazardous Waste Landfill     | LS        | 3          | --       | 1.07                   | /BCY-MILE                     | 4,000    | BCY           | 1.000          | 1.000        | 1.000       |                          | 5,000                   | 4,000                |
| HB - On-Post Hazardous Waste Landfill (Particulates)                        | LS        | 3          | --       | 4.07                   | /BCY                          | 4,000    | BCY           | 1.000          | 1.000        | 1.000       |                          | 18,000                  | 17,000               |
| H - Load Nonhazardous Treated Soil for Backfill                             | A         | 3          | 9        | 1.28                   | /BCY                          | 112,000  | BCY           | 1.200          | 1.000        | 1.000       |                          | 188,000                 | 155,000              |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill              | A         | 3          | 9        | 0.86                   | /BCY-MILE                     | 112,000  | BCY           | 1.200          | 1.000        | 1.000       |                          | 132,000                 | 104,000              |
| H - Backfill with Treated Soil                                              | A         | 3          | 9        | 1.72                   | /BCY                          | 112,000  | BCY           | 1.200          | 1.000        | 1.000       |                          | 284,000                 | 208,000              |
| HB - Load Treated Soil for Transport to Hazardous Landfill                  | LS        | 3          | --       | 1.55                   | /BCY                          | 400,000  | BCY           | 1.000          | 1.000        | 1.000       |                          | 708,000                 | 642,000              |
| HB - Transportation of Treated Soil to Backfill Excavation                  | LS        | 3          | --       | 0.86                   | /BCY-MILE                     | 400,000  | BCY           | 1.000          | 0.500        | 1.000       |                          | 198,000                 | 178,000              |
| HB - Backfill with Treated Soil                                             | LS        | 3          | --       | 1.72                   | /BCY                          | 400,000  | BCY           | 1.000          | 1.000        | 1.000       |                          | 785,000                 | 712,000              |
| HB - Installation of 6 Inches of Topsoil                                    | A         | 1          | 14       | 3.24                   | /SY                           | 620,000  | SY            | 1.000          | 1.000        | 1.000       | Disturbance              | 2,292,000               | 1,702,000            |
| HB - Revegetation of Disturbed Areas                                        | A         | 1          | 14       | 0.18                   | /SY                           | 620,000  | SY            | 1.000          | 1.000        | 1.000       |                          | 140,000                 | 104,000              |
| HB - Drilling and Agent Screening Prior to Excavation                       | LS        | 2          | --       | 4.89                   | /SY                           | 43,000   | SY            | 1.000          | 1.000        | 1.000       |                          | 240,000                 | 229,000              |
| A - Excavation of Soil with Agent                                           | LS        | 3          | --       | 4.55                   | /BCY                          | 140      | BCY           | 1.000          | 1.000        | 1.200       | Odor Control             | 1,000                   | 1,000                |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility    | LS        | 3          | --       | 1.07                   | /BCY-MILE                     | 140      | BCY           | 1.000          | 0.500        | 1.000       |                          | 100                     | 100                  |
| A - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3          | --       | 1.55                   | /BCY                          | 1        | BCY           | 1.000          | 1.000        | 1.000       |                          | 2                       | 2                    |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill      | LS        | 3          | --       | 1.07                   | /BCY-MILE                     | 1        | BCY           | 1.000          | 1.000        | 1.000       |                          | 1                       | 1                    |
| A - On-Post Hazardous Waste Landfill (Particulates)                         | LS        | 3          | --       | 4.07                   | /BCY                          | 1        | BCY           | 1.000          | 1.000        | 1.000       |                          | 5                       | 4                    |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill              | LS        | 3          | --       | 1.28                   | /BCY                          | 140      | BCY           | 1.000          | 1.000        | 1.000       |                          | 200                     | 200                  |
| A - Load Nonhazardous Treated Soil to Backfill Excavation                   | LS        | 3          | --       | 0.86                   | /BCY-MILE                     | 140      | BCY           | 1.000          | 1.000        | 1.000       |                          | 100                     | 100                  |
| A - Backfill with Treated Soil                                              | LS        | 3          | --       | 1.72                   | /BCY                          | 140      | BCY           | 1.000          | 1.000        | 1.000       |                          | 300                     | 300                  |
| A - UXO Clearance by Geophysics                                             | LS        | 2          | --       | 0.85                   | /SY                           | 15,000   | SY            | 1.000          | 1.000        | 1.000       |                          | 15,000                  | 14,000               |
| U - Removal of Soil with UXO                                                | LS        | 3          | --       | 70.57                  | /BCY                          | 49       | BCY           | 1.000          | 1.000        | 1.000       |                          | 4,000                   | 4,000                |
| U - Excavation of Debris from Surface Soil                                  | LS        | 3          | --       | 3.91                   | /BCY                          | 5,000    | BCY           | 1.000          | 1.000        | 1.300       | Productivity             | 29,000                  | 28,000               |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill | LS        | 3          | --       | 0.71                   | /BCY-MILE                     | 5,000    | BCY           | 1.000          | 1.500        | 1.000       | Productivity             | 8,000                   | 7,000                |
| U - On-Post Solid Waste Landfill                                            | LS        | 3          | --       | 4.07                   | /BCY                          | 5,000    | BCY           | 1.000          | 1.000        | 1.000       |                          | 23,000                  | 21,000               |
| <b>Subtotal (I)</b>                                                         |           |            |          |                        |                               |          |               |                |              |             |                          |                         |                      |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |            |          |                        |                               |          |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                                   |           |            |          | 3.9%                   | J = 0.039 * (I)               |          |               |                |              |             |                          | 7,878,000               | 6,886,000            |
| Indirects, Overhead & Profit                                                |           |            |          | 38.0%                  | K = 0.380 * (I+J)             |          |               |                |              |             |                          | 3,050,000               | 2,580,000            |
| Engineering Design                                                          |           |            |          | 0.5%                   | L = 0.005 * (I+J+K)           |          |               |                |              |             |                          | 3,192,000               | 2,709,000            |
| Resident Engineering                                                        |           |            |          | 2.0%                   | M = 0.020 * (I+J+K)           |          |               |                |              |             |                          | 57,000                  | 48,000               |
| Contingency                                                                 |           |            |          | 31.3%                  | N = 0.313 * (I+J+K+L+M)       |          |               |                |              |             |                          | 228,000                 | 183,000              |
| <b>Subtotal (O) = J+K+L+M+N</b>                                             |           |            |          |                        |                               |          |               |                |              |             |                          |                         |                      |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                        |           |            |          |                        |                               |          |               |                |              |             |                          |                         |                      |
| HB - In Situ Surface Soil Heating                                           | A         | 1          | 14       | 27.30                  | /SY                           | 480,000  | SY            | 1.000          | 1.000        | 1.000       |                          | 14,954,000              | 11,102,000           |
| HB - Thermal Desorption (Dry Soil)                                          | LS        | 3          | --       | 49.13                  | /BCY                          | 400,000  | BCY           | 1.000          | 1.000        | 1.000       |                          | 22,428,000              | 20,341,000           |
| H - Cement-Based Solidification                                             | A         | 3          | 9        | 70.10                  | /BCY                          | 112,000  | BCY           | 1.000          | 1.000        | 1.000       |                          | 8,980,000               | 7,053,000            |
| A - Incineration                                                            | LS        | 3          | --       | 96.21                  | /BCY                          | 140      | BCY           | 1.000          | 1.000        | 1.000       |                          | 15,000                  | 14,000               |
| U - Packaging and Transportation of HE Filled UXO to Army Off-Post Facility | LS        | 3          | --       | 59.50                  | /BCY                          | 49       | BCY           | 1.000          | 1.000        | 1.000       |                          | 3,000                   | 3,000                |
| <b>Subtotal (II)</b>                                                        |           |            |          |                        |                               |          |               |                |              |             |                          |                         |                      |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |            |          |                        |                               |          |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                                   |           |            |          | 0.0%                   | J1 = 0.000 * (II)             |          |               |                |              |             |                          | 0                       | 0                    |
| Contractor Markup                                                           |           |            |          | 9.0%                   | K1 = 0.090 * (II+J1)          |          |               |                |              |             |                          | 4,172,000               | 3,466,000            |
| Engineering Design                                                          |           |            |          | 0.2%                   | L1 = 0.002 * (II+J1+K1)       |          |               |                |              |             |                          | 101,000                 | 84,000               |
| Resident Engineering                                                        |           |            |          | 2.0%                   | M1 = 0.020 * (II+J1+K1)       |          |               |                |              |             |                          | 1,011,000               | 840,000              |
| Contingency                                                                 |           |            |          | 40.0%                  | N1 = 0.400 * (II+J1+K1+L1+M1) |          |               |                |              |             |                          | 20,657,000              | 17,161,000           |
| <b>Subtotal (O1) = J1+K1+L1+M1+N1</b>                                       |           |            |          |                        |                               |          |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O1+II)</b>                      |           |            |          |                        |                               |          |               |                |              |             |                          |                         |                      |
|                                                                             |           |            |          |                        |                               |          |               |                |              |             |                          | 87,882,000              | 73,052,000           |

Table B4.17-20 Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
Alternative 20: In Situ Thermal Treatment (Surface Soil Heating); Direct Thermal Desorption (Direct Heating); Direct Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |               |                |              |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       | 0.13                   | /BCY-YR | 4,000    | BCY   | 1,000         | 1,000          | 1,000        | 1,000                    | 17,000                  | 6,000                |
| H - Long Term Monitoring of Solidified Soil                                                             | A         | 9          | 30       | 0.25                   | /SY-YR  | 95,000   | SY    | 1,000         | 1,000          | 1,000        | 27,000                   | 596,000                 | 254,000              |
| H - Site Reviews                                                                                        | A         | 9          | 30       | 5,400.00               | /EA-YR  | 1        | EA    | 1,000         | 1,000          | 1,000        | 6,000                    | 136,000                 | 58,000               |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 3          | 30       | 0.13                   | /BCY-YR | 1        | BCY   | 1,000         | 1,000          | 1,000        | 0                        | 4                       | 2                    |
| U - On-Post Solid Waste Landfill Closure and Post Closure Activities                                    | A         | 3          | 30       | 0.13                   | /BCY-YR | 5,000    | BCY   | 1,000         | 1,000          | 1,000        | 1,000                    | 21,000                  | 11,000               |
| Subtotal (P)                                                                                            |           |            |          |                        |         |          |       |               |                |              | 35,000                   | 799,000                 | 330,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |               |                |              |                          |                         |                      |
| Indirects, Overhead & Profit                                                                            |           |            |          |                        |         |          |       |               |                |              | 13,000                   | 300,000                 | 129,000              |
| Contingency                                                                                             |           |            |          |                        |         |          |       |               |                |              | 14,000                   | 321,000                 | 136,000              |
| Subtotal (S = Q+R)                                                                                      |           |            |          |                        |         |          |       |               |                |              | 28,000                   | 621,000                 | 265,000              |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |               |                |              | 63,000                   | 1,399,000               | 597,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |               |                |              |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |                          | 104,000,000             | 87,900,000           |

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Table B4.18-1

Cost Estimate - Buried Sediment/Ditches Medium Group - Buried Sediment Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

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| Cost Item                     | Cost Type | Start Year | End Year | 1992(\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------|-----------|------------|----------|-----------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS          |           |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                 | LS        | 1          | --       | 0.00                  | /SY   | 10,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| B - No Action                 | LS        | 1          | --       | 0.00                  | /SY   | 49,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| INDIRECT CAPITAL COSTS        |           |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                     |           |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit  | 3.3%      |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design            | 38.0%     |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering          | 3.0%      |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                   | 1.3%      |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
|                               | 26.3%     |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (A)                  |           |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
| 0                             |           |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
| INDIRECT CAPITAL COSTS        |           |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                     |           |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit  | 3.3%      |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design            | 38.0%     |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering          | 3.0%      |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                   | 1.3%      |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
|                               | 26.3%     |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G =B+C+D+E+F)       |           |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
| 0                             |           |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
| TOTAL CAPITAL COSTS (H = A+G) |           |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |
| 0                             |           |            |          |                       |       |          |       |               |                |              |             |                          |                         |                      |

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Table B4.18-1 Cost Estimate - Buried Sediment/Ditches Medium Group - Buried Sediment Subgroup  
Alternative 1: No Additional Action (Provisions of FTA)

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost   | Units  | Quantity | Units     | Volume Factor           | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |         |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|--------------------------|--------|----------|-----------|-------------------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|---------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |                          |        |          |           |                         |                |              |             |                          |                         |                      |         |
| H - No Action                                                                                  | LS        | 1          | -        | 0.00                     | /SY    | 10,000   | SY        | 1.000                   | 1.000          | 1.000        |             |                          | 0                       | 0                    |         |
| B - No Action                                                                                  | LS        | 1          | -        | 0.00                     | /SY    | 49,000   | SY        | 1.000                   | 1.000          | 1.000        |             |                          | 0                       | 0                    |         |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |                          |        |          |           |                         |                |              |             |                          |                         |                      |         |
| Mod/Demob                                                                                      |           |            |          | Subtotal (I)             |        |          | COST CODE |                         |                | LLSS         |             |                          |                         |                      |         |
| Indirects, Overhead & Profit                                                                   | 3.3%      |            |          |                          |        |          |           | J = 0.033 * (I)         |                |              |             |                          |                         | 0                    |         |
| Engineering Design                                                                             | 39.0%     |            |          |                          |        |          |           | K = 0.390 * (I+J)       |                |              |             |                          |                         | 0                    |         |
| Resident Engineering                                                                           | 0.5%      |            |          |                          |        |          |           | L = 0.005 * (I+J+K)     |                |              |             |                          |                         | 0                    |         |
| Contingency                                                                                    | 1.3%      |            |          |                          |        |          |           | M = 0.013 * (I+J+K)     |                |              |             |                          |                         | 0                    |         |
|                                                                                                | 28.3%     |            |          |                          |        |          |           | N = 0.283 * (I+J+K+L+M) |                |              |             |                          |                         | 0                    |         |
|                                                                                                |           |            |          | Subtotal (O = J+K+L+M+N) |        |          |           |                         |                |              |             |                          | 0                       | 0                    |         |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |                          |        |          |           |                         |                |              |             |                          |                         |                      |         |
| HB - Long Term Soil Monitoring, Buried Sediment                                                | A         | 1          | 30       | 24,000.00                | /EA-YR | 1        | EA        | 1.000                   | 1.000          | 1.000        |             | 27,000                   | 822,000                 | 435,000              |         |
| HB - Site Reviews                                                                              | A         | 1          | 30       | 5,400.00                 | /EA-YR | 1        | EA        | 1.000                   | 1.000          | 1.000        |             | 6,000                    | 185,000                 | 98,000               |         |
|                                                                                                |           |            |          |                          |        |          |           |                         |                |              |             | 34,000                   | 1,007,000               | 533,000              |         |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |                          |        |          |           |                         |                |              |             |                          |                         |                      |         |
| Indirects, Overhead & Profit                                                                   | 39.0%     |            |          |                          |        |          |           | Subtotal (P)            |                |              | COST CODE   |                          |                         | LLSL                 |         |
| Contingency                                                                                    | 30.0%     |            |          |                          |        |          |           | Q = 0.390 * (P)         |                |              |             |                          |                         |                      |         |
|                                                                                                |           |            |          |                          |        |          |           | R = 0.300 * (P+Q)       |                |              |             |                          |                         |                      |         |
|                                                                                                |           |            |          | Subtotal (S)             |        |          |           |                         |                |              |             |                          | 13,000                  | 393,000              | 208,000 |
|                                                                                                |           |            |          |                          |        |          |           |                         |                |              |             |                          | 14,000                  | 420,000              | 222,000 |
|                                                                                                |           |            |          |                          |        |          |           |                         |                |              |             |                          | 27,000                  | 812,000              | 430,000 |
|                                                                                                |           |            |          |                          |        |          |           |                         |                |              |             | 61,000                   | 1,819,000               | 964,000              |         |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |                          |        |          |           |                         |                |              |             |                          |                         |                      |         |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |                          |        |          |           |                         |                |              |             |                          |                         |                      |         |
|                                                                                                |           |            |          |                          |        |          |           |                         |                |              |             | 1,820,000                |                         | 964,000              |         |

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Table B4.18-2 Cost Estimate - Buried Sediment/Ditches Medium Group - Buried Sediment Subgroup  
Alternative 2: Access Restrictions (Modifications to FFA)

| Cost Item                            | Cost Type | Start Year | End Year | 1997 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - Public Education                 | LS        | 1          | --       | 1,500.00               | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             |                          | 2,000                   | 2,000                |
| HB - Fences                          | LS        | 1          | --       | 15.00                  | /LF   | 4,400    | LF    | 1.000         | 1.000          | 1.000        |             |                          | 75,000                  | 75,000               |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 77,000                  | 77,000               |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (A)                         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE LLSS                       |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 3.3% B = 0.033 * (A)                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 38.0% C = 0.380 * (A+B)              |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 3.0% D = 0.030 * (A+B+C)             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 1.3% E = 0.013 * (A+B+C)             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 26.3% F = 0.263 * (A+B+C+D+E)        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 3,000                   | 3,000                |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 31,000                  | 31,000               |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 3,000                   | 3,000                |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 30,000                  | 30,000               |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 68,000                  | 68,000               |
|                                      |           |            |          |                        |       |          |       |               |                |              |             |                          | 146,000                 | 146,000              |
| <b>TOTAL CAPITAL COSTS (H + A+G)</b> |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

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| Cost Item                                     | Cost Type                     | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------|-------------------------------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                          |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill         | LS                            | 1          | --       | 5.72                   | /BCY  | 180,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 1,175,000                | 1,175,000               | 1,175,000            |
| HB - On-Post Hazardous Waste Landfill Closure | LS                            | 2          | --       | 3.80                   | /BCY  | 180,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 781,000                  | 781,000                 | 743,000              |
|                                               |                               |            |          |                        |       |          |       |               |                |              |             |                          | 1,956,000               | 1,918,000            |
| INDIRECT CAPITAL COSTS                        |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                     | 3.3% B = 0.033 * (A)          |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                  | 38.0% C = 0.380 * (A+B)       |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                            | 3.0% D = 0.030 * (A+B+C)      |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                          | 1.3% E = 0.013 * (A+B+C)      |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                   | 26.3% F = 0.263 * (A+B+C+D+E) |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                               |                               |            |          |                        |       |          |       |               |                |              |             |                          | 84,000                  | 62,000               |
|                                               |                               |            |          |                        |       |          |       |               |                |              |             |                          | 787,000                 | 772,000              |
|                                               |                               |            |          |                        |       |          |       |               |                |              |             |                          | 84,000                  | 83,000               |
|                                               |                               |            |          |                        |       |          |       |               |                |              |             |                          | 35,000                  | 34,000               |
|                                               |                               |            |          |                        |       |          |       |               |                |              |             |                          | 788,000                 | 753,000              |
|                                               |                               |            |          |                        |       |          |       |               |                |              |             |                          | 1,738,000               | 1,705,000            |
|                                               |                               |            |          |                        |       |          |       |               |                |              |             |                          | 3,884,000               | 3,624,000            |
| TOTAL CAPITAL COSTS (H = A+G)                 |                               |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

Table B4.18-3 Cost Estimate - Buried Sediment/Ditches Medium Group - Buried Sediment Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                                    | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$)  | PW Cost |
|------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|------------|---------|
| DIRECT O&M COSTS (OPERATIONS)                                                |           |            |          |           |           |          |       |               |                |              |             |           |           |            |         |
| HB - Soil Excavation                                                         | LS        | 2          | --       | 3.91      | /BCY      | 180,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 803,000   |           |            | 785,000 |
| HB - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill | LS        | 2          | --       | 1.07      | /BCY-MILE | 180,000  | BCY   | 1.000         | 2.250          | 1.000        |             | 465,000   |           |            | 471,000 |
| HB - On-Post Hazardous Waste Landfill                                        | LS        | 2          | --       | 4.07      | /BCY      | 180,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 836,000   |           |            | 796,000 |
| HB - Excavation of Borrow Material                                           | LS        | 2          | --       | 1.89      | /BCY      | 180,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 368,000   |           |            | 370,000 |
| HB - Transportation of Borrow Material to Backfill Area                      | LS        | 2          | --       | 0.86      | /BCY-MILE | 180,000  | BCY   | 1.000         | 1.500          | 1.000        |             | 265,000   |           |            | 252,000 |
| HB - Backfill with Borrow Material                                           | LS        | 2          | --       | 1.72      | /BCY      | 180,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 353,000   |           |            | 336,000 |
| HB - Installation of 6 Inches of Topsoil                                     | LS        | 2          | --       | 3.24      | /SY       | 59,000   | SY    | 1.000         | 1.000          | 1.000        |             | 218,000   |           |            | 208,000 |
| HB - Revegetation of Disturbed Areas                                         | LS        | 2          | --       | 0.18      | /SY       | 59,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance | 13,000    |           |            | 13,000  |
|                                                                              |           |            |          |           |           |          |       |               |                |              |             | 3,372,000 |           | 3,211,000  |         |
| INDIRECT O&M COSTS (OPERATIONS)                                              |           |            |          |           |           |          |       |               |                |              |             |           |           |            |         |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |             |           |           |            |         |
| COST CODE                                                                    |           |            |          |           |           |          |       |               |                |              |             |           |           |            |         |
| J = 0.038 * (I)                                                              |           |            |          |           |           |          |       |               |                |              |             |           |           |            |         |
| K = 0.403 * (I+J)                                                            |           |            |          |           |           |          |       |               |                |              |             |           |           |            |         |
| L = 0.005 * (I+J+K)                                                          |           |            |          |           |           |          |       |               |                |              |             |           |           |            |         |
| M = 0.015 * (I+J+K)                                                          |           |            |          |           |           |          |       |               |                |              |             |           |           |            |         |
| N = 0.275 * (I+J+K+L+M)                                                      |           |            |          |           |           |          |       |               |                |              |             |           |           |            |         |
| Subtotal (O = J+K+L+M+N)                                                     |           |            |          |           |           |          |       |               |                |              |             |           |           |            |         |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                      |           |            |          |           |           |          |       |               |                |              |             |           |           |            |         |
| HB - On-Post Hazardous Waste Landfill Closure                                | A         | 2          | 30       | 0.13      | /BCY-YR   | 180,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 27,000    |           |            | 404,000 |
|                                                                              |           |            |          |           |           |          |       |               |                |              |             | 774,000   |           | 404,000    |         |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                    |           |            |          |           |           |          |       |               |                |              |             |           |           |            |         |
| Subtotal (P)                                                                 |           |            |          |           |           |          |       |               |                |              |             |           |           |            |         |
| COST CODE                                                                    |           |            |          |           |           |          |       |               |                |              |             |           |           |            |         |
| Q = 0.390 * (P)                                                              |           |            |          |           |           |          |       |               |                |              |             |           |           |            |         |
| R = 0.300 * (P+Q)                                                            |           |            |          |           |           |          |       |               |                |              |             |           |           |            |         |
| Subtotal (S)                                                                 |           |            |          |           |           |          |       |               |                |              |             |           |           |            |         |
|                                                                              |           |            |          |           |           |          |       |               |                |              |             | 27,000    |           | 774,000    |         |
|                                                                              |           |            |          |           |           |          |       |               |                |              |             | 10,000    |           | 302,000    |         |
|                                                                              |           |            |          |           |           |          |       |               |                |              |             | 11,000    |           | 323,000    |         |
|                                                                              |           |            |          |           |           |          |       |               |                |              |             | 22,000    |           | 625,000    |         |
|                                                                              |           |            |          |           |           |          |       |               |                |              |             | 48,000    |           | 7,767,000  |         |
|                                                                              |           |            |          |           |           |          |       |               |                |              |             |           |           | 6,814,000  |         |
|                                                                              |           |            |          |           |           |          |       |               |                |              |             |           |           | 11,300,000 |         |
|                                                                              |           |            |          |           |           |          |       |               |                |              |             |           |           | 10,400,000 |         |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                            |           |            |          |           |           |          |       |               |                |              |             |           |           |            |         |

**Table B4.18-6** Cost Estimate - Buried Sediment/Ditches Medium Group - Buried Sediment Subgroup  
Alternative 6: Caps/Covers (Clay/Soil Cap)

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Table B4.18-6

Cost Estimate - Buried Sediment/Ditches Medium Group - Buried Sediment Subgroup  
Alternative 6: Caps/Covers (Clay/Soil Cap)

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| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| HB - Subgrade Preparation Prior to Installing Cap/Cover                                                       | LS        | 1          | --       | 0.06                   | /SY    | 59,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 4,000                   | 4,000                |
| HB - Installation of Clay/Soil Cap                                                                            | LS        | 1          | --       | 23.30                  | /SY    | 59,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 1,569,000               | 1,569,000            |
| HB - Revegetation of Disturbed Areas                                                                          | LS        | 1          | --       | 0.18                   | /SY    | 59,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance |                          | 13,000                  | 13,000               |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                                                                     |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| HB - Installation of Clay/Soil Cap                                                                            | A         | 1          | 30       | 0.80                   | /SY-YR | 59,000   | SY    | 1.000         | 1.000          | 1.000        |             | 54,000                   | 1,618,000               | 668,000              |
| HB - Site Reviews                                                                                             | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 185,000                 | 98,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (I)</b>                                                                                           |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (P)</b>                                                                                           |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (S)</b>                                                                                           |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (T)</b>                                                                                           |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (U)</b>                                                                                           |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |

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| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$) |                         | Units | Quantity | Units | Volume |        | Mileage |        | Other       |            | 1995 (\$) |                         | 1995 (\$) |   |   |   |
|-------------------------------|-----------|------------|----------|-----------|-------------------------|-------|----------|-------|--------|--------|---------|--------|-------------|------------|-----------|-------------------------|-----------|---|---|---|
|                               |           |            |          | Unit Cost | Unit Cost               |       |          |       | Factor | Factor | Factor  | Factor | Annual Cost | Total Cost | PW Cost   |                         |           |   |   |   |
| DIRECT CAPITAL COSTS          |           |            |          |           |                         |       |          |       |        |        |         |        |             |            |           |                         |           |   |   |   |
| INDIRECT CAPITAL COSTS        |           |            |          |           |                         |       |          |       |        |        |         |        |             |            |           |                         |           |   |   |   |
| Mod/Demab                     |           |            |          |           |                         |       |          |       |        |        |         |        |             |            |           |                         |           |   |   |   |
| Indirects, Overhead & Profit  |           |            |          |           |                         |       |          |       |        |        |         |        |             |            |           |                         |           |   |   |   |
| Engineering Design            |           |            |          |           |                         |       |          |       |        |        |         |        |             |            |           |                         |           |   |   |   |
| Resident Engineering          |           |            |          |           |                         |       |          |       |        |        |         |        |             |            |           |                         |           |   |   |   |
| Contingency                   |           |            |          |           |                         |       |          |       |        |        |         |        |             |            |           |                         |           |   |   |   |
|                               |           |            |          | 3.3%      | B = 0.033 * (A)         |       |          |       |        |        |         |        |             |            |           |                         | 0         | 0 |   |   |
|                               |           |            |          | 39.0%     | C = 0.390 * (A+B)       |       |          |       |        |        |         |        |             |            |           |                         | 0         | 0 |   |   |
|                               |           |            |          | 3.0%      | D = 0.030 * (A+B+C)     |       |          |       |        |        |         |        |             |            |           |                         | 0         | 0 |   |   |
|                               |           |            |          | 1.3%      | E = 0.013 * (A+B+C)     |       |          |       |        |        |         |        |             |            |           |                         | 0         | 0 |   |   |
|                               |           |            |          | 26.3%     | F = 0.263 * (A+B+C+D+E) |       |          |       |        |        |         |        |             |            |           |                         | 0         | 0 |   |   |
|                               |           |            |          |           |                         |       |          |       |        |        |         |        |             |            |           | Subtotal (G =B+C+D+E+F) |           | 0 | 0 | 0 |
|                               |           |            |          |           |                         |       |          |       |        |        |         |        |             |            |           | Subtotal (A)            |           | 0 | 0 | 0 |
| TOTAL CAPITAL COSTS (H = A+G) |           |            |          |           |                         |       |          |       |        |        |         |        |             |            |           |                         |           |   |   |   |

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**Table B4.18-6g**  
**Cost Estimate - Buried Sediment/Ditches Medium Group - Buried Sediment Subgroup**  
**Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation**

| Cost Item                                                                                      | Cost Type | Start Year              | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|------------------------------------------------------------------------------------------------|-----------|-------------------------|----------|------------------------|-----------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |                         |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| HB - Soil Excavation                                                                           | LS        | I                       | --       | 3.91                   | /BCY      | 180,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 803,000                 | 803,000              |
| HB - Transportation of Contaminated Soil to Consolidation Area                                 | LS        | I                       | --       | 1.07                   | /BCY-MILE | 180,000  | BCY   | 1.000         | 2.000          | 1.000        |             |                          | 440,000                 | 440,000              |
| HB - Grade Filling w/Consolidated Soil Prior to Capping                                        | LS        | I                       | --       | 3.63                   | /BCY      | 180,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 746,000                 | 746,000              |
| HB - Excavation of Borrow Material                                                             | LS        | I                       | --       | 1.89                   | /BCY      | 180,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 388,000                 | 388,000              |
| HB - Transportation of Borrow Material to Backfill Area                                        | LS        | J                       | --       | 0.86                   | /BCY-MILE | 180,000  | BCY   | 1.000         | 1.500          | 1.000        |             |                          | 265,000                 | 265,000              |
| HB - Backfill with Borrow Material                                                             | LS        | I                       | --       | 1.72                   | /BCY      | 180,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 353,000                 | 353,000              |
| HB - Installation of 6 Inches of Topsoil                                                       | LS        | I                       | --       | 3.24                   | /SY       | 59,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 218,000                 | 218,000              |
| HB - Revegetation of Disturbed Areas                                                           | LS        | I                       | --       | 0.18                   | /SY       | 59,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance |                          | 13,000                  | 13,000               |
| Subtotal (I)                                                                                   |           |                         |          |                        |           |          |       |               |                |              |             | 3,226,000                | 3,226,000               |                      |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |                         |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                                                      | COST CODE |                         | MLMS     |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Indirects: Overhead & Profit                                                                   | 3.9%      | J = 0.028 * (I)         |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                                             | 0.5%      | K = 0.390 * (I+J)       |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                                           | 1.5%      | L = 0.005 * (I+J+K)     |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                    | 27.5%     | M = 0.015 * (I+J+K)     |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                |           | N = 0.275 * (I+J+K+L+M) |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (O = J+K+L+M+N)                                                                       |           |                         |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |                         |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| HB - No Action                                                                                 | A         | 1                       | 30       | 0.00                   | /SY       | 59,000   | SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| Subtotal (P)                                                                                   |           |                         |          |                        |           |          |       |               |                |              |             | 0                        | 0                       | 0                    |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |                         |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Indirects: Overhead & Profit                                                                   | 38.0%     | Q = 0.390 * (P)         |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                    | 30.0%     | R = 0.300 * (P+Q)       |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (S)                                                                                   |           |                         |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |                         |          |                        |           |          |       |               |                |              |             | 0                        | 6,059,000               | 6,059,000            |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = II+T)                                             |           |                         |          |                        |           |          |       |               |                |              |             |                          | 6,060,000               | 6,060,000            |

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Table B4.18-13a Cost Estimate - Buried Sediment/Ditches Medium Group - Buried Sediment Subgroup  
Alternative 13a: Direct Thermal Desorption (Direct Heating)

| Cost Item                                                    | Cost Type | Start Year              | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |           |
|--------------------------------------------------------------|-----------|-------------------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|-----------|
| DIRECT CAPITAL COSTS                                         |           |                         |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |
| HB - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                       | --       | 5.72                   | /BCY  | 1,800    | BCY   | 1,000         | 1,000          | 1,000        |             |                          | 12,000                  | 11,000               |           |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                       | --       | 3.80                   | /BCY  | 1,800    | BCY   | 1,000         | 1,000          | 1,000        |             |                          | 8,000                   | 7,000                |           |
| Subtotal (A)                                                 |           |                         |          |                        |       |          |       |               |                |              |             |                          | 20,000                  | 19,000               |           |
| INDIRECT CAPITAL COSTS                                       |           |                         |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |
| Mod/Demob                                                    | 3.3%      | COST CODE: LLSS         |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |
| Indirects, Overhead & Profit                                 | 36.0%     | B = 0.033 * (A)         |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |
| Engineering Design                                           | 3.0%      | C = 0.360 * (A+B)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |
| Resident Engineering                                         | 1.3%      | D = 0.030 * (A+B+C)     |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |
| Contingency                                                  | 26.3%     | E = 0.013 * (A+B+C)     |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |
| F = 0.263 * (A+B+C+D+E)                                      |           |                         |          |                        |       |          |       |               |                |              |             |                          | 4,000                   | 300                  | 7,000     |
| Subtotal (G = B+C+D+E+F)                                     |           |                         |          |                        |       |          |       |               |                |              |             |                          | 17,000                  | 16,000               |           |
| DIRECT SUBCONTRACT CAPITAL COSTS                             |           |                         |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |
| HB - Thermal Desorption (Dry Soil)                           | A         | 1                       | 2        | 14.17                  | /BCY  | 180,000  | BCY   | 1,000         | 1,000          | 1,000        |             |                          | 2,911,000               | 2,841,000            |           |
| Subtotal (A1)                                                |           |                         |          |                        |       |          |       |               |                |              |             |                          | 2,911,000               | 2,841,000            |           |
| INDIRECT SUBCONTRACT CAPITAL COSTS                           |           |                         |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |
| Mod/Demob                                                    | 2.0%      | COST CODE: C            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |
| Contractor Markup                                            | 10.0%     | B1 = 0.020 * (A1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |
| Engineering Design                                           | 9.0%      | C1 = 0.100 * (A1+B1)    |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |
| Resident Engineering                                         | 3.0%      | D1 = 0.090 * (A1+B1+C1) |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |
| Contingency                                                  | 30.0%     | E1 = 0.030 * (A1+B1+C1) |          |                        |       |          |       |               |                |              |             |                          |                         |                      |           |
| F1 = 0.300 * (A1+B1+C1+D1+E1)                                |           |                         |          |                        |       |          |       |               |                |              |             |                          | 1,097,000               | 1,071,000            | 1,800,000 |
| Subtotal (G1 = B1+C1+D1+E1+F1)                               |           |                         |          |                        |       |          |       |               |                |              |             |                          | 1,844,000               | 1,800,000            | 4,678,000 |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                          |           |                         |          |                        |       |          |       |               |                |              |             |                          | 4,792,000               | 4,678,000            |           |

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| Cost Item                                                                | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume |         | Other Factor | Description | 1995 (\$)  |            |
|--------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|--------|---------|--------------|-------------|------------|------------|
|                                                                          |           |            |          |           |           |          |       | Factor | Mileage |              |             | Total Cost | PW Cost    |
| DIRECT O&M COSTS (OPERATIONS)                                            |           |            |          |           |           |          |       |        |         |              |             |            |            |
| HB - Soil Excavation                                                     | LS        | 3          | --       | 3.91      | /BCY      | 180,000  | BCY   | 1.000  | 1.000   | 1.000        |             | 803,000    | 728,000    |
| HB - Transportation of Contaminated Soil to Thermal Description Facility | LS        | 3          | --       | 1.07      | /BCY-MILE | 180,000  | BCY   | 1.000  | 1.500   | 1.000        |             | 330,000    | 289,000    |
| HB - Load Treated Soil for Transport to Hazardous Landfill               | LS        | 3          | --       | 1.55      | /BCY      | 1,800    | BCY   | 1.000  | 1.000   | 1.000        |             | 3,000      | 3,000      |
| HB - Transportation of Particulates to On-Post Hazardous Waste Landfill  | LS        | 3          | --       | 1.07      | /BCY-MILE | 1,800    | BCY   | 1.000  | 1.000   | 1.000        |             | 2,000      | 2,000      |
| HB - On-Post Hazardous Waste Landfill (Particulates)                     | LS        | 3          | --       | 4.07      | /BCY      | 1,800    | BCY   | 1.000  | 1.000   | 1.000        |             | 8,000      | 8,000      |
| HB - Load Nonhazardous Treated Soil from Stockpile for Backfill          | LS        | 3          | --       | 1.28      | /BCY      | 180,000  | BCY   | 1.000  | 1.000   | 1.000        |             | 263,000    | 238,000    |
| HB - Transportation of Treated Soil to Backfill Excavation               | LS        | 3          | --       | 0.86      | /BCY-MILE | 180,000  | BCY   | 1.000  | 1.500   | 1.000        |             | 265,000    | 240,000    |
| HB - Backfill with Treated Soil                                          | LS        | 3          | --       | 1.72      | /BCY      | 180,000  | BCY   | 1.000  | 1.000   | 1.000        |             | 353,000    | 320,000    |
| HB - Installation of 6 inches of Topsoil                                 | LS        | 3          | --       | 3.24      | /SY       | 59,000   | SY    | 1.000  | 1.000   | 1.000        |             | 218,000    | 198,000    |
| HB - Revegetation of Disturbed Areas                                     | LS        | 3          | --       | 0.18      | /SY       | 59,000   | SY    | 1.000  | 1.000   | 1.100        | Disturbance | 13,000     | 12,000     |
| Subtotal (I)                                                             |           |            |          |           |           |          |       |        |         |              |             | 2,259,000  | 2,049,000  |
| INDIRECT O&M COSTS (OPERATIONS)                                          |           |            |          |           |           |          |       |        |         |              |             |            |            |
| Mod/Demob                                                                |           |            |          |           |           |          |       |        |         |              |             |            |            |
| Indirects, Overhead & Profit                                             |           |            |          | 3.9%      |           |          |       |        |         |              |             | 98,000     | 79,000     |
| Engineering Design                                                       |           |            |          | 39.0%     |           |          |       |        |         |              |             | 915,000    | 830,000    |
| Resident Engineering                                                     |           |            |          | 0.5%      |           |          |       |        |         |              |             | 18,000     | 15,000     |
| Contingency                                                              |           |            |          | 1.5%      |           |          |       |        |         |              |             | 49,000     | 44,000     |
|                                                                          |           |            |          | 27.5%     |           |          |       |        |         |              |             | 915,000    | 830,000    |
| Subtotal (O = J+K+L+M+N)                                                 |           |            |          |           |           |          |       |        |         |              |             | 1,983,000  | 1,759,000  |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                |           |            |          |           |           |          |       |        |         |              |             |            |            |
| HB - Thermal Description (Dry Soil)                                      | LS        | 3          | --       | 49.13     | /BCY      | 180,000  | BCY   | 1.000  | 1.000   | 1.000        |             | 10,092,000 | 9,154,000  |
| Subtotal (II)                                                            |           |            |          |           |           |          |       |        |         |              |             | 10,092,000 | 9,154,000  |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                              |           |            |          |           |           |          |       |        |         |              |             |            |            |
| Mod/Demob                                                                |           |            |          |           |           |          |       |        |         |              |             | 0          | 0          |
| Contractor Markup                                                        |           |            |          | 0.0%      |           |          |       |        |         |              |             | 1,009,000  | 915,000    |
| Engineering Design                                                       |           |            |          | 10.0%     |           |          |       |        |         |              |             | 0          | 0          |
| Resident Engineering                                                     |           |            |          | 0.0%      |           |          |       |        |         |              |             | 222,000    | 201,000    |
| Contingency                                                              |           |            |          | 2.0%      |           |          |       |        |         |              |             | 4,528,000  | 4,106,000  |
|                                                                          |           |            |          | 40.0%     |           |          |       |        |         |              |             | 5,760,000  | 5,225,000  |
| Subtotal (OI = JI+KI+LI+MI+NI)                                           |           |            |          |           |           |          |       |        |         |              |             | 5,760,000  | 5,225,000  |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O+II+OI)                            |           |            |          |           |           |          |       |        |         |              |             | 20,084,000 | 18,228,000 |
| HBS-13A.WOI                                                              |           |            |          |           |           |          |       |        |         |              |             |            | 16-Jul-93  |
| SOILS DAA                                                                |           |            |          |           |           |          |       |        |         |              |             |            |            |

Table B4.18-13a Cost Estimate - Buried Sediment/Ditches Medium Group - Buried Sediment Subgroup  
Alternative 13a: Direct Thermal Desorption (Direct Heating)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       | 0.13                   | /BCY-YR | 1,800    | BCY   | 1,000         | 1,000          | 1,000        |             | 300                      | 7,000                   | 4,000                |
| <b>Subtotal (P)</b>                                                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                            |           |            |          |                        |         |          |       |               |                |              |             | 100                      | 3,000                   | 1,000                |
| Contingency                                                                                             |           |            |          |                        |         |          |       |               |                |              |             | 100                      | 3,000                   | 2,000                |
| <b>Subtotal (S = Q+R)</b>                                                                               |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 24,900,000              | 22,900,000           |

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Table B4.18-19a Cost Estimate - Buried Sediment/Ditches Medium Group - Buried Sediment Subgroup  
Alternative 19a: In Situ Thermal Treatment (RF/Microwave Heating)

| Cost Item                                | Cost Type | Start Year | End Year | 1992 (\$)    | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost   |
|------------------------------------------|-----------|------------|----------|--------------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|-----------|
| DIRECT CAPITAL COSTS                     |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| INDIRECT CAPITAL COSTS                   |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| Subtotal (A)                             |           |            |          |              |       |          |       |               |                |              |             |           | 0         |           | 0         |
| COST CODE: 0                             |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| 0.0%                                     |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| 0.0%                                     |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| 0.0%                                     |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| 0.0%                                     |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| 0.0%                                     |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| 0.0%                                     |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| Subtotal (G = B+C+D+E+F)                 |           |            |          |              |       |          |       |               |                |              |             |           | 0         |           | 0         |
| DIRECT SUBCONTRACT CAPITAL COSTS         |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| HS - In Situ RF/Microwave Heating - Deep | LS        | 1          | --       | 7,066,000.00 | /UNIT | 1        | UNIT  | 1.000         | 1.000          | 1.000        |             | 8,063,000 | 8,063,000 |           | 8,063,000 |
| Subtotal (A1)                            |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| COST CODE: K                             |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| 2.0%                                     |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| 6.0%                                     |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| 12.0%                                    |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| 1.5%                                     |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| 30.0%                                    |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| Subtotal (G1 = B1+C1+D1+E1+F1)           |           |            |          |              |       |          |       |               |                |              |             |           | 4,900,000 |           | 4,900,000 |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)      |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| Subtotal (H)                             |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |
| 12,864,000                               |           |            |          |              |       |          |       |               |                |              |             |           |           |           |           |

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| Cost Item                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| HB - Installation of 6 inches of Topsoil                | A         | 1          | 3        | 3.24                   | /SY   | 59,000   | SY    | 1.000            | 1.000             | 1.000           |             | 216,000                  | 216,000                 | 206,000              |
| HB - Revegetation of Disturbed Areas                    | A         | 1          | 3        | 0.18                   | /SY   | 59,000   | SY    | 1.000            | 1.000             | 1.000           | Disturbance | 13,000                   | 13,000                  | 13,000               |
| <b>Subtotal (I)</b>                                     |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>231,000</b>                                          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>              |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mod/Demob                                               |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                            |           |            |          |                        |       |          |       |                  |                   |                 |             | 8,000                    | 8,000                   | 7,000                |
| Engineering Design                                      |           |            |          |                        |       |          |       |                  |                   |                 |             | 83,000                   | 83,000                  | 69,000               |
| Resident Engineering                                    |           |            |          |                        |       |          |       |                  |                   |                 |             | 2,000                    | 2,000                   | 2,000                |
| Contingency                                             |           |            |          |                        |       |          |       |                  |                   |                 |             | 4,000                    | 4,000                   | 4,000                |
|                                                         |           |            |          |                        |       |          |       |                  |                   |                 |             | 69,000                   | 69,000                  | 65,000               |
| <b>Subtotal (O = J+K+L+M+N)</b>                         |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>195,000</b>                                          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>    |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| HB - In Site RF/Microwave Heating - Drop                | A         | 1          | 3        | 198.66                 | /BCY  | 180,000  | BCY   | 1.000            | 1.000             | 1.000           |             | 40,807,000               | 40,807,000              | 38,894,000           |
| <b>Subtotal (H)</b>                                     |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>40,807,000</b>                                       |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>  |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mod/Demob                                               |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contractor Markup                                       |           |            |          |                        |       |          |       |                  |                   |                 |             | 0                        | 0                       | 0                    |
| Engineering Design                                      |           |            |          |                        |       |          |       |                  |                   |                 |             | 2,448,000                | 2,448,000               | 2,394,000            |
| Resident Engineering                                    |           |            |          |                        |       |          |       |                  |                   |                 |             | 216,000                  | 216,000                 | 208,000              |
| Contingency                                             |           |            |          |                        |       |          |       |                  |                   |                 |             | 433,000                  | 433,000                 | 412,000              |
|                                                         |           |            |          |                        |       |          |       |                  |                   |                 |             | 17,582,000               | 17,582,000              | 16,739,000           |
| <b>Subtotal (O1 = J1+K1+L1+M1+N1)</b>                   |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>20,659,000</b>                                       |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+H+O1)</b> |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>61,592,000</b>                                       |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| <b>16-Jan-93</b>                                        |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |

Table BA.18-19a Cost Estimate - Buried Sediment/Ditches Medium Group - Buried Sediment Subgroup  
Alternative 19a: In Situ Thermal Treatment (RF/Microwave Heating)

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| HB - No Action                                                                                         | A         | 4          | 30       | 0.00                   | /SY   | 59,000   | SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                                        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                           |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Q = 0.390 * (P)                                                                                        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| R = 0.300 * (P+Q)                                                                                      |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (S = Q+R)</b>                                                                              |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                        |       |          |       |               |                |              |             |                          | 74,800,000              | 71,900,000           |

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Table B4.19-1 Cost Estimate - Buried Sediment/Ditches Medium Group - Sand Creek Lateral Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                            | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                        | LS        | 1          | --       | 0.00                   | /SY   | 11,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| B - No Action                        | LS        | 1          | --       | 0.00                   | /SY   | 33,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| <b>Subtotal (A)</b>                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                            |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| Indirects, Overhead & Profit         |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| Engineering Design                   |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| Resident Engineering                 |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| Contingency                          |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>Subtotal (G = B+C+D+E+F)</b>      |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b> |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>HSCL-01.W01</b>                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>SOILS DAA</b>                     |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

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**Table B4.19-1**  
**Cost Estimate - Buried Sediment/Ditches Medium Group - Sand Creek Lateral Subgroup**  
**Alternative 1: No Additional Action (Provisions of FFA)**

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$) | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$) |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|--------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|-----------|
|                                                                                                               |           |            |          | Unit Cost |        |          |       |               |                |              |             | Annual Cost | Total Cost | PW Cost   |
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| H - No Action                                                                                                 | LS        | 1          | --       | 0.00      | /SY    | 11,000   | SY    | 1.000         | 1.000          | 1.000        |             |             | 0          | 0         |
| B - No Action                                                                                                 | LS        | 1          | --       | 0.00      | /SY    | 33,000   | SY    | 1.000         | 1.000          | 1.000        |             |             | 0          | 0         |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| Subtotal (I)                                                                                                  |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| COST CODE                                                                                                     |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| J = 0.033 * (I)                                                                                               |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| 3.3%                                                                                                          |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| Indirects, Overhead & Profit                                                                                  |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| K = 0.390 * (I+J)                                                                                             |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| 39.0%                                                                                                         |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| Engineering Design                                                                                            |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| L = 0.005 * (I+J+K)                                                                                           |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| 0.5%                                                                                                          |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| Resident Engineering                                                                                          |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| M = 0.013 * (I+J+K)                                                                                           |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| 1.3%                                                                                                          |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| Contingency                                                                                                   |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| N = 0.263 * (I+J+K+L+M)                                                                                       |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| 26.3%                                                                                                         |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| Subtotal (O = J+K+L+M+N)                                                                                      |           |            |          |           |        |          |       |               |                |              |             |             | 0          | 0         |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| HB - Long Term Soil Monitoring, Sand Creek Lateral                                                            | A         | 1          | 30       | 23,000.00 | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 26,000      | 787,000    | 417,000   |
| HB - Site Reviews                                                                                             | A         | 1          | 30       | 5,400.00  | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000       | 185,000    | 99,000    |
| Subtotal (P)                                                                                                  |           |            |          |           |        |          |       |               |                |              |             | 32,000      | 972,000    | 515,000   |
| COST CODE                                                                                                     |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| Q = 0.390 * (P)                                                                                               |           |            |          |           |        |          |       |               |                |              |             |             | 13,000     | 379,000   |
| 39.0%                                                                                                         |           |            |          |           |        |          |       |               |                |              |             |             | 14,000     | 405,000   |
| Indirects, Overhead & Profit                                                                                  |           |            |          |           |        |          |       |               |                |              |             |             | 26,000     | 785,000   |
| R = 0.300 * (P+Q)                                                                                             |           |            |          |           |        |          |       |               |                |              |             |             | 59,000     | 1,757,000 |
| 30.0%                                                                                                         |           |            |          |           |        |          |       |               |                |              |             |             | 831,000    | 931,000   |
| Contingency                                                                                                   |           |            |          |           |        |          |       |               |                |              |             |             | 1,760,000  | 931,000   |
| Subtotal (S)                                                                                                  |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |           |        |          |       |               |                |              |             |             |            |           |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |           |        |          |       |               |                |              |             |             |            |           |

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| Cost Item                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill         | LS        | 1          | --       | 5.72                   | /BCY  | 30,000   | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 255,000                 | 255,000              |
| HB - On-Post Hazardous Waste Landfill Closure | LS        | 2          | --       | 3.80                   | /BCY  | 39,000   | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 168,000                 | 161,000              |
|                                               |           |            |          |                        |       |          |       |               |                |              |             | 424,000                  | 419,000                 |                      |
| INDIRECT CAPITAL COSTS                        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                     |           |            |          |                        |       |          |       |               |                |              |             |                          | 14,000                  | 14,000               |
| Indirects, Overhead & Profit                  |           |            |          |                        |       |          |       |               |                |              |             |                          | 171,000                 | 167,000              |
| Engineering Design                            |           |            |          |                        |       |          |       |               |                |              |             |                          | 18,000                  | 18,000               |
| Resident Engineering                          |           |            |          |                        |       |          |       |               |                |              |             |                          | 8,000                   | 7,000                |
| Contingency                                   |           |            |          |                        |       |          |       |               |                |              |             |                          | 168,000                 | 163,000              |
|                                               |           |            |          |                        |       |          |       |               |                |              |             | 377,000                  | 369,000                 |                      |
|                                               |           |            |          |                        |       |          |       |               |                |              |             | 800,000                  | 785,000                 |                      |
| TOTAL CAPITAL COSTS (H = A+G)                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

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Table B4.19-3 Cost Estimate - Buried Sediment/Ditches Medium Group - Sand Creek Lateral Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-----------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                       |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| HB - Ditch Excavation                                                                          | LS        | 2          | --       | 3.82                   | /BCY      | 39,000   | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 170,000                 | 182,000              |
| HB - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill                   | LS        | 2          | --       | 1.07                   | /BCY-MILE | 39,000   | BCY   | 1.000         | 1.750          | 1.000        |             |                          | 83,000                  | 79,000               |
| HB - On-Post Hazardous Waste Landfill                                                          | LS        | 2          | --       | 4.07                   | /BCY      | 39,000   | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 181,000                 | 173,000              |
| HB - Excavation of Borrow Material                                                             | LS        | 2          | --       | 1.89                   | /BCY      | 39,000   | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 84,000                  | 80,000               |
| HB - Transportation of Borrow Material to Backfill Area                                        | LS        | 2          | --       | 0.86                   | /BCY-MILE | 39,000   | BCY   | 1.000         | 1.500          | 1.000        |             |                          | 57,000                  | 55,000               |
| HB - Backfill with Borrow Material                                                             | LS        | 2          | --       | 1.72                   | /BCY      | 39,000   | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 77,000                  | 73,000               |
| HB - Installation of 6 inches of Topsoil                                                       | LS        | 2          | --       | 3.24                   | /SY       | 44,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 163,000                 | 155,000              |
| HB - Revegetation of Disturbed Areas                                                           | LS        | 2          | --       | 0.18                   | /SY       | 44,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance |                          | 10,000                  | 9,000                |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                     |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Mobil/Demob                                                                                    |           |            |          | 3.9%                   |           |          |       |               |                |              |             |                          | 625,000                 | 788,000              |
| Indirects, Overhead & Profit                                                                   |           |            |          | 38.0%                  |           |          |       |               |                |              |             |                          | 32,000                  | 30,000               |
| Engineering Design                                                                             |           |            |          | 0.5%                   |           |          |       |               |                |              |             |                          | 334,000                 | 318,000              |
| Resident Engineering                                                                           |           |            |          | 2.0%                   |           |          |       |               |                |              |             |                          | 6,000                   | 6,000                |
| Contingency                                                                                    |           |            |          | 31.3%                  |           |          |       |               |                |              |             |                          | 24,000                  | 23,000               |
|                                                                                                |           |            |          |                        |           |          |       |               |                |              |             |                          | 382,000                 | 383,000              |
| Subtotal (I) = J+K+L+M+N                                                                       |           |            |          |                        |           |          |       |               |                |              |             |                          | 778,000                 | 741,000              |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                             |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill Closure                                                  | A         | 2          | 30       | 0.13                   | /BCY-YR   | 39,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 8,000                    | 188,000                 | 86,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                           |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                   |           |            |          | 38.0%                  |           |          |       |               |                |              |             |                          | 8,000                   | 8,000                |
| Contingency                                                                                    |           |            |          | 30.0%                  |           |          |       |               |                |              |             |                          | 2,000                   | 2,000                |
|                                                                                                |           |            |          |                        |           |          |       |               |                |              |             |                          | 5,000                   | 5,000                |
| Subtotal (P) = Q+R+S                                                                           |           |            |          |                        |           |          |       |               |                |              |             |                          | 15,000                  | 15,000               |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |                        |           |          |       |               |                |              |             |                          | 1,908,000               | 1,885,000            |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |                        |           |          |       |               |                |              |             |                          | 2,710,000               | 2,470,000            |



Table B4.19-6g Cost Estimate - Buried Sediment/Ditches Medium Group - Sand Creek Lateral Subgroup  
Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Units                   | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |           |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-----------|----------|-------------------------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|-----------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |                        |           |          |                         |               |                |              |             |                          |                         |                      |           |
| HB - Soil Excavation                                                                           | LS        | 1          | --       | 3.91                   | /BCY      | 39,000   | BCY                     | 1.000         | 1.000          | 1.000        |             |                          | 174,000                 | 174,000              |           |
| HB - Transportation of Contaminated Soil to Consolidation Area                                 | LS        | 1          | --       | 1.07                   | /BCY-MILE | 39,000   | BCY                     | 1.000         | 1.500          | 1.000        |             |                          | 71,000                  | 71,000               |           |
| HB - Grade Filling w/Consolidated Soil Prior to Capping                                        | LS        | 1          | --       | 3.63                   | /BCY      | 39,000   | BCY                     | 1.000         | 1.000          | 1.000        |             |                          | 162,000                 | 162,000              |           |
| HB - Excavation of Borrow Material                                                             | LS        | 1          | --       | 1.89                   | /BCY      | 39,000   | BCY                     | 1.000         | 1.000          | 1.000        |             |                          | 84,000                  | 84,000               |           |
| HB - Transportation of Borrow Material to Backfill Area                                        | LS        | 1          | --       | 0.86                   | /BCY-MILE | 39,000   | BCY                     | 1.000         | 1.500          | 1.000        |             |                          | 57,000                  | 57,000               |           |
| HB - Backfill with Borrow Material                                                             | LS        | 1          | --       | 1.72                   | /BCY      | 39,000   | BCY                     | 1.000         | 1.000          | 1.000        |             |                          | 77,000                  | 77,000               |           |
| HB - Installation of 6 Inches of Topsoil                                                       | LS        | 1          | --       | 3.24                   | /SY       | 44,000   | SY                      | 1.000         | 1.000          | 1.000        |             |                          | 163,000                 | 163,000              |           |
| HB - Revegetation of Disturbed Areas                                                           | LS        | 1          | --       | 0.18                   | /SY       | 44,000   | SY                      | 1.000         | 1.000          | 1.100        | Disturbance |                          | 10,000                  | 10,000               |           |
|                                                                                                |           |            |          |                        |           |          |                         |               |                |              |             |                          | 798,000                 | 798,000              |           |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |                        |           |          |                         |               |                |              |             |                          |                         |                      |           |
| Mod/Demob                                                                                      |           |            |          | Subtotal (I)           |           |          | COST CODE               |               |                | MLSS         |             |                          | 31,000                  | 31,000               |           |
| Indirects, Overhead & Profit                                                                   |           |            |          | 3.9%                   |           |          | J = 0.039 * (I)         |               |                |              |             |                          | 334,000                 | 334,000              |           |
| Engineering Design                                                                             |           |            |          | 40.3%                  |           |          | K = 0.403 * (I+J)       |               |                |              |             |                          | 6,000                   | 6,000                |           |
| Resident Engineering                                                                           |           |            |          | 0.5%                   |           |          | L = 0.005 * (I+J+K)     |               |                |              |             |                          | 17,000                  | 17,000               |           |
| Contingency                                                                                    |           |            |          | 1.5%                   |           |          | M = 0.015 * (I+J+K)     |               |                |              |             |                          | 328,000                 | 328,000              |           |
|                                                                                                |           |            |          | 27.5%                  |           |          | N = 0.275 * (I+J+K+L+M) |               |                |              |             |                          | 714,000                 | 714,000              |           |
|                                                                                                |           |            |          |                        |           |          |                         |               |                |              |             |                          | 0                       | 0                    |           |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |                        |           |          |                         |               |                |              |             |                          |                         |                      |           |
| HB - No Action                                                                                 | A         | 1          | 30       | 0.00                   | /SY       | 44,000   | SY                      | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |           |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |                        |           |          |                         |               |                |              |             |                          |                         |                      |           |
| Indirects, Overhead & Profit                                                                   |           |            |          | 39.0%                  |           |          | Subtotal (P)            |               |                | ULSL         |             |                          | 0                       | 0                    |           |
| Contingency                                                                                    |           |            |          | 30.0%                  |           |          | COST CODE               |               |                |              |             |                          | 0                       | 0                    |           |
|                                                                                                |           |            |          |                        |           |          | Q = 0.390 * (P)         |               |                |              |             |                          | 0                       | 0                    |           |
|                                                                                                |           |            |          |                        |           |          | R = 0.300 * (P+Q)       |               |                |              |             |                          | 0                       | 0                    |           |
|                                                                                                |           |            |          |                        |           |          |                         |               |                |              |             |                          | 0                       | 0                    |           |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |                        |           |          |                         |               |                |              |             |                          |                         |                      |           |
|                                                                                                |           |            |          |                        |           |          |                         |               |                |              |             |                          | 0                       | 1,511,000            | 1,511,000 |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = I+T)                                              |           |            |          |                        |           |          |                         |               |                |              |             |                          |                         |                      |           |
|                                                                                                |           |            |          |                        |           |          |                         |               |                |              |             |                          |                         | 1,510,000            | 1,510,000 |

| Cost Item                                                    | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                         |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | --       | 5.72                   | /BCY  | 360      | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 2,000                   | 2,000                |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                             | --       | 3.80                   | /BCY  | 360      | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 2,000                   | 1,000                |
| Subtotal (A)                                                 |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| INDIRECT CAPITAL COSTS                                       |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSS                                              |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                    | 3.3%      | B = 0.033 * (A)               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                 | 30.0%     | C = 0.360 * (A+B)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                           | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                         | 1.3%      | E = 0.013 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                  | 28.3%     | F = 0.283 * (A+B+C+D+E)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| DIRECT SUBCONTRACT CAPITAL COSTS                             |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| HB - Thermal Desorption (Dry Soil)                           | A         | 1                             | 2        | 14.17                  | /BCY  | 36,000   | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 582,000                 | 588,000              |
| Subtotal (A1)                                                |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| INDIRECT SUBCONTRACT CAPITAL COSTS                           |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: C                                                 |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                    | 2.0%      | B1 = 0.020 * (A1)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                            | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                           | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                         | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                  | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                               |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                          |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
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| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
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| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
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| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (H = A+G+A1+G1)                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal                                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

| Cost Item                                                               | Cost Type       | Start Year                     | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------------------------------|-----------------|--------------------------------|----------|------------------------|-----------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                |                 |                                |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| HB - Ditch Excavation                                                   | LS              | 3                              | --       | 3.82                   | /BCY      | 36,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 157,000                  | 157,000                 | 142,000              |
| HB - Transportation of Contaminated Soil to Thermal Desorption Facility | LS              | 3                              | --       | 1.07                   | /BCY-MILE | 36,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 44,000                   | 44,000                  | 40,000               |
| HB - Load Treated Soil for Transport to Hazardous Landfill              | LS              | 3                              | --       | 1.55                   | /BCY      | 360      | BCY   | 1.000         | 1.000          | 1.000        |             | 1,000                    | 1,000                   | 1,000                |
| HB - Transportation of Particulates to On-Post Hazardous Waste Landfill | LS              | 3                              | --       | 1.07                   | /BCY-MILE | 360      | BCY   | 1.000         | 1.000          | 1.000        |             | 400                      | 400                     | 400                  |
| HB - On-Post Hazardous Waste Landfill (Particulates)                    | LS              | 3                              | --       | 4.07                   | /BCY      | 360      | BCY   | 1.000         | 1.000          | 1.000        |             | 2,000                    | 2,000                   | 2,000                |
| HB - Load Nonhazardous Treated Soil from Stockpile for Backfill         | LS              | 3                              | --       | 1.28                   | /BCY      | 36,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 53,000                   | 53,000                  | 48,000               |
| HB - Transportation of Treated Soil to Backfill Excavation              | LS              | 3                              | --       | 0.86                   | /BCY-MILE | 36,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 36,000                   | 36,000                  | 32,000               |
| HB - Backfill with Treated Soil                                         | LS              | 3                              | --       | 1.72                   | /BCY      | 36,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 71,000                   | 71,000                  | 64,000               |
| HB - Installation of 6 Inches of Topsoil                                | LS              | 3                              | --       | 3.24                   | /SY       | 44,000   | SY    | 1.000         | 1.000          | 1.000        |             | 163,000                  | 163,000                 | 148,000              |
| HB - Revegetation of Disturbed Areas                                    | LS              | 3                              | --       | 0.18                   | /SY       | 44,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance | 10,000                   | 10,000                  | 9,000                |
| Subtotal (I)                                                            |                 |                                |          |                        |           |          |       |               |                |              |             | 535,000                  | 535,000                 | 485,000              |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                              |                 |                                |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                               | COST CODE: MMSS |                                |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                            | 4.5%            | $J = 0.045 * (I)$              |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                      | 1.5%            | $K = 0.403 * (I+J)$            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                    | 1.8%            | $L = 0.015 * (I+J+K)$          |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                             | 28.8%           | $M = 0.018 * (I+J+K)$          |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
|                                                                         |                 | $N = 0.298 * (I+J+K+L+M)$      |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (O) = J+K+L+M+N                                                |                 |                                |          |                        |           |          |       |               |                |              |             | 507,000                  | 507,000                 | 460,000              |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                    |                 |                                |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| HB - Thermal Desorption (Dry Soil)                                      | LS              | 3                              | --       | 49.13                  | /BCY      | 36,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 2,016,000                | 2,016,000               | 1,831,000            |
| Subtotal (H)                                                            |                 |                                |          |                        |           |          |       |               |                |              |             | 2,018,000                | 2,018,000               | 1,831,000            |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                  |                 |                                |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                               | COST CODE: D    |                                |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                                       | 0.0%            | $J1 = 0.000 * (H)$             |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                      | 10.0%           | $K1 = 0.100 * (H+J1)$          |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                    | 0.0%            | $L1 = 0.000 * (H+J1+K1)$       |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                             | 2.0%            | $M1 = 0.020 * (H+J1+K1)$       |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
|                                                                         | 40.0%           | $N1 = 0.400 * (H+J1+K1+L1+M1)$ |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (D1) = J1+K1+L1+M1+N1                                          |                 |                                |          |                        |           |          |       |               |                |              |             | 1,152,000                | 1,152,000               | 1,045,000            |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (O0 = I+O+H+D1)</b>                 |                 |                                |          |                        |           |          |       |               |                |              |             | 4,212,000                | 4,212,000               | 3,821,000            |

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Table B4.19-13a Cost Estimate - Buried Sediment/Ditches Medium Group - Sand Creek Lateral Subgroup  
Alternative 13a: Direct Thermal Desorption (Direct Heating)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       | 0.13                   | /BCY-YR | 360      | BCY   | 1.000         | 1.000          | 1.000        |             | 100                      | 1,000                   | 1,000                |
| <b>Subtotal (P)</b>                                                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 100                     | 1,000                |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 20                      | 1,000                |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 20                      | 1,000                |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 40                      | 1,000                |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 100                     | 1,000                |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 3,000                   | 4,760,000            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 5,170,000               | 4,760,000            |

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Table B4.22-1 Cost Estimate - Undifferentiated Medium Group - Section 36 Balance of Area Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost  | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------|-----------|------------|----------|-------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS          |           |            |          |                         |       |          |       |                  |                   |                 |             |                          |                         |                      |
| H - No Action                 | LS        | 1          | --       | 0.00                    | /SY   | 120,000  | SY    | 1,000            | 1,000             | 1,000           |             | 0                        | 0                       | 0                    |
| B - No Action                 | LS        | 1          | --       | 0.00                    | /SY   | 520,000  | SY    | 1,000            | 1,000             | 1,000           |             | 0                        | 0                       | 0                    |
| A - No Action                 | LS        | 1          | --       | 0.00                    | /SY   | 89,000   | SY    | 1,000            | 1,000             | 1,000           |             | 0                        | 0                       | 0                    |
| U - No Action                 | LS        | 1          | --       | 0.00                    | /SY   | 210,000  | SY    | 1,000            | 1,000             | 1,000           |             | 0                        | 0                       | 0                    |
| Subtotal (A)                  |           |            |          |                         |       |          |       |                  |                   |                 |             |                          | 0                       | 0                    |
| INDIRECT CAPITAL COSTS        |           |            |          |                         |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mod/Demob                     | LLSS      |            |          |                         |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit  | 3.3%      | COST CODE  |          | B = 0.033 * (A)         |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design            | 39.0%     |            |          | C = 0.390 * (A+B)       |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering          | 3.0%      |            |          | D = 0.030 * (A+B+C)     |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                   | 1.3%      |            |          | E = 0.013 * (A+B+C)     |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                               | 26.3%     |            |          | F = 0.263 * (A+B+C+D+E) |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)      |           |            |          |                         |       |          |       |                  |                   |                 |             |                          | 0                       | 0                    |
| TOTAL CAPITAL COSTS (H = A+G) |           |            |          |                         |       |          |       |                  |                   |                 |             |                          | 0                       | 0                    |

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| Cost Item                                                    | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1992 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                     |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                                                | LS        | 1          | --       | 0.00                   | /SY    | 120,000  | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| B - No Action                                                | LS        | 1          | --       | 0.00                   | /SY    | 520,000  | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| A - No Action                                                | LS        | 1          | --       | 0.00                   | /SY    | 89,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| U - No Action                                                | LS        | 1          | --       | 0.00                   | /SY    | 210,000  | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                    |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Indirects, Overhead & Profit                                 |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Engineering Design                                           |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Resident Engineering                                         |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| Contingency                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>           |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| HB - Long Term Soil Monitoring, Section 36 Balance of Areas  | A         | 1          | 30       | 127,000.00             | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 145,000                  | 4,348,000               | 2,304,000            |
| HBAU - Site Reviews                                          | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 185,000                 | 98,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>         |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                 |           |            |          |                        |        |          |       |               |                |              |             |                          | 58,000                  | 937,000              |
| Contingency                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          | 63,000                  | 1,002,000            |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S)</b>                     |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                              |           |            |          |                        |        |          |       |               |                |              |             | 151,000                  | 4,533,000               | 2,402,000            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b> |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                              |           |            |          |                        |        |          |       |               |                |              |             | 273,000                  | 8,191,000               | 4,341,000            |

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| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - Public Education          | LS        | 1          | --       | 1,500.00               | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             |                          | 2,000                   | 2,000                |
| A - No Action                 | LS        | 1          | --       | 0.00                   | /SY   | 89,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| U - No Action                 | LS        | 1          | --       | 0.00                   | /SY   | 210,000  | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| HB - Fences                   | LS        | 1          | --       | 15.00                  | /LF   | 11,000   | LF    | 1.000         | 1.000          | 1.000        |             |                          | 186,000                 | 186,000              |
|                               |           |            |          |                        |       |          |       |               |                |              |             |                          | 190,000                 | 190,000              |
| Subtotal (A)                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| INDIRECT CAPITAL COSTS        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                     |           |            |          | 3.3%                   |       |          |       |               |                |              | LISS        |                          | 6,000                   | 6,000                |
| Indirects, Overhead & Profit  |           |            |          | 36.0%                  |       |          |       |               |                |              |             |                          | 77,000                  | 77,000               |
| Engineering Design            |           |            |          | 3.0%                   |       |          |       |               |                |              |             |                          | 8,000                   | 8,000                |
| Resident Engineering          |           |            |          | 1.3%                   |       |          |       |               |                |              |             |                          | 3,000                   | 3,000                |
| Contingency                   |           |            |          | 26.3%                  |       |          |       |               |                |              |             |                          | 75,000                  | 75,000               |
|                               |           |            |          |                        |       |          |       |               |                |              |             |                          | 169,000                 | 169,000              |
| Subtotal (G =B+C+D+E+F)       |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                               |           |            |          |                        |       |          |       |               |                |              |             |                          | 359,000                 | 359,000              |
| TOTAL CAPITAL COSTS (H + A+G) |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

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| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)  | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$) |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------|--------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|-----------|
|                                                                                                               |           |            |          | Unit Cost  |        |          |       |               |                |              |             | Annual Cost | Total Cost | PW Cost   |
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |            |        |          |       |               |                |              |             |             |            |           |
| HB - Habitat Modification                                                                                     | A         | 1          | 3        | 0.17       | /SY    | 640,000  | SY    | 1.000         | 1.000          | 1.000        |             |             | 123,000    | 118,000   |
| H - Public Education                                                                                          | A         | 1          | 30       | 500.00     | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             |             | 17,000     | 9,000     |
| A - No Action                                                                                                 | LS        | 1          | --       | 0.00       | /SY    | 89,000   | SY    | 1.000         | 1.000          | 1.000        |             |             | 0          | 0         |
| U - No Action                                                                                                 | LS        | 1          | --       | 0.00       | /SY    | 210,000  | SY    | 1.000         | 1.000          | 1.000        |             |             | 0          | 0         |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |            |        |          |       |               |                |              |             |             |            |           |
| Mod/Demob                                                                                                     |           |            |          |            |        |          |       |               |                |              |             |             | 141,000    | 127,000   |
| Indirects, Overhead & Profit                                                                                  |           |            |          |            |        |          |       |               |                |              |             |             | 5,000      | 4,000     |
| Engineering Design                                                                                            |           |            |          |            |        |          |       |               |                |              |             |             | 57,000     | 51,000    |
| Resident Engineering                                                                                          |           |            |          |            |        |          |       |               |                |              |             |             | 1,000      | 1,000     |
| Contingency                                                                                                   |           |            |          |            |        |          |       |               |                |              |             |             | 3,000      | 2,000     |
|                                                                                                               |           |            |          |            |        |          |       |               |                |              |             |             | 54,000     | 48,000    |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |            |        |          |       |               |                |              |             |             |            |           |
| HB - Fences                                                                                                   | A         | 2          | 30       | 0.75       | /LF-YR | 11,000   | LF    | 1.000         | 1.000          | 1.000        |             | 9,000       | 273,000    | 143,000   |
| HB - Habitat Modification                                                                                     | A         | 3          | 30       | 0.01       | /SY-YR | 640,000  | SY    | 1.000         | 1.000          | 1.000        |             | 4,000       | 117,000    | 58,000    |
| HB - Long Term Soil Monitoring, Section 36 Balance of Areas                                                   | A         | 3          | 30       | 127,000.00 | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 145,000     | 4,058,000  | 2,058,000 |
| HB/AU - Site Reviews                                                                                          | A         | 3          | 30       | 5,400.00   | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000       | 173,000    | 87,000    |
|                                                                                                               |           |            |          |            |        |          |       |               |                |              |             |             | 119,000    | 107,000   |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |            |        |          |       |               |                |              |             |             |            |           |
| Indirects, Overhead & Profit                                                                                  |           |            |          |            |        |          |       |               |                |              |             |             | 165,000    | 2,345,000 |
| Contingency                                                                                                   |           |            |          |            |        |          |       |               |                |              |             |             | 64,000     | 915,000   |
|                                                                                                               |           |            |          |            |        |          |       |               |                |              |             |             | 69,000     | 978,000   |
|                                                                                                               |           |            |          |            |        |          |       |               |                |              |             |             | 133,000    | 1,893,000 |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |            |        |          |       |               |                |              |             |             |            |           |
|                                                                                                               |           |            |          |            |        |          |       |               |                |              |             | 298,000     | 9,608,000  | 4,472,000 |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |            |        |          |       |               |                |              |             |             |            |           |
|                                                                                                               |           |            |          |            |        |          |       |               |                |              |             |             | 8,970,000  | 4,930,000 |

Table B4.22-3 Cost Estimate - Undifferentiated Medium Group - Section 36 Balance of Area Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                             | Cost Type | Start Year | End Year | 1992 (\$)  | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)  | 1995 (\$)  | 1995 (\$) |
|-----------------------------------------------------------------------|-----------|------------|----------|------------|-------|----------|-------|---------------|----------------|--------------|-------------|------------|------------|-----------|
| <b>DIRECT CAPITAL COSTS</b>                                           |           |            |          |            |       |          |       |               |                |              |             |            |            |           |
| H - Excavation Dewatering, Section 36 Balance of Areas                | LS        | 1          | --       | 344,499.00 | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 383,000    | 383,000    | 383,000   |
| HB - On-Post Hazardous Waste Landfill                                 | LS        | 2          | --       | 5.72       | /BCY  | 390,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 2,546,000  | 2,546,000  | 2,424,000 |
| HB - On-Post Hazardous Waste Landfill Closure                         | LS        | 3          | --       | 3.80       | /BCY  | 390,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 1,691,000  | 1,691,000  | 1,534,000 |
| A - On-Post Hazardous Waste Landfill (Particulates)                   | LS        | 2          | --       | 5.72       | /BCY  | 3        | BCY   | 1.000         | 1.000          | 1.000        |             | 20         | 20         | 20        |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS        | 3          | --       | 3.80       | /BCY  | 3        | BCY   | 1.000         | 1.000          | 1.000        |             | 10         | 10         | 10        |
| U - On-Post Solid Waste Landfill                                      | LS        | 2          | --       | 4.32       | /BCY  | 70,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 345,000    | 345,000    | 328,000   |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS        | 3          | --       | 3.70       | /BCY  | 70,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 286,000    | 286,000    | 268,000   |
| <b>Subtotal (A)</b>                                                   |           |            |          |            |       |          |       |               |                |              |             | 5,271,000  | 5,271,000  | 4,948,000 |
| <b>INDIRECT CAPITAL COSTS</b>                                         |           |            |          |            |       |          |       |               |                |              |             |            |            |           |
| Mob/Demob                                                             |           |            |          |            |       |          |       |               |                |              |             |            |            |           |
| Indirects, Overhead & Profit                                          |           |            |          |            |       |          |       |               |                |              |             | 204,000    | 204,000    | 192,000   |
| Engineering Design                                                    |           |            |          |            |       |          |       |               |                |              |             | 2,087,000  | 2,087,000  | 1,940,000 |
| Resident Engineering                                                  |           |            |          |            |       |          |       |               |                |              |             | 338,000    | 338,000    | 319,000   |
| Contingency                                                           |           |            |          |            |       |          |       |               |                |              |             | 113,000    | 113,000    | 106,000   |
|                                                                       |           |            |          |            |       |          |       |               |                |              |             | 2,198,000  | 2,198,000  | 2,084,000 |
| <b>Subtotal (G = B+C+D+E+F)</b>                                       |           |            |          |            |       |          |       |               |                |              |             | 4,922,000  | 4,922,000  | 4,621,000 |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                               |           |            |          |            |       |          |       |               |                |              |             |            |            |           |
| A - Incineration                                                      | A         | 1          | 2        | 36.37      | /BCY  | 270      | BCY   | 1.000         | 1.000          | 1.000        |             | 11,000     | 11,000     | 11,000    |
| <b>Subtotal (A1)</b>                                                  |           |            |          |            |       |          |       |               |                |              |             | 11,000     | 11,000     | 11,000    |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                             |           |            |          |            |       |          |       |               |                |              |             |            |            |           |
| Mob/Demob                                                             |           |            |          |            |       |          |       |               |                |              |             |            |            |           |
| Contractor Markup                                                     |           |            |          |            |       |          |       |               |                |              |             | 200        | 200        | 200       |
| Engineering Design                                                    |           |            |          |            |       |          |       |               |                |              |             | 1,000      | 1,000      | 1,000     |
| Resident Engineering                                                  |           |            |          |            |       |          |       |               |                |              |             | 1,000      | 1,000      | 1,000     |
| Contingency                                                           |           |            |          |            |       |          |       |               |                |              |             | 400        | 400        | 400       |
|                                                                       |           |            |          |            |       |          |       |               |                |              |             | 4,000      | 4,000      | 4,000     |
| <b>Subtotal (G1 = B1+C1+D1+E1+F1)</b>                                 |           |            |          |            |       |          |       |               |                |              |             | 6,600      | 6,600      | 6,600     |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>                            |           |            |          |            |       |          |       |               |                |              |             | 10,211,000 | 10,211,000 | 9,587,000 |

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Table B4.22-3 Cost Estimate - Undifferentiated Medium Group - Section 36 Balance of Area Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                                    | Cost Type | Start Year | End Year | 1992 (\$)  | Unit Cost                     | Units | Quantity | Factor | Volume | Mileage | Other Factor | Description  | 1995 (\$)         | Annual Cost | 1995 (\$)         | Total Cost        | PW Cost           |
|------------------------------------------------------------------------------|-----------|------------|----------|------------|-------------------------------|-------|----------|--------|--------|---------|--------------|--------------|-------------------|-------------|-------------------|-------------------|-------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                     |           |            |          |            |                               |       |          |        |        |         |              |              |                   |             |                   |                   |                   |
| H - Excavation Dewatering, Section 36 Balance of Areas                       | A         | 1          | 3        | 169,385.00 | /EA-YR                        | EA    | 1        | 1.000  | 1.000  | 1.000   | 1.000        |              | 580,000           |             | 580,000           | 580,000           | 553,000           |
| HB - Soil Excavation                                                         | LS        | 3          | --       | 3.91       | /BCY                          | BCY   | 390,000  | 1.000  | 1.000  | 1.000   | 1.000        |              | 1,740,000         |             | 1,740,000         | 1,740,000         | 1,578,000         |
| HB - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill | LS        | 3          | --       | 1.07       | /BCY-MILE                     | BCY   | 390,000  | 1.000  | 1.000  | 1.000   | 1.000        |              | 714,000           |             | 714,000           | 714,000           | 648,000           |
| HB - On-Post Hazardous Waste Landfill                                        | LS        | 3          | --       | 4.07       | /BCY                          | BCY   | 390,000  | 1.000  | 1.000  | 1.000   | 1.000        |              | 1,811,000         |             | 1,811,000         | 1,811,000         | 1,643,000         |
| HB - Excavation of Borrow Material                                           | LS        | 3          | --       | 1.89       | /BCY                          | BCY   | 390,000  | 1.000  | 1.000  | 1.000   | 1.000        |              | 841,000           |             | 841,000           | 841,000           | 763,000           |
| HB - Transportation of Borrow Material to Backfill Area                      | LS        | 3          | --       | 0.86       | /BCY-MILE                     | BCY   | 390,000  | 1.000  | 1.000  | 1.000   | 1.000        |              | 574,000           |             | 574,000           | 574,000           | 521,000           |
| HB - Backfill with Borrow Material                                           | LS        | 3          | --       | 1.72       | /BCY                          | BCY   | 390,000  | 1.000  | 1.000  | 1.000   | 1.000        |              | 785,000           |             | 785,000           | 785,000           | 694,000           |
| HB - Installation of 6 Inches of Topsoil                                     | LS        | 3          | --       | 3.24       | /SY                           | SY    | 640,000  | 1.000  | 1.000  | 1.000   | 1.000        |              | 2,366,000         |             | 2,366,000         | 2,366,000         | 2,146,000         |
| HB - Revegetation of Disturbed Areas                                         | LS        | 3          | --       | 0.18       | /SY                           | SY    | 640,000  | 1.000  | 1.000  | 1.000   | 1.000        | Disturbance  | 145,000           |             | 145,000           | 145,000           | 131,000           |
| A - Drilling and Agent Screening Prior to Excavation                         | LS        | 3          | --       | 4.89       | /SY                           | SY    | 89,000   | 1.000  | 1.000  | 1.000   | 1.000        |              | 497,000           |             | 497,000           | 497,000           | 450,000           |
| A - Excavation of Soil with Agent                                            | LS        | 3          | --       | 4.55       | /BCY                          | BCY   | 270      | 1.000  | 1.000  | 1.000   | 1.000        |              | 1,000             |             | 1,000             | 1,000             | 1,000             |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility     | LS        | 3          | --       | 1.07       | /BCY-MILE                     | BCY   | 270      | 1.000  | 1.000  | 1.000   | 1.000        |              | 300               |             | 300               | 300               | 300               |
| A - Load Treated Soil for Transport to Hazardous Landfill                    | LS        | 3          | --       | 1.55       | /BCY                          | BCY   | 3        | 1.000  | 1.000  | 1.000   | 1.000        |              | 10                |             | 10                | 5                 | 5                 |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill       | LS        | 3          | --       | 1.07       | /BCY-MILE                     | BCY   | 3        | 1.000  | 1.000  | 1.000   | 1.000        |              | 4                 |             | 4                 | 3                 | 3                 |
| A - On-Post Hazardous Waste Landfill (Particulates)                          | LS        | 3          | --       | 4.07       | /BCY                          | BCY   | 3        | 1.000  | 1.000  | 1.000   | 1.000        |              | 10                |             | 10                | 10                | 10                |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill               | LS        | 3          | --       | 1.28       | /BCY                          | BCY   | 270      | 1.000  | 1.000  | 1.000   | 1.000        |              | 400               |             | 400               | 400               | 400               |
| A - Transportation of Treated Soil to Backfill Excavation                    | LS        | 3          | --       | 0.86       | /BCY-MILE                     | BCY   | 270      | 1.000  | 1.000  | 1.000   | 1.000        |              | 300               |             | 300               | 200               | 200               |
| A - Backfill with Treated Soil                                               | LS        | 3          | --       | 1.72       | /BCY                          | BCY   | 270      | 1.000  | 1.000  | 1.000   | 1.000        |              | 1,000             |             | 1,000             | 500               | 500               |
| U - UXO Clearance by Geophysics                                              | LS        | 2          | --       | 0.85       | /SY                           | SY    | 210,000  | 1.000  | 1.000  | 1.000   | 1.000        |              | 204,000           |             | 204,000           | 184,000           | 184,000           |
| U - Removal of Soil with UXO                                                 | LS        | 3          | --       | 70.57      | /BCY                          | BCY   | 140      | 1.000  | 1.000  | 1.000   | 1.000        |              | 11,000            |             | 11,000            | 10,000            | 10,000            |
| U - Excavation of Debris from Surface Soil                                   | LS        | 3          | --       | 3.91       | /BCY                          | BCY   | 70,000   | 1.000  | 1.000  | 1.000   | 1.300        | Productivity | 408,000           |             | 408,000           | 388,000           | 388,000           |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill  | LS        | 3          | --       | 0.71       | /BCY-MILE                     | BCY   | 70,000   | 1.000  | 1.000  | 1.000   | 1.300        | Productivity | 74,000            |             | 74,000            | 67,000            | 67,000            |
| U - On-Post Solid Waste Landfill                                             | LS        | 3          | --       | 4.07       | /BCY                          | BCY   | 70,000   | 1.000  | 1.000  | 1.000   | 1.000        |              | 325,000           |             | 325,000           | 295,000           | 295,000           |
| <b>Subtotal (I)</b>                                                          |           |            |          |            |                               |       |          |        |        |         |              |              | <b>11,057,000</b> |             | <b>11,057,000</b> | <b>10,085,000</b> | <b>10,085,000</b> |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                   |           |            |          |            |                               |       |          |        |        |         |              |              |                   |             |                   |                   |                   |
| Mob/Demob                                                                    |           |            |          | 5.1%       | J = 0.061 * (I)               |       |          |        |        |         |              |              | 567,000           |             | 567,000           | 516,000           | 516,000           |
| Indirects, Overhead & Profit                                                 |           |            |          | 40.3%      | K = 0.403 * (I+J)             |       |          |        |        |         |              |              | 4,678,000         |             | 4,678,000         | 4,259,000         | 4,259,000         |
| Engineering Design                                                           |           |            |          | 1.5%       | L = 0.015 * (I+J+K)           |       |          |        |        |         |              |              | 245,000           |             | 245,000           | 223,000           | 223,000           |
| Resident Engineering                                                         |           |            |          | 2.0%       | M = 0.020 * (I+J+K)           |       |          |        |        |         |              |              | 326,000           |             | 326,000           | 297,000           | 297,000           |
| Contingency                                                                  |           |            |          | 31.3%      | N = 0.313 * (I+J+K+L+M)       |       |          |        |        |         |              |              | 5,273,000         |             | 5,273,000         | 4,900,000         | 4,900,000         |
| <b>Subtotal (O = J+K+L+M+N)</b>                                              |           |            |          |            |                               |       |          |        |        |         |              |              | <b>11,088,000</b> |             | <b>11,088,000</b> | <b>10,094,000</b> | <b>10,094,000</b> |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                         |           |            |          |            |                               |       |          |        |        |         |              |              |                   |             |                   |                   |                   |
| A - Incineration                                                             | LS        | 3          | --       | 96.24      | /BCY                          | BCY   | 270      | 1.000  | 1.000  | 1.000   | 1.000        |              | 30,000            |             | 30,000            | 27,000            | 27,000            |
| U - Packaging and Transportation of Agent UXO to Army Off-Post UXO Facility  | LS        | 3          | --       | 2,200.00   | /BCY                          | BCY   | 140      | 1.000  | 1.000  | 1.000   | 1.000        |              | 351,000           |             | 351,000           | 318,000           | 318,000           |
| <b>Subtotal (I)</b>                                                          |           |            |          |            |                               |       |          |        |        |         |              |              | <b>381,000</b>    |             | <b>381,000</b>    | <b>348,000</b>    | <b>348,000</b>    |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                       |           |            |          |            |                               |       |          |        |        |         |              |              |                   |             |                   |                   |                   |
| Mob/Demob                                                                    |           |            |          | 0.0%       | J1 = 0.000 * (I1)             |       |          |        |        |         |              |              | 0                 |             | 0                 | 0                 | 0                 |
| Contractor Markup                                                            |           |            |          | 10.0%      | K1 = 0.100 * (I1+J1)          |       |          |        |        |         |              |              | 38,000            |             | 38,000            | 35,000            | 35,000            |
| Engineering Design                                                           |           |            |          | 0.0%       | L1 = 0.000 * (I1+J1+K1)       |       |          |        |        |         |              |              | 0                 |             | 0                 | 0                 | 0                 |
| Resident Engineering                                                         |           |            |          | 2.0%       | M1 = 0.020 * (I1+J1+K1)       |       |          |        |        |         |              |              | 8,000             |             | 8,000             | 8,000             | 8,000             |
| Contingency                                                                  |           |            |          | 40.0%      | N1 = 0.400 * (I1+J1+K1+L1+M1) |       |          |        |        |         |              |              | 171,000           |             | 171,000           | 155,000           | 155,000           |
| <b>Subtotal (O1 = J1+K1+L1+M1+N1)</b>                                        |           |            |          |            |                               |       |          |        |        |         |              |              | <b>218,000</b>    |             | <b>218,000</b>    | <b>197,000</b>    | <b>197,000</b>    |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+I1+O1)</b>                     |           |            |          |            |                               |       |          |        |        |         |              |              | <b>22,744,000</b> |             | <b>22,744,000</b> | <b>20,702,000</b> | <b>20,702,000</b> |

Table B4.22-3 Cost Estimate - Undifferentiated Medium Group - Section 36 Balance of Area Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$) | Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$)  | 1995 (\$) | PW Cost    |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|---------|----------|-------|---------------|----------------|--------------|-------------|-----------|------------|-----------|------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |           |           |         |          |       |               |                |              |             |           |            |           |            |
| HB - On-Post Hazardous Waste Landfill Closure                                                          | A         | 3          | 30       |           | 0.13      | /BCY-YR | 390,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 56,000    | 1,620,000  |           | 621,000    |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       |           | 0.13      | /BCY-YR | 3        | BCY   | 1.000         | 1.000          | 1.000        |             | 0         | 10         |           | 10         |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                                  | A         | 3          | 30       |           | 0.13      | /BCY-YR | 70,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 10,000    | 281,000    |           | 147,000    |
| Subtotal (P)                                                                                           |           |            |          |           |           |         |          |       |               |                |              |             | 66,000    | 1,911,000  |           | 968,000    |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |           |           |         |          |       |               |                |              |             |           |            |           |            |
| Indirects, Overhead & Profit                                                                           |           |            |          |           |           |         |          |       |               |                |              |             | 27,000    | 745,000    |           | 378,000    |
| Contingency                                                                                            |           |            |          |           |           |         |          |       |               |                |              |             | 26,000    | 797,000    |           | 404,000    |
| Subtotal (S = Q+R)                                                                                     |           |            |          |           |           |         |          |       |               |                |              |             | 53,000    | 1,542,000  |           | 781,000    |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |           |           |         |          |       |               |                |              |             | 123,000   | 3,453,000  |           | 1,750,000  |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |           |           |         |          |       |               |                |              |             |           |            |           |            |
|                                                                                                        |           |            |          |           |           |         |          |       |               |                |              |             |           | 36,400,000 |           | 32,000,000 |

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**Table B4.22-6**  
**Cost Estimate - Undifferentiated Medium Group - Section 36 Balance of Area Subgroup**  
**Alternative 6: Caps/Covers (Clay/Soil Cap)**

| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$) |       | Quantity | Units | Volume |        | Other Factor | Description | 1995 (\$)   |            | 1995 (\$) | PW Cost |
|-------------------------------|-----------|------------|----------|-----------|-------|----------|-------|--------|--------|--------------|-------------|-------------|------------|-----------|---------|
|                               |           |            |          | Unit Cost | Units |          |       | Factor | Factor |              |             | Annual Cost | Total Cost |           |         |
| <b>DIRECT CAPITAL COSTS</b>   |           |            |          |           |       |          |       |        |        |              |             |             |            |           |         |
| Subtotal (A)                  |           |            |          |           |       |          |       |        |        |              |             |             |            |           |         |
| COST CODE LLSS                |           |            |          |           |       |          |       |        |        |              |             |             |            |           |         |
| 3.3% B = 0.033 * (A)          |           |            |          |           |       |          |       |        |        |              |             |             |            |           |         |
| 39.0% C = 0.390 * (A+B)       |           |            |          |           |       |          |       |        |        |              |             |             |            |           |         |
| 3.0% D = 0.030 * (A+B+C)      |           |            |          |           |       |          |       |        |        |              |             |             |            |           |         |
| 1.3% E = 0.013 * (A+B+C)      |           |            |          |           |       |          |       |        |        |              |             |             |            |           |         |
| 28.3% F = 0.283 * (A+B+C+D+E) |           |            |          |           |       |          |       |        |        |              |             |             |            |           |         |
| Subtotal (G =B+C+D+E+F)       |           |            |          |           |       |          |       |        |        |              |             |             |            |           |         |
| TOTAL CAPITAL COSTS (H = A+G) |           |            |          |           |       |          |       |        |        |              |             |             |            |           |         |
| H56B-06.W01                   |           |            |          |           |       |          |       |        |        |              |             |             |            |           |         |
| SOILS DAA                     |           |            |          |           |       |          |       |        |        |              |             |             |            |           |         |





Table B4.22-6g Cost Estimate - Undifferentiated Medium Group - Section 36 Balance of Area Subgroup  
Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                             | Cost Type      | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------|----------------|-------------------------------|----------|------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                                  |                |                               |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| H - Excavation Dewatering, Section 36 Balance of Areas                | LS             | 1                             | --       | 344,499.00             | /EA   | 1        | EA    | 1.000            | 1.000             | 1.000           |             | 344,499                  | 344,499                 | 344,499              |
| A - On-Post Hazardous Waste Landfill (Particulates)                   | LS             | 2                             | --       | 5.72                   | /BCY  | 3        | BCY   | 1.000            | 1.000             | 1.000           |             | 17.16                    | 17.16                   | 17.16                |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS             | 3                             | --       | 3.80                   | /BCY  | 3        | BCY   | 1.000            | 1.000             | 1.000           |             | 11.40                    | 11.40                   | 11.40                |
| U - On-Post Solid Waste Landfill                                      | LS             | 2                             | --       | 4.32                   | /BCY  | 70,000   | BCY   | 1.000            | 1.000             | 1.000           |             | 302,400                  | 302,400                 | 302,400              |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS             | 3                             | --       | 3.70                   | /BCY  | 70,000   | BCY   | 1.000            | 1.000             | 1.000           |             | 259,000                  | 259,000                 | 259,000              |
| Subtotal (A)                                                          |                |                               |          |                        |       |          |       |                  |                   |                 |             | 1,034,000                | 890,000                 |                      |
| INDIRECT CAPITAL COSTS                                                |                |                               |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mob/Demob                                                             | COST CODE: MMS |                               |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects, Overhead & Profit                                          | 4.5%           | B = 0.045 * (A)               |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design                                                    | 40.3%          | C = 0.403 * (A+B)             |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering                                                  | 4.5%           | D = 0.045 * (A+B+C)           |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                                                           | 1.8%           | E = 0.018 * (A+B+C)           |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                       | 28.6%          | F = 0.286 * (A+B+C+D+E)       |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                              |                |                               |          |                        |       |          |       |                  |                   |                 |             | 1,039,000                | 995,000                 |                      |
| DIRECT SUBCONTRACT CAPITAL COSTS                                      |                |                               |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| A - Incineration                                                      | A              | 1                             | 2        | 36.37                  | /BCY  | 270      | BCY   | 1.000            | 1.000             | 1.000           |             | 11,000                   | 11,000                  | 11,000               |
| Subtotal (A1)                                                         |                |                               |          |                        |       |          |       |                  |                   |                 |             | 11,000                   | 11,000                  |                      |
| INDIRECT SUBCONTRACT CAPITAL COSTS                                    |                |                               |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mob/Demob                                                             | COST CODE: C   |                               |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contractor Markup                                                     | 2.0%           | B1 = 0.020 * (A1)             |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Engineering Design                                                    | 10.0%          | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Resident Engineering                                                  | 8.0%           | D1 = 0.080 * (A1+B1+C1)       |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Contingency                                                           | 3.0%           | E1 = 0.030 * (A1+B1+C1)       |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                       | 30.0%          | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                        |                |                               |          |                        |       |          |       |                  |                   |                 |             | 7,000                    | 7,000                   |                      |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                                   |                |                               |          |                        |       |          |       |                  |                   |                 |             | 2,091,000                | 2,093,000               |                      |

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Table B4.22-6g Cost Estimate - Undifferentiated Medium Group - Section 36 Balance of Area Subgroup  
Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                                   | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units                         | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description  | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------------|-----------|------------|----------|------------------------|-------------------------------|----------|-------|------------------|-------------------|-----------------|--------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                    |           |            |          |                        |                               |          |       |                  |                   |                 |              |                          |                         |                      |
| H - Excavation Dewatering, Section 36 Balance of Areas                      | A         | 1          | 3        | 169,385.00             | /EA-VYR                       | 1        | EA    | 1.000            | 1.000             | 1.000           |              | 590,000                  | 590,000                 | 553,000              |
| HB - Soil Excavation                                                        | LS        | 3          | --       | 3.91                   | /BCY                          | 390,000  | BCY   | 1.000            | 1.000             | 1.000           |              | 1,740,000                | 1,740,000               | 1,578,000            |
| HB - Transportation of Contaminated Soil to Consolidation Area              | LS        | 3          | --       | 1.07                   | /BCY-MILE                     | 390,000  | BCY   | 1.000            | 1.000             | 1.000           |              | 238,000                  | 238,000                 | 216,000              |
| HB - Grade Filling w/Consolidated Soil Prior to Capping                     | LS        | 3          | --       | 3.63                   | /BCY                          | 390,000  | BCY   | 1.000            | 1.000             | 1.000           |              | 1,818,000                | 1,818,000               | 1,485,000            |
| HB - Excavation of Borrow Material                                          | LS        | 3          | --       | 1.89                   | /BCY                          | 390,000  | BCY   | 1.000            | 1.000             | 1.000           |              | 841,000                  | 841,000                 | 763,000              |
| HB - Transportation of Borrow Material to Backfill Area                     | LS        | 3          | --       | 0.86                   | /BCY-MILE                     | 390,000  | BCY   | 1.000            | 1.500             | 1.000           |              | 574,000                  | 574,000                 | 521,000              |
| HB - Backfill with Borrow Material                                          | LS        | 3          | --       | 1.72                   | /BCY                          | 390,000  | BCY   | 1.000            | 1.000             | 1.000           |              | 785,000                  | 785,000                 | 694,000              |
| HB - Installation of 6 inches of Topsoil                                    | LS        | 3          | --       | 3.24                   | /SY                           | 640,000  | SY    | 1.000            | 1.000             | 1.000           |              | 2,366,000                | 2,366,000               | 2,146,000            |
| HB - Revegetation of Disturbed Areas                                        | LS        | 3          | --       | 0.18                   | /SY                           | 640,000  | SY    | 1.000            | 1.000             | 1.000           | Disturbance  | 131,000                  | 131,000                 | 119,000              |
| A - Drilling and Aggrt Screening Prior to Excavation                        | LS        | 3          | --       | 4.89                   | /SY                           | 89,000   | SY    | 1.000            | 1.000             | 1.000           |              | 487,000                  | 487,000                 | 450,000              |
| A - Excavation of Soil with Aggrt                                           | LS        | 3          | --       | 4.55                   | /BCY                          | 270      | BCY   | 1.000            | 1.000             | 1.000           |              | 1,000                    | 1,000                   | 1,000                |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility    | LS        | 3          | --       | 1.07                   | /BCY-MILE                     | 270      | BCY   | 1.000            | 1.000             | 1.000           |              | 300                      | 300                     | 300                  |
| A - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3          | --       | 1.55                   | /BCY                          | 3        | BCY   | 1.000            | 1.000             | 1.000           | Disturbance  | 10                       | 10                      | 5                    |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill      | LS        | 3          | --       | 1.07                   | /BCY-MILE                     | 3        | BCY   | 1.000            | 1.000             | 1.000           |              | 4                        | 4                       | 3                    |
| A - On-Post Hazardous Waste Landfill (Periculates)                          | LS        | 3          | --       | 4.07                   | /BCY                          | 3        | BCY   | 1.000            | 1.000             | 1.000           |              | 10                       | 10                      | 10                   |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill              | LS        | 3          | --       | 1.28                   | /BCY                          | 270      | BCY   | 1.000            | 1.000             | 1.000           |              | 400                      | 400                     | 400                  |
| A - Transportation of Treated Soil to Backfill Excavation                   | LS        | 3          | --       | 0.86                   | /BCY-MILE                     | 270      | BCY   | 1.000            | 1.000             | 1.000           |              | 300                      | 300                     | 200                  |
| A - Backfill with Treated Soil                                              | LS        | 3          | --       | 1.72                   | /BCY                          | 270      | BCY   | 1.000            | 1.000             | 1.000           |              | 1,000                    | 1,000                   | 500                  |
| U - UXO Clearance by Geophysics                                             | LS        | 2          | --       | 0.85                   | /SY                           | 210,000  | SY    | 1.000            | 1.000             | 1.000           |              | 204,000                  | 204,000                 | 194,000              |
| U - Removal of Soil with UXO                                                | LS        | 3          | --       | 70.57                  | /BCY                          | 140      | BCY   | 1.000            | 1.000             | 1.000           |              | 11,000                   | 11,000                  | 10,000               |
| U - Excavation of Debris from Surface Soil                                  | LS        | 3          | --       | 3.91                   | /BCY                          | 70,000   | BCY   | 1.000            | 1.000             | 1.000           | Productivity | 408,000                  | 408,000                 | 398,000              |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill | LS        | 3          | --       | 0.71                   | /BCY-MILE                     | 70,000   | BCY   | 1.000            | 1.500             | 1.000           | Productivity | 111,000                  | 111,000                 | 100,000              |
| U - On-Post Solid Waste Landfill                                            | LS        | 3          | --       | 4.07                   | /BCY                          | 70,000   | BCY   | 1.000            | 1.000             | 1.000           |              | 325,000                  | 325,000                 | 295,000              |
| Subtotal (I)                                                                |           |            |          |                        |                               |          |       |                  |                   |                 |              | 10,422,000               | 10,422,000              | 9,489,000            |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |            |          |                        |                               |          |       |                  |                   |                 |              |                          |                         |                      |
| Mob/Demob                                                                   |           |            |          | 5.1%                   | J = 0.051 * (I)               |          |       |                  |                   |                 |              | 534,000                  | 534,000                 | 486,000              |
| Indirects, Overhead & Profit                                                |           |            |          | 39.0%                  | K = 0.390 * (I+J)             |          |       |                  |                   |                 |              | 4,273,000                | 4,273,000               | 3,890,000            |
| Engineering Design                                                          |           |            |          | 1.5%                   | L = 0.015 * (I+J+K)           |          |       |                  |                   |                 |              | 228,000                  | 228,000                 | 206,000              |
| Resident Engineering                                                        |           |            |          | 2.0%                   | M = 0.020 * (I+J+K)           |          |       |                  |                   |                 |              | 305,000                  | 305,000                 | 277,000              |
| Contingency                                                                 |           |            |          | 31.3%                  | N = 0.313 * (I+J+K+L+M)       |          |       |                  |                   |                 |              | 4,926,000                | 4,926,000               | 4,465,000            |
| Subtotal (O = J+K+L+M+N)                                                    |           |            |          |                        |                               |          |       |                  |                   |                 |              | 10,255,000               | 10,255,000              | 9,346,000            |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                        |           |            |          |                        |                               |          |       |                  |                   |                 |              |                          |                         |                      |
| A - Incineration                                                            | LS        | 3          | --       | 96.24                  | /BCY                          | 270      | BCY   | 1.000            | 1.000             | 1.000           |              | 30,000                   | 30,000                  | 27,000               |
| U - Packaging and Transportation of Agent UXO to Army Off-Post UXO Facility | LS        | 3          | --       | 2,200.00               | /BCY                          | 140      | BCY   | 1.000            | 1.000             | 1.000           |              | 351,000                  | 351,000                 | 319,000              |
| Subtotal (I1)                                                               |           |            |          |                        |                               |          |       |                  |                   |                 |              | 381,000                  | 381,000                 | 346,000              |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |            |          |                        |                               |          |       |                  |                   |                 |              |                          |                         |                      |
| Mob/Demob                                                                   |           |            |          | 0.0%                   | J1 = 0.000 * (I1)             |          |       |                  |                   |                 |              | 0                        | 0                       | 0                    |
| Contractor Markup                                                           |           |            |          | 10.0%                  | K1 = 0.100 * (I1+J1)          |          |       |                  |                   |                 |              | 38,000                   | 38,000                  | 35,000               |
| Engineering Design                                                          |           |            |          | 0.0%                   | L1 = 0.000 * (I1+J1+K1)       |          |       |                  |                   |                 |              | 0                        | 0                       | 0                    |
| Resident Engineering                                                        |           |            |          | 2.0%                   | M1 = 0.020 * (I1+J1+K1)       |          |       |                  |                   |                 |              | 8,000                    | 8,000                   | 8,000                |
| Contingency                                                                 |           |            |          | 40.0%                  | N1 = 0.400 * (I1+J1+K1+L1+M1) |          |       |                  |                   |                 |              | 171,000                  | 171,000                 | 155,000              |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                              |           |            |          |                        |                               |          |       |                  |                   |                 |              | 218,000                  | 218,000                 | 197,000              |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) [O0 = (I+O1)+O1]</b>                    |           |            |          |                        |                               |          |       |                  |                   |                 |              | 21,286,000               | 21,286,000              | 19,378,000           |

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Table B4.22-6g Cost Estimate - Undifferentiated Medium Group - Section 36 Balance of Area Subgroup  
Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1992 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| HB - No Action                                                                                          | A         | 3          | 30       | 0.00                   | /SY     | 640,000  | SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 3          | 30       | 0.13                   | /BCY-YR | 70,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 10,000                   | 291,000                 | 147,000              |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                                   | A         | 3          | 30       | 0.13                   | /BCY-YR | 3        | BCY   | 1.000         | 1.000          | 1.000        |             | 0                        | 10                      | 10                   |
| Subtotal (P)                                                                                            |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 10,000                  | 147,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit 30.0% Q = 0.390 * (P)                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Contingency 30.0% R = 0.300 * (P+Q)                                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (S = Q+R)                                                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          | 4,000                   | 57,000               |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 4,000                   | 61,000               |
| Subtotal (S = Q+R)                                                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          | 8,000                   | 119,000              |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 19,000                  | 286,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 23,900,000              | 21,600,000           |

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Table B4.22-13a Cost Estimate - Undifferentiated Medium Group - Section 36 Balance of Area Subgroup  
Alternative 13a: Direct Thermal Desorption (Direct Heating)

| Cost Item                                                             | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                                           |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - Excavation Dewatering, Section 36 Balance of Areas                | LS        | 1          | --       | 344,499.00             | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             |                          | 363,000                 | 363,000              |
| HB - On-Post Hazardous Waste Landfill (Particulates)                  | LS        | 2          | --       | 5.72                   | /BCY  | 3,900    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 25,000                  | 24,000               |
| HB - On-Post Hazardous Waste Landfill Closure (Particulates)          | LS        | 4          | --       | 3.80                   | /BCY  | 3,900    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 17,000                  | 15,000               |
| A - On-Post Hazardous Waste Landfill (Particulates)                   | LS        | 2          | --       | 5.72                   | /BCY  | 3        | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 20                      | 20                   |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS        | 3          | --       | 3.80                   | /BCY  | 3        | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 10                      | 10                   |
| U - On-Post Solid Waste Landfill                                      | LS        | 2          | --       | 4.32                   | /BCY  | 70,000   | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 345,000                 | 329,000              |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS        | 3          | --       | 3.70                   | /BCY  | 70,000   | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 298,000                 | 288,000              |
| Subtotal (A)                                                          |           |            |          |                        |       |          |       |               |                |              |             |                          | 1,078,000               | 1,029,000            |
| <b>INDIRECT CAPITAL COSTS</b>                                         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| MOB/DEMOL                                                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                          |           |            |          |                        |       |          |       |               |                |              |             |                          | 42,000                  | 40,000               |
| Engineering Design                                                    |           |            |          |                        |       |          |       |               |                |              |             |                          | 422,000                 | 403,000              |
| Resident Engineering                                                  |           |            |          |                        |       |          |       |               |                |              |             |                          | 69,000                  | 66,000               |
| Contingency                                                           |           |            |          |                        |       |          |       |               |                |              |             |                          | 23,000                  | 22,000               |
| Subtotal (G = B+C+D+E+F)                                              |           |            |          |                        |       |          |       |               |                |              |             |                          | 449,000                 | 429,000              |
| Subtotal (A)                                                          |           |            |          |                        |       |          |       |               |                |              |             |                          | 1,005,000               | 981,000              |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                               |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| HB - Thermal Desorption (Saturated Soil)                              | LS        | 2          | --       | 14.17                  | /BCY  | 390,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 6,308,000               | 6,008,000            |
| A - Incineration                                                      | A         | 1          | 2        | 36.37                  | /BCY  | 270      | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 11,000                  | 11,000               |
| Subtotal (A1)                                                         |           |            |          |                        |       |          |       |               |                |              |             |                          | 6,318,000               | 6,017,000            |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| MOB/DEMOL                                                             |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                                     |           |            |          |                        |       |          |       |               |                |              |             |                          | 128,000                 | 120,000              |
| Engineering Design                                                    |           |            |          |                        |       |          |       |               |                |              |             |                          | 614,000                 | 614,000              |
| Resident Engineering                                                  |           |            |          |                        |       |          |       |               |                |              |             |                          | 638,000                 | 608,000              |
| Contingency                                                           |           |            |          |                        |       |          |       |               |                |              |             |                          | 213,000                 | 203,000              |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                        |           |            |          |                        |       |          |       |               |                |              |             |                          | 2,392,000               | 2,298,000            |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                        |           |            |          |                        |       |          |       |               |                |              |             |                          | 4,003,000               | 3,813,000            |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                                                       |           |            |          |                        |       |          |       |               |                |              |             |                          | 12,402,000              | 11,819,000           |

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Table B4.22-13a Cost Estimate - Undifferentiated Medium Group - Section 36 Balance of Area Subgroup  
Alternative 13a: Direct Thermal Description (Direct Heating)

| Cost Item                                                                   | Cost Type | Start Year | End Year | 1992 (\$)  | Unit Cost                     | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1992 (\$)         | 1995 (\$)         | 1995 (\$)         | PW Cost           |
|-----------------------------------------------------------------------------|-----------|------------|----------|------------|-------------------------------|-------|----------|-------|---------------|----------------|--------------|--------------|-------------------|-------------------|-------------------|-------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                    |           |            |          |            |                               |       |          |       |               |                |              |              |                   |                   |                   |                   |
| H - Excavation Dewatering Section 36 Balance of Areas                       | A         | 1          | 3        | 169,385.00 | /EA-YR                        | EA    | 1        | EA    | 1.000         | 1.000          | 1.000        | 1.000        | 580,000           | 580,000           | 580,000           | 553,000           |
| HB - Soil Excavation                                                        | A         | 3          | 4        | 3.91       | /BCY                          | BCY   | 390,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 1,740,000         | 1,740,000         | 1,740,000         | 1,541,000         |
| HB - Transportation of Contaminated Soil to Thermal Description Facility    | A         | 3          | 4        | 1.07       | /BCY-MILE                     | BCY   | 390,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 476,000           | 476,000           | 476,000           | 422,000           |
| HB - Load Treated Soil for Transport to Hazardous Landfill                  | A         | 3          | 4        | 1.55       | /BCY                          | BCY   | 3,900    | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 7,000             | 7,000             | 7,000             | 6,000             |
| HB - Transportation of Particulates to On-Post Hazardous Waste Landfill     | A         | 3          | 4        | 1.07       | /BCY-MILE                     | BCY   | 3,900    | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 5,000             | 5,000             | 5,000             | 4,000             |
| HB - On-Post Hazardous Waste Landfill (Particulates)                        | A         | 3          | 4        | 4.07       | /BCY                          | BCY   | 3,900    | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 16,000            | 16,000            | 16,000            | 16,000            |
| HB - Load Nonhazardous Treated Soil from Stockpile for Backfill             | A         | 3          | 4        | 1.28       | /BCY                          | BCY   | 390,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 570,000           | 570,000           | 570,000           | 504,000           |
| HB - Transportation of Treated Soil to Backfill Excavation                  | A         | 3          | 4        | 0.86       | /BCY-MILE                     | BCY   | 390,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 383,000           | 383,000           | 383,000           | 339,000           |
| HB - Backfill with Treated Soil                                             | A         | 3          | 4        | 1.72       | /BCY                          | BCY   | 390,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 765,000           | 765,000           | 765,000           | 678,000           |
| HB - Installation of 6 Inches of Topsoil                                    | A         | 3          | 4        | 3.24       | /SY                           | SY    | 640,000  | SY    | 1.000         | 1.000          | 1.000        | 1.000        | 2,366,000         | 2,366,000         | 2,366,000         | 2,095,000         |
| HB - Revegetation of Disturbed Areas                                        | A         | 3          | 4        | 0.18       | /SY                           | SY    | 640,000  | SY    | 1.000         | 1.000          | 1.000        | 1.000        | 145,000           | 145,000           | 145,000           | 128,000           |
| A - Drilling and Agent Screening Prior to Excavation                        | LS        | 2          | --       | 4.89       | /SY                           | SY    | 89,000   | SY    | 1.000         | 1.000          | 1.000        | 1.000        | 497,000           | 497,000           | 497,000           | 473,000           |
| A - Excavation of Soil with Agent                                           | LS        | 3          | --       | 4.55       | /BCY                          | BCY   | 270      | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 1,000             | 1,000             | 1,000             | 1,000             |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility    | LS        | 3          | --       | 1.07       | /BCY-MILE                     | BCY   | 270      | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 300               | 300               | 300               | 300               |
| A - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3          | --       | 1.55       | /BCY                          | BCY   | 3        | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 10                | 10                | 10                | 5                 |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill      | LS        | 3          | --       | 1.07       | /BCY-MILE                     | BCY   | 3        | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 4                 | 4                 | 4                 | 3                 |
| A - On-Post Hazardous Waste Landfill (Particulates)                         | LS        | 3          | --       | 4.07       | /BCY                          | BCY   | 3        | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 10                | 10                | 10                | 10                |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill              | LS        | 3          | --       | 1.28       | /BCY                          | BCY   | 270      | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 400               | 400               | 400               | 400               |
| A - Transportation of Treated Soil to Backfill Excavation                   | LS        | 3          | --       | 0.86       | /BCY-MILE                     | BCY   | 270      | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 300               | 300               | 300               | 200               |
| A - Backfill with Treated Soil                                              | LS        | 3          | --       | 1.72       | /BCY                          | BCY   | 270      | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 1,000             | 1,000             | 1,000             | 500               |
| U - UXO Clearance by Geophysics                                             | LS        | 2          | --       | 0.85       | /SY                           | SY    | 210,000  | SY    | 1.000         | 1.000          | 1.000        | 1.000        | 204,000           | 204,000           | 204,000           | 194,000           |
| U - Removal of Soil with UXO                                                | LS        | 3          | --       | 70.57      | /BCY                          | BCY   | 140      | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 11,000            | 11,000            | 11,000            | 10,000            |
| U - Excavation of Debris from Surface Soil                                  | LS        | 3          | --       | 3.91       | /BCY                          | BCY   | 70,000   | BCY   | 1.000         | 1.000          | 1.300        | Productivity | 408,000           | 408,000           | 408,000           | 368,000           |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill | LS        | 3          | --       | 0.71       | /BCY-MILE                     | BCY   | 70,000   | BCY   | 1.000         | 1.500          | 1.300        | Productivity | 111,000           | 111,000           | 111,000           | 100,000           |
| U - On-Post Solid Waste Landfill                                            | LS        | 3          | --       | 4.07       | /BCY                          | BCY   | 70,000   | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 325,000           | 325,000           | 325,000           | 295,000           |
| <b>Subtotal (f)</b>                                                         |           |            |          |            |                               |       |          |       |               |                |              |              | <b>8,611,000</b>  | <b>8,611,000</b>  | <b>8,611,000</b>  | <b>7,729,000</b>  |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |            |          |            |                               |       |          |       |               |                |              |              |                   |                   |                   |                   |
| Mob/Demob                                                                   |           |            |          | 5.1%       | J = 0.051 * (f)               |       |          |       |               |                |              |              | 441,000           | 441,000           | 441,000           | 398,000           |
| Indirects, Overhead & Profit                                                |           |            |          | 39.0%      | K = 0.390 * (f-J)             |       |          |       |               |                |              |              | 3,530,000         | 3,530,000         | 3,530,000         | 3,169,000         |
| Engineering Design                                                          |           |            |          | 1.5%       | L = 0.015 * (f-J+K)           |       |          |       |               |                |              |              | 188,000           | 188,000           | 188,000           | 168,000           |
| Resident Engineering                                                        |           |            |          | 2.0%       | M = 0.020 * (f-J+K)           |       |          |       |               |                |              |              | 252,000           | 252,000           | 252,000           | 228,000           |
| Contingency                                                                 |           |            |          | 31.3%      | N = 0.313 * (f-J+K+L+M)       |       |          |       |               |                |              |              | 4,070,000         | 4,070,000         | 4,070,000         | 3,653,000         |
| <b>Subtotal (D = J+K+L+M+N)</b>                                             |           |            |          |            |                               |       |          |       |               |                |              |              | <b>8,492,000</b>  | <b>8,492,000</b>  | <b>8,492,000</b>  | <b>7,613,000</b>  |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                        |           |            |          |            |                               |       |          |       |               |                |              |              |                   |                   |                   |                   |
| HB - Thermal Description (Saturated Soil)                                   | A         | 3          | 4        | 73.64      | /BCY                          | BCY   | 390,000  | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 32,774,000        | 32,774,000        | 32,774,000        | 28,019,000        |
| A - Incineration                                                            | LS        | 3          | --       | 96.24      | /BCY                          | BCY   | 270      | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 30,000            | 30,000            | 30,000            | 27,000            |
| U - Packaging and Transportation of Agent UXO to Army Off-Post UXO Facility | LS        | 3          | --       | 2,200.00   | /BCY                          | BCY   | 140      | BCY   | 1.000         | 1.000          | 1.000        | 1.000        | 351,000           | 351,000           | 351,000           | 319,000           |
| <b>Subtotal (f1)</b>                                                        |           |            |          |            |                               |       |          |       |               |                |              |              | <b>33,155,000</b> | <b>33,155,000</b> | <b>33,155,000</b> | <b>29,365,000</b> |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |            |          |            |                               |       |          |       |               |                |              |              |                   |                   |                   |                   |
| Mob/Demob                                                                   |           |            |          | 0.0%       | J1 = 0.000 * (f1)             |       |          |       |               |                |              |              | 0                 | 0                 | 0                 | 0                 |
| Contractor Markup                                                           |           |            |          | 10.0%      | K1 = 0.100 * (f1-J1)          |       |          |       |               |                |              |              | 3,315,000         | 3,315,000         | 3,315,000         | 2,936,000         |
| Engineering Design                                                          |           |            |          | 0.0%       | L1 = 0.000 * (f1-J1+K1)       |       |          |       |               |                |              |              | 0                 | 0                 | 0                 | 0                 |
| Resident Engineering                                                        |           |            |          | 2.0%       | M1 = 0.020 * (f1-J1+K1)       |       |          |       |               |                |              |              | 729,000           | 729,000           | 729,000           | 648,000           |
| Contingency                                                                 |           |            |          | 40.0%      | N1 = 0.400 * (f1-J1+K1+L1+M1) |       |          |       |               |                |              |              | 14,990,000        | 14,990,000        | 14,990,000        | 13,179,000        |
| <b>Subtotal (D1 = J1+K1+L1+M1+N1)</b>                                       |           |            |          |            |                               |       |          |       |               |                |              |              | <b>18,925,000</b> | <b>18,925,000</b> | <b>18,925,000</b> | <b>16,761,000</b> |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (D0 = f+f1+D1)</b>                      |           |            |          |            |                               |       |          |       |               |                |              |              | <b>69,173,000</b> | <b>69,173,000</b> | <b>69,173,000</b> | <b>61,469,000</b> |

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| Cost Item                                                             | Cost Type | Start Year | End Year | 1992 (\$)    | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)    | 1993 (\$)  | 1993 (\$) |
|-----------------------------------------------------------------------|-----------|------------|----------|--------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------|------------|-----------|
|                                                                       |           |            |          | Unit Cost    |       |          |       |               |                |              |             | Total Cost   | PW Cost    |           |
| <b>DIRECT CAPITAL COSTS</b>                                           |           |            |          |              |       |          |       |               |                |              |             |              |            |           |
| H - Excavation Dewatering, Section 36 Balance of Areas                | LS        | 1          | --       | 344,490.00   | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 344,490.00   | 344,490.00 |           |
| A - On-Post Hazardous Waste Landfill (Particulates)                   | LS        | 2          | --       | 5.72         | /BCY  | 3        | BCY   | 1.000         | 1.000          | 1.000        |             | 17.16        | 20         |           |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS        | 3          | --       | 3.80         | /BCY  | 3        | BCY   | 1.000         | 1.000          | 1.000        |             | 11.40        | 10         |           |
| U - On-Post Solid Waste Landfill                                      | LS        | 2          | --       | 4.32         | /BCY  | 70,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 302,400.00   | 329,000    |           |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS        | 3          | --       | 3.70         | /BCY  | 70,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 259,000.00   | 268,000    |           |
| Subtotal (A)                                                          |           |            |          |              |       |          |       |               |                |              |             | 1,034,000    | 890,000    |           |
| <b>INDIRECT CAPITAL COSTS</b>                                         |           |            |          |              |       |          |       |               |                |              |             |              |            |           |
| MOB/DEMOL                                                             |           |            |          |              |       |          |       |               |                |              |             |              |            |           |
| Indirects Overhead & Profit                                           |           |            |          |              |       |          |       |               |                |              |             |              |            |           |
| Engineering Design                                                    |           |            |          |              |       |          |       |               |                |              |             |              |            |           |
| Resident Engineering                                                  |           |            |          |              |       |          |       |               |                |              |             |              |            |           |
| Contingency                                                           |           |            |          |              |       |          |       |               |                |              |             |              |            |           |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                               |           |            |          |              |       |          |       |               |                |              |             |              |            |           |
| H - In Situ RF/Microwave Heating - Deep/Saturated                     | LS        | 1          | --       | 7,066,000.00 | /UNIT | 1        | UNIT  | 1.000         | 1.000          | 1.000        |             | 7,066,000.00 | 8,083,000  |           |
| B - In Situ RF/Microwave Heating - Shallow/Saturated                  | LS        | 1          | --       | 7,066,000.00 | /UNIT | 1        | UNIT  | 1.000         | 1.000          | 1.000        |             | 7,066,000.00 | 8,083,000  |           |
| B - In Situ Surface Soil Heating                                      | LS        | 1          | --       | 951,200.00   | /UNIT | 1        | UNIT  | 1.000         | 1.000          | 1.000        |             | 951,200.00   | 1,085,000  |           |
| A - Incineration                                                      | A         | 1          | 2        | 36.37        | /BCY  | 270      | BCY   | 1.000         | 1.000          | 1.000        |             | 9,859.00     | 11,000     |           |
| Subtotal (A1)                                                         |           |            |          |              |       |          |       |               |                |              |             | 17,224,000   | 17,223,000 |           |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                             |           |            |          |              |       |          |       |               |                |              |             |              |            |           |
| MOB/DEMOL                                                             |           |            |          |              |       |          |       |               |                |              |             |              |            |           |
| Contractor Markup                                                     |           |            |          |              |       |          |       |               |                |              |             |              |            |           |
| Engineering Design                                                    |           |            |          |              |       |          |       |               |                |              |             |              |            |           |
| Resident Engineering                                                  |           |            |          |              |       |          |       |               |                |              |             |              |            |           |
| Contingency                                                           |           |            |          |              |       |          |       |               |                |              |             |              |            |           |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>                            |           |            |          |              |       |          |       |               |                |              |             |              |            |           |
|                                                                       |           |            |          |              |       |          |       |               |                |              |             | 29,494,000   | 29,408,000 |           |

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| Cost Item                                                                                | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                       |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| H - No Action                                                                            | A         | 4          | 30       | 0.00                   | /SY     | 120,000  | SY    | 1,000            | 1,000             | 1,000           |             | 0                        | 0                       | 0                    |
| B - No Action                                                                            | A         | 22         | 30       | 0.00                   | /SY     | 520,000  | SY    | 1,000            | 1,000             | 1,000           |             | 0                        | 0                       | 0                    |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                              | A         | 3          | 30       | 0.13                   | /BCY-YR | 3        | BCY   | 1,000            | 1,000             | 1,000           |             | 0                        | 10                      | 10                   |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                    | A         | 3          | 30       | 0.13                   | /BCY-YR | 70,000   | BCY   | 1,000            | 1,000             | 1,000           |             | 10,000                   | 281,000                 | 147,000              |
| Subtotal (P)                                                                             |           |            |          |                        |         |          |       |                  |                   |                 |             | 10,000                   | 281,000                 | 147,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                     |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| COST CODE: LLSL                                                                          |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects Overhead & Profit                                                              |           |            |          |                        |         |          |       |                  |                   |                 |             | 4,000                    | 113,000                 | 57,000               |
| Contingency                                                                              |           |            |          |                        |         |          |       |                  |                   |                 |             | 4,000                    | 121,000                 | 61,000               |
| Subtotal (S = Q+R)                                                                       |           |            |          |                        |         |          |       |                  |                   |                 |             | 8,000                    | 235,000                 | 118,000              |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                         |           |            |          |                        |         |          |       |                  |                   |                 |             | 18,000                   | 525,000                 | 266,000              |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (OPERATIONS & LONG-TERM ACTIVITIES) (U = H+OO+T) |           |            |          |                        |         |          |       |                  |                   |                 |             | 199,000,000 177,000,000  |                         |                      |

Table B4.23-1

Cost Estimate - Undifferentiated Medium Group - Burial Trenches Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

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| Cost Item                            | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                        | LS        | 1          | --       | 0.00                   | /SY   | 43,000   | SY    | 1,000         | 1,000          | 1,000        |             |                          | 0                       | 0                    |
| B - No Action                        | LS        | 1          | --       | 0.00                   | /SY   | 80       | SY    | 1,000         | 1,000          | 1,000        |             |                          | 0                       | 0                    |
| A - No Action                        | LS        | 1          | --       | 0.00                   | /SY   | 7,100    | SY    | 1,000         | 1,000          | 1,000        |             |                          | 0                       | 0                    |
| U - No Action                        | LS        | 1          | --       | 0.00                   | /SY   | 170,000  | SY    | 1,000         | 1,000          | 1,000        |             |                          | 0                       | 0                    |
| <b>Subtotal (A)</b>                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit         |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                   |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 3.3%                                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 38.0%                                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 3.0%                                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 1.3%                                 |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 26.3%                                |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (G -B+C+D+E+F)</b>       |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b> |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| HBT-01 WQ1                           |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| SOILS DAA                            |           |            |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |

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Table B4.23-1 Cost Estimate - Undifferentiated Medium Group - Burial Trenches Subgroup  
Alternative 1: No Additional Action (Provisions of FFA)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1992 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| H - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 43,000   | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| B - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 80       | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| A - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 7,100    | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| U - No Action                                                                                                 | LS        | 1          | --       | 0.00                   | /SY    | 170,000  | SY    | 1.000         | 1.000          | 1.000        |             |                          | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                                                                     |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (I) = J+K+L+M+N</b>                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| HB - Long Term Soil Monitoring, Burial Trenches                                                               | A         | 1          | 30       | 22,000.00              | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 25,000                   | 753,000                 | 389,000              |
| HBAU - Site Reviews                                                                                           | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 185,000                 | 98,000               |
| <b>Subtotal (P) = Q+R+L+M+N</b>                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                                   |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (S) = T+U+P+S</b>                                                                                 |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 31,000                  | 938,000              |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 12,000                  | 366,000              |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 13,000                  | 381,000              |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 25,000                  | 757,000              |
| <b>Subtotal (S) = T+U+P+S</b>                                                                                 |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 57,000                  | 1,695,000            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |        |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |       |               |                |              |             |                          | 1,700,000               | 898,000              |

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Table B4.23-3 Cost Estimate - Undifferentiated Medium Group - Burial Trenches Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                             | Cost Type | Start Year                    | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |
|-----------------------------------------------------------------------|-----------|-------------------------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|---------|
| DIRECT CAPITAL COSTS                                                  |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| HB - On-Post Hazardous Waste Landfill                                 | LS        | 2                             | --       | 5.72      | /BCY  | 31,000   | BCY   | 1,000         | 1,000          | 1,000        |             | 202,000   |           | 183,000   |         |
| HB - On-Post Hazardous Waste Landfill Closure                         | LS        | 3                             | --       | 3.80      | /BCY  | 31,000   | BCY   | 1,000         | 1,000          | 1,000        |             | 134,000   |           | 122,000   |         |
| A - On-Post Hazardous Waste Landfill (Particulates)                   | LS        | 2                             | --       | 5.72      | /BCY  | 1        | BCY   | 1,000         | 1,000          | 1,000        |             | 10        |           | 10        |         |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS        | 3                             | --       | 3.80      | /BCY  | 1        | BCY   | 1,000         | 1,000          | 1,000        |             | 4         |           | 4         |         |
| U - On-Post Solid Waste Landfill                                      | LS        | 2                             | --       | 4.32      | /BCY  | 57,000   | BCY   | 1,000         | 1,000          | 1,000        |             | 281,000   |           | 268,000   |         |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS        | 3                             | --       | 3.70      | /BCY  | 57,000   | BCY   | 1,000         | 1,000          | 1,000        |             | 241,000   |           | 218,000   |         |
| Subtotal (A)                                                          |           |                               |          |           |       |          |       |               |                |              |             | 858,000   |           | 801,000   |         |
| INDIRECT CAPITAL COSTS                                                |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| COST CODE LLSS                                                        |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Mob/Demob                                                             | 3.3%      | B = 0.033 * (A)               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Indirects, Overhead & Profit                                          | 38.0%     | C = 0.380 * (A+B)             |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Engineering Design                                                    | 3.0%      | D = 0.030 * (A+B+C)           |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Resident Engineering                                                  | 1.3%      | E = 0.013 * (A+B+C)           |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Contingency                                                           | 28.3%     | F = 0.283 * (A+B+C+D+E)       |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal (G = B+C+D+E+F)                                              |           |                               |          |           |       |          |       |               |                |              |             | 783,000   |           | 712,000   |         |
| DIRECT SUBCONTRACT CAPITAL COSTS                                      |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| A - Incineration                                                      | A         | 1                             | 2        | 36.37     | /BCY  | 12       | BCY   | 1,000         | 1,000          | 1,000        |             | 500       |           | 500       |         |
| Subtotal (A1)                                                         |           |                               |          |           |       |          |       |               |                |              |             | 500       |           | 500       |         |
| INDIRECT SUBCONTRACT CAPITAL COSTS                                    |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| COST CODE C                                                           |           |                               |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Mob/Demob                                                             | 2.0%      | B1 = 0.020 * (A1)             |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Contractor Markup                                                     | 10.0%     | C1 = 0.100 * (A1+B1)          |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Engineering Design                                                    | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Resident Engineering                                                  | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Contingency                                                           | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                        |           |                               |          |           |       |          |       |               |                |              |             | 300       |           | 300       |         |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                                   |           |                               |          |           |       |          |       |               |                |              |             | 1,622,000 |           | 1,513,000 |         |

Table B4.23-3 Cost Estimate - Undifferentiated Medium Group - Burial Trenches Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                                    | Cost Type | Start Year | End Year | Unit Cost | Units                         | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost   |
|------------------------------------------------------------------------------|-----------|------------|----------|-----------|-------------------------------|----------|-------|---------------|----------------|--------------|--------------|-----------|-----------|-----------|-----------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                     |           |            |          |           |                               |          |       |               |                |              |              |           |           |           |           |
| HB - Soil Excavation                                                         | LS        | 3          | --       | 3.91      | /BCY                          | 31,000   | BCY   | 1,000         | 1,000          | 1,300        | Productivity | 180,000   |           |           | 183,000   |
| HB - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 31,000   | BCY   | 1,000         | 2,500          | 1,300        | Productivity | 123,000   |           |           | 112,000   |
| HB - On-Post Hazardous Waste Landfill                                        | LS        | 3          | --       | 4.07      | /BCY                          | 31,000   | BCY   | 1,000         | 1,000          | 1,000        |              | 144,000   |           |           | 131,000   |
| HB - Excavation of Borrow Material                                           | LS        | 3          | --       | 1.89      | /BCY                          | 31,000   | BCY   | 1,000         | 1,000          | 1,000        |              | 67,000    |           |           | 61,000    |
| HB - Transportation of Borrow Material to Backfill Area                      | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 31,000   | BCY   | 1,000         | 1,500          | 1,000        |              | 48,000    |           |           | 41,000    |
| HB - Backfill with Borrow Material                                           | LS        | 3          | --       | 1.72      | /BCY                          | 31,000   | BCY   | 1,000         | 1,000          | 1,000        |              | 61,000    |           |           | 55,000    |
| HB - Installation of 6 Inches of Topsoil                                     | LS        | 3          | --       | 3.24      | /SY                           | 43,000   | SY    | 1,000         | 1,000          | 1,000        |              | 159,000   |           |           | 144,000   |
| HB - Revegetation of Disturbed Areas                                         | LS        | 3          | --       | 0.18      | /SY                           | 43,000   | SY    | 1,000         | 1,000          | 1,100        | Disturbance  | 10,000    |           |           | 9,000     |
| A - Drilling and Agent Screening Prior to Excavation                         | LS        | 3          | --       | 4.89      | /SY                           | 7,100    | SY    | 1,000         | 1,000          | 1,000        |              | 40,000    |           |           | 36,000    |
| A - Excavation of Soil with Agent                                            | LS        | 3          | --       | 4.55      | /BCY                          | 12       | BCY   | 1,000         | 1,000          | 1,000        |              | 100       |           |           | 100       |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility     | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 12       | BCY   | 1,000         | 3,500          | 1,000        |              | 100       |           |           | 50        |
| A - Load Treated Soil for Transport to Hazardous Waste Landfill              | LS        | 3          | --       | 1.55      | /BCY                          | 1        | BCY   | 1,000         | 1,000          | 1,000        |              | 2         |           |           | 2         |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill       | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 1        | BCY   | 1,000         | 1,000          | 1,000        |              | 1         |           |           | 1         |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill               | LS        | 3          | --       | 1.28      | /BCY                          | 1        | BCY   | 1,000         | 1,000          | 1,000        |              | 1         |           |           | 1         |
| A - On-Post Hazardous Waste Landfill (Particulates)                          | LS        | 3          | --       | 4.07      | /BCY                          | 12       | BCY   | 1,000         | 1,000          | 1,000        |              | 100       |           |           | 100       |
| A - Transportation of Treated Soil to Backfill Excavation                    | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 12       | BCY   | 1,000         | 3,500          | 1,000        |              | 40        |           |           | 40        |
| A - Backfill with Treated Soil                                               | LS        | 3          | --       | 1.72      | /BCY                          | 12       | BCY   | 1,000         | 1,000          | 1,000        |              | 20        |           |           | 20        |
| U - UXO Clearance by Geophysics                                              | LS        | 2          | --       | 0.85      | /SY                           | 170,000  | SY    | 1,000         | 1,000          | 1,000        |              | 165,000   |           |           | 157,000   |
| U - Removal of Soil with UXO                                                 | LS        | 3          | --       | 70.57     | /BCY                          | 550      | BCY   | 1,000         | 1,000          | 1,000        |              | 44,000    |           |           | 40,000    |
| U - Excavation of Debris from Surface Soil                                   | LS        | 3          | --       | 3.91      | /BCY                          | 57,000   | BCY   | 1,000         | 1,000          | 1,300        | Productivity | 331,000   |           |           | 300,000   |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill  | LS        | 3          | --       | 0.71      | /BCY-MILE                     | 57,000   | BCY   | 1,000         | 2,500          | 1,300        | Productivity | 150,000   |           |           | 136,000   |
| U - On-Post Solid Waste Landfill                                             | LS        | 3          | --       | 4.07      | /BCY                          | 57,000   | BCY   | 1,000         | 1,000          | 1,000        |              | 265,000   |           |           | 240,000   |
| U - Installation of 6 Inches of Topsoil                                      | LS        | 3          | --       | 3.24      | /SY                           | 110,000  | SY    | 1,000         | 1,000          | 1,000        |              | 407,000   |           |           | 368,000   |
| U - Revegetation of Disturbed Areas                                          | LS        | 3          | --       | 0.18      | /SY                           | 110,000  | SY    | 1,000         | 1,000          | 1,100        | Disturbance  | 25,000    |           |           | 23,000    |
| <b>Subtotal (I)</b>                                                          |           |            |          |           |                               |          |       |               |                |              |              |           |           |           |           |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                   |           |            |          |           |                               |          |       |               |                |              |              |           |           |           |           |
| Mob/Demob                                                                    |           |            |          | 5.1%      | J = 0.051 * (I)               |          |       |               |                |              |              | 114,000   |           |           | 103,000   |
| Indirects, Overhead & Profit                                                 |           |            |          | 40.3%     | K = 0.403 * (I+J)             |          |       |               |                |              |              | 937,000   |           |           | 853,000   |
| Engineering Design                                                           |           |            |          | 1.5%      | L = 0.015 * (I+J+K)           |          |       |               |                |              |              | 49,000    |           |           | 45,000    |
| Resident Engineering                                                         |           |            |          | 2.0%      | M = 0.020 * (I+J+K)           |          |       |               |                |              |              | 65,000    |           |           | 59,000    |
| Contingency                                                                  |           |            |          | 31.5%     | N = 0.315 * (I+J+K+L+M)       |          |       |               |                |              |              | 1,056,000 |           |           | 962,000   |
| <b>Subtotal (O) = J+K+L+M+N</b>                                              |           |            |          |           |                               |          |       |               |                |              |              |           |           |           |           |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                         |           |            |          |           |                               |          |       |               |                |              |              |           |           |           |           |
| A - Incineration                                                             | LS        | 3          | --       | 96.24     | /BCY                          | 12       | BCY   | 1,000         | 1,000          | 1,000        |              | 1,000     |           |           | 1,000     |
| U - Packaging and Transportation of HE Filled UXO to Army Off-Post Facility  | LS        | 3          | --       | 59.50     | /BCY                          | 550      | BCY   | 1,000         | 1,000          | 1,000        |              | 37,000    |           |           | 34,000    |
| <b>Subtotal (I1)</b>                                                         |           |            |          |           |                               |          |       |               |                |              |              |           |           |           |           |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                       |           |            |          |           |                               |          |       |               |                |              |              |           |           |           |           |
| Mob/Demob                                                                    |           |            |          | 0.0%      | J1 = 0.000 * (I1)             |          |       |               |                |              |              | 0         |           |           | 0         |
| Contractor Markup                                                            |           |            |          | 10.0%     | K1 = 0.100 * (I1+J1)          |          |       |               |                |              |              | 4,000     |           |           | 4,000     |
| Engineering Design                                                           |           |            |          | 0.0%      | L1 = 0.000 * (I1+J1+K1)       |          |       |               |                |              |              | 0         |           |           | 0         |
| Resident Engineering                                                         |           |            |          | 2.0%      | M1 = 0.020 * (I1+J1+K1)       |          |       |               |                |              |              | 1,000     |           |           | 1,000     |
| Contingency                                                                  |           |            |          | 40.0%     | N1 = 0.400 * (I1+J1+K1+L1+M1) |          |       |               |                |              |              | 17,000    |           |           | 16,000    |
| <b>Subtotal (O1) = J1+K1+L1+M1+N1</b>                                        |           |            |          |           |                               |          |       |               |                |              |              |           |           |           |           |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) [OO = I+O+I1+O1]</b>                     |           |            |          |           |                               |          |       |               |                |              |              |           |           |           |           |
|                                                                              |           |            |          |           |                               |          |       |               |                |              |              | 22,000    |           |           | 20,000    |
|                                                                              |           |            |          |           |                               |          |       |               |                |              |              | 4,497,000 |           |           | 4,094,000 |

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| Cost Item                                                                                               | Cost Type                            | Start Year | End Year | 1992 (\$) Unit Cost | Units   | Quantity | Description | Volume |                | 1993 (\$) Annual Cost | 1995 (\$) Total Cost | 1995 (\$) PW Cost |
|---------------------------------------------------------------------------------------------------------|--------------------------------------|------------|----------|---------------------|---------|----------|-------------|--------|----------------|-----------------------|----------------------|-------------------|
|                                                                                                         |                                      |            |          |                     |         |          |             | Factor | Mileage Factor |                       |                      |                   |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |                                      |            |          |                     |         |          |             |        |                |                       |                      |                   |
| HB - On-Post Hazardous Waste Landfill Closure                                                           | A                                    | 3          | 30       | 0.13                | /BCY-YR | 31,000   | BCY         | 1,000  | 1,000          | 5,000                 | 128,000              | 66,000            |
| A - On-Post Hazardous Waste Landfill Closure (Periculates)                                              | A                                    | 3          | 30       | 0.13                | /BCY-YR | 1        | BCY         | 1,000  | 1,000          | 0                     | 4                    | 2                 |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                                   | A                                    | 3          | 30       | 0.13                | /BCY-YR | 57,000   | BCY         | 1,000  | 1,000          | 8,000                 | 237,000              | 120,000           |
| <b>Subtotal (P)</b>                                                                                     |                                      |            |          |                     |         |          |             |        |                |                       |                      |                   |
| 13,000 386,000 185,000                                                                                  |                                      |            |          |                     |         |          |             |        |                |                       |                      |                   |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |                                      |            |          |                     |         |          |             |        |                |                       |                      |                   |
| Indirects, Overhead & Profit                                                                            | COST CODE: LLSL                      |            |          |                     |         |          |             |        |                |                       |                      |                   |
| Contingency                                                                                             | Q = 0.380 * (P)<br>R = 0.300 * (P+Q) |            |          |                     |         |          |             |        |                |                       |                      |                   |
| 5,000 143,000 72,000                                                                                    |                                      |            |          |                     |         |          |             |        |                |                       |                      |                   |
| 5,000 152,000 77,000                                                                                    |                                      |            |          |                     |         |          |             |        |                |                       |                      |                   |
| <b>Subtotal (S = Q+R)</b>                                                                               |                                      |            |          |                     |         |          |             |        |                |                       |                      |                   |
| 11,000 285,000 148,000                                                                                  |                                      |            |          |                     |         |          |             |        |                |                       |                      |                   |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |                                      |            |          |                     |         |          |             |        |                |                       |                      |                   |
| 24,000 681,000 335,000                                                                                  |                                      |            |          |                     |         |          |             |        |                |                       |                      |                   |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |                                      |            |          |                     |         |          |             |        |                |                       |                      |                   |
| 6,780,000 5,940,000                                                                                     |                                      |            |          |                     |         |          |             |        |                |                       |                      |                   |





Table B4.23-6 Cost Estimate - Undifferentiated Medium Group - Burial Trenches Subgroup  
Alternative 6: Caps/Covers (Clay/Soil Cap)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|-----------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| U - UXO Clearance In Surface Soil by Geophysics                                                               | LS        | 1          | --       | 0.24                   | /SY       | 170,000  | SY    | 1,000         | 1,000          | 1,000        |             |                          | 47,000                  | 47,000               |
| HBAU - Excavation of Borrow Material                                                                          | LS        | 1          | --       | 1.89                   | /RCY      | 1,400    | BCY   | 1,000         | 1,000          | 1,000        |             |                          | 3,000                   | 3,000                |
| HBAU - Transportation of Borrow Material to Backfill Area                                                     | LS        | 1          | --       | 0.86                   | /RCY-MILE | 1,400    | BCY   | 1,000         | 1,000          | 1,000        |             |                          | 1,000                   | 1,000                |
| HBAU - Backfill with Borrow Material                                                                          | LS        | 1          | --       | 1.72                   | /RCY      | 1,400    | BCY   | 1,000         | 1,000          | 1,000        |             |                          | 3,000                   | 3,000                |
| HBAU - Subgrade Preparation Prior to Installing Cap/Cover                                                     | LS        | 1          | --       | 0.06                   | /SY       | 43,000   | SY    | 1,000         | 1,000          | 1,000        |             |                          | 3,000                   | 3,000                |
| HBAU - Installation of Clay/Soil Cap                                                                          | LS        | 1          | --       | 23.30                  | /SY       | 43,000   | SY    | 1,000         | 1,000          | 1,000        |             |                          | 1,143,000               | 1,143,000            |
| HBAU - Revegetation of Disturbed Areas                                                                        | LS        | 1          | --       | 0.18                   | /SY       | 43,000   | SY    | 1,000         | 1,000          | 1,000        | Disturbance |                          | 10,000                  | 10,000               |
| U - Soil Cover for Potential UXO Areas                                                                        | LS        | 1          | --       | 9.36                   | /SY       | 110,000  | SY    | 1,000         | 1,000          | 1,000        |             |                          | 1,175,000               | 1,175,000            |
| U - Revegetation of Disturbed Areas                                                                           | LS        | 1          | --       | 0.18                   | /SY       | 110,000  | SY    | 1,000         | 1,000          | 1,100        | Disturbance |                          | 25,000                  | 25,000               |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (I)                                                                                                  |           |            |          |                        |           |          |       |               |                |              |             |                          | 2,408,000               | 2,408,000            |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Mobile/Demob                                                                                                  |           |            |          | 3.3%                   |           |          |       |               |                |              |             |                          | 78,000                  | 78,000               |
| Indirects, Overhead & Profit                                                                                  |           |            |          | 39.0%                  |           |          |       |               |                |              |             |                          | 970,000                 | 970,000              |
| Engineering Design                                                                                            |           |            |          | 0.5%                   |           |          |       |               |                |              |             |                          | 17,000                  | 17,000               |
| Resident Engineering                                                                                          |           |            |          | 1.3%                   |           |          |       |               |                |              |             |                          | 43,000                  | 43,000               |
| Contingency                                                                                                   |           |            |          | 28.3%                  |           |          |       |               |                |              |             |                          | 924,000                 | 924,000              |
| Subtotal (O = J+K+L+M+N)                                                                                      |           |            |          |                        |           |          |       |               |                |              |             |                          | 2,033,000               | 2,033,000            |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| HBAU - Installation of Clay/Soil Cap                                                                          | A         | 1          | 30       | 0.80                   | /SY-YR    | 43,000   | SY    | 1,000         | 1,000          | 1,000        |             | 39,000                   | 1,178,000               | 624,000              |
| HBAU - Site Reviews                                                                                           | A         | 1          | 30       | 5,400.00               | /EA-YR    | 1        | EA    | 1,000         | 1,000          | 1,000        |             | 6,000                    | 185,000                 | 98,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (P)                                                                                                  |           |            |          |                        |           |          |       |               |                |              |             | 45,000                   | 1,393,000               | 722,000              |
| Indirects, Overhead & Profit                                                                                  |           |            |          | 39.0%                  |           |          |       |               |                |              |             | 18,000                   | 531,000                 | 282,000              |
| Contingency                                                                                                   |           |            |          | 30.0%                  |           |          |       |               |                |              |             | 19,000                   | 568,000                 | 301,000              |
| Subtotal (S)                                                                                                  |           |            |          |                        |           |          |       |               |                |              |             | 37,000                   | 1,100,000               | 583,000              |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |           |          |       |               |                |              |             | 82,000                   | 6,904,000               | 5,747,000            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |           |          |       |               |                |              |             | 6,900,000                | 5,750,000               |                      |

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Table B4.23-10 Cost Estimate - Undifferentiated Medium Group - Burial Trenches Subgroup  
Alternative 10: Direct Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                             | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|-------|----------|-------|-----------------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                                  |           |                               |          |                        |       |          |       |                       |              |             |                          |                         |                      |
| B - On-Post Hazardous Waste Landfill                                  | LS        | 2                             | --       | 5.72                   | /BCY  | 130      | BCY   | 1.000                 | 1.000        |             | 1,000                    | 1,000                   | 1,000                |
| B - On-Post Hazardous Waste Landfill Closure                          | LS        | 3                             | --       | 3.80                   | /BCY  | 130      | BCY   | 1.000                 | 1.000        |             | 1,000                    | 1,000                   | 1,000                |
| A - On-Post Hazardous Waste Landfill (Particulates)                   | LS        | 2                             | --       | 5.72                   | /BCY  | 1        | BCY   | 1.000                 | 1.000        |             | 10                       | 10                      | 10                   |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS        | 3                             | --       | 3.80                   | /BCY  | 1        | BCY   | 1.000                 | 1.000        |             | 4                        | 4                       | 4                    |
| U - On-Post Solid Waste Landfill                                      | LS        | 2                             | --       | 4.32                   | /BCY  | 57,000   | BCY   | 1.000                 | 1.000        |             | 241,000                  | 241,000                 | 241,000              |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS        | 3                             | --       | 3.70                   | /BCY  | 57,000   | BCY   | 1.000                 | 1.000        |             | 216,000                  | 216,000                 | 216,000              |
| Subtotal (A)                                                          |           |                               |          |                        |       |          |       |                       |              |             |                          | 523,000                 | 487,000              |
| INDIRECT CAPITAL COSTS                                                |           |                               |          |                        |       |          |       |                       |              |             |                          |                         |                      |
| COST CODE: LLSS                                                       |           |                               |          |                        |       |          |       |                       |              |             |                          |                         |                      |
| Mod/Demob                                                             | 3.3%      | B = 0.033 * (A)               |          |                        |       |          |       |                       |              |             |                          | 17,000                  | 16,000               |
| Indirects, Overhead & Profit                                          | 30.0%     | C = 0.300 * (A+B)             |          |                        |       |          |       |                       |              |             |                          | 211,000                 | 186,000              |
| Engineering Design                                                    | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |       |          |       |                       |              |             |                          | 23,000                  | 21,000               |
| Resident Engineering                                                  | 1.3%      | E = 0.013 * (A+B+C)           |          |                        |       |          |       |                       |              |             |                          | 9,000                   | 9,000                |
| Contingency                                                           | 28.3%     | F = 0.283 * (A+B+C+D+E)       |          |                        |       |          |       |                       |              |             |                          | 205,000                 | 191,000              |
| Subtotal (G) = B+C+D+E+F                                              |           |                               |          |                        |       |          |       |                       |              |             |                          | 465,000                 | 433,000              |
| DIRECT SUBCONTRACT CAPITAL COSTS                                      |           |                               |          |                        |       |          |       |                       |              |             |                          |                         |                      |
| H - Cement-Based Solidification                                       | LS        | 2                             | --       | 3.35                   | /BCY  | 31,000   | BCY   | 1.000                 | 1.000        |             | 119,000                  | 119,000                 | 113,000              |
| A - Incineration                                                      | A         | 1                             | 2        | 36.37                  | /BCY  | 12       | BCY   | 1.000                 | 1.000        |             | 500                      | 500                     | 500                  |
| Subtotal (A1)                                                         |           |                               |          |                        |       |          |       |                       |              |             |                          | 119,000                 | 113,000              |
| INDIRECT SUBCONTRACT CAPITAL COSTS                                    |           |                               |          |                        |       |          |       |                       |              |             |                          |                         |                      |
| COST CODE: C                                                          |           |                               |          |                        |       |          |       |                       |              |             |                          |                         |                      |
| Mod/Demob                                                             | 2.0%      | B1 = 0.020 * (A1)             |          |                        |       |          |       |                       |              |             |                          | 2,000                   | 2,000                |
| Contractor Markup                                                     | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |                       |              |             |                          | 12,000                  | 12,000               |
| Engineering Design                                                    | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |                        |       |          |       |                       |              |             |                          | 12,000                  | 11,000               |
| Resident Engineering                                                  | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |                        |       |          |       |                       |              |             |                          | 4,000                   | 4,000                |
| Contingency                                                           | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |                       |              |             |                          | 45,000                  | 43,000               |
| Subtotal (G1) = B1+C1+D1+E1+F1                                        |           |                               |          |                        |       |          |       |                       |              |             |                          | 75,000                  | 72,000               |
| TOTAL CAPITAL COSTS (H + A+G+A1+G1)                                   |           |                               |          |                        |       |          |       |                       |              |             |                          | 1,182,000               | 1,106,000            |

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Table B4.23-10 Cost Estimate - Undifferentiated Medium Group - Burial Trenches Subgroup  
Alternative 10: Direct Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                | Cost Type | Start Year | End Year | Unit Cost (\$) | Quantit | Units     | Volume Mileage Factor | Other Factor | Description  | Annual Cost | 1995 (\$) | 1995 (\$) | PW Cost |
|--------------------------------------------------------------------------|-----------|------------|----------|----------------|---------|-----------|-----------------------|--------------|--------------|-------------|-----------|-----------|---------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                 |           |            |          |                |         |           |                       |              |              |             |           |           |         |
| H - Soil Excavation                                                      | LS        | 3          | --       | 3.91           | 31,000  | /BCY      | 1.00                  | 1.00         | Productivity | 122,763     | 180,000   | 180,000   | 163,000 |
| H - Transportation of Contaminated Soil to Solidification Facility       | A         | 3          | 5        | 1.07           | 31,000  | /BCY-MILE | 1.00                  | 1.00         | Productivity | 33,170      | 172,000   | 172,000   | 149,000 |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill           | A         | 3          | 5        | 1.28           | 31,000  | /BCY      | 1.00                  | 1.00         | Productivity | 39,680      | 54,000    | 54,000    | 47,000  |
| H - Transportation of Treated Soil to Backfill Excavation                | A         | 3          | 5        | 0.86           | 31,000  | /BCY-MILE | 1.00                  | 1.00         | Productivity | 26,660      | 128,000   | 128,000   | 110,000 |
| H - Backfill with Treated Soil                                           | A         | 3          | 5        | 1.72           | 31,000  | /BCY      | 1.00                  | 1.00         | Productivity | 53,120      | 73,000    | 73,000    | 63,000  |
| H - Soil Cover for Solidified Materials                                  | A         | 3          | 5        | 9.14           | 43,000  | /SY       | 1.00                  | 1.00         | Productivity | 393,020     | 448,000   | 448,000   | 388,000 |
| H - Revetement of Disturbed Areas                                        | A         | 3          | 5        | 0.18           | 43,000  | /SY       | 1.00                  | 1.00         | Disturbance  | 7,740       | 10,000    | 10,000    | 8,000   |
| B - Soil Excavation                                                      | LS        | 3          | --       | 3.91           | 130     | /BCY      | 1.00                  | 1.00         | Productivity | 508         | 1,000     | 1,000     | 1,000   |
| B - Transportation of Contaminated Soil to On-Post Hazardous Waste Land  | A         | 3          | --       | 1.07           | 130     | /BCY-MILE | 1.00                  | 1.00         | Productivity | 139         | 200       | 200       | 200     |
| B - On-Post Hazardous Waste Landfill                                     | LS        | 3          | --       | 4.07           | 130     | /BCY      | 1.00                  | 1.00         | Productivity | 529         | 1,000     | 1,000     | 1,000   |
| B - Excavation of Borrow Material                                        | LS        | 3          | --       | 1.89           | 130     | /BCY      | 1.00                  | 1.00         | Productivity | 245         | 300       | 300       | 300     |
| B - Transportation of Borrow Material to Backfill Area                   | LS        | 3          | --       | 0.86           | 130     | /BCY-MILE | 1.00                  | 1.00         | Productivity | 112         | 200       | 200       | 200     |
| B - Backfill with Borrow Material                                        | LS        | 3          | --       | 1.72           | 130     | /BCY      | 1.00                  | 1.00         | Productivity | 223         | 300       | 300       | 300     |
| B - Installation of 6 Inches of Topsoil                                  | LS        | 3          | --       | 3.24           | 80      | /SY       | 1.00                  | 1.00         | Productivity | 259         | 300       | 300       | 300     |
| B - Revetement of Disturbed Areas                                        | LS        | 3          | --       | 0.18           | 80      | /SY       | 1.00                  | 1.00         | Disturbance  | 14          | 20        | 20        | 20      |
| A - Drilling and Agent Screening Prior to Excavation                     | LS        | 3          | --       | 4.89           | 7,100   | /SY       | 1.00                  | 1.00         | Productivity | 34,713      | 40,000    | 40,000    | 36,000  |
| A - Excavation of Soil with Agent                                        | LS        | 3          | --       | 4.55           | 12      | /BCY      | 1.00                  | 1.00         | Productivity | 54          | 100       | 100       | 100     |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility | A         | 3          | --       | 1.07           | 12      | /BCY-MILE | 1.00                  | 1.00         | Productivity | 12          | 2         | 2         | 2       |
| A - Load Treated Soil for Transport to Hazardous Waste Landfill          | LS        | 3          | --       | 1.55           | 1       | /BCY      | 1.00                  | 1.00         | Productivity | 1           | 1         | 1         | 1       |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill   | LS        | 3          | --       | 1.07           | 1       | /BCY-MILE | 1.00                  | 1.00         | Productivity | 1           | 1         | 1         | 1       |
| A - On-Post Hazardous Waste Landfill (Particulates)                      | LS        | 3          | --       | 4.07           | 12      | /BCY      | 1.00                  | 1.00         | Productivity | 48          | 5         | 5         | 4       |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill           | LS        | 3          | --       | 1.28           | 12      | /BCY      | 1.00                  | 1.00         | Productivity | 15          | 20        | 20        | 20      |
| A - Transportation of Treated Soil to Backfill Excavation                | LS        | 3          | --       | 0.86           | 12      | /BCY-MILE | 1.00                  | 1.00         | Productivity | 10          | 40        | 40        | 40      |
| A - Backfill with Treated Soil                                           | LS        | 3          | --       | 1.72           | 12      | /BCY      | 1.00                  | 1.00         | Productivity | 20          | 20        | 20        | 20      |
| U - UXO Clearance by Geophysics                                          | LS        | 2          | --       | 0.85           | 170,000 | /SY       | 1.00                  | 1.00         | Productivity | 142,500     | 165,000   | 165,000   | 157,000 |
| U - Removal of Soil with UXO                                             | LS        | 3          | --       | 70.57          | 550     | /BCY      | 1.00                  | 1.00         | Productivity | 38,813      | 44,000    | 44,000    | 40,000  |
| U - Excavation of Debris from Surface Soil                               | LS        | 3          | --       | 3.91           | 57,000  | /BCY      | 1.00                  | 1.00         | Productivity | 221,169     | 331,000   | 331,000   | 300,000 |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Land  | LS        | 3          | --       | 0.71           | 57,000  | /BCY-MILE | 1.00                  | 1.00         | Productivity | 40,323      | 150,000   | 150,000   | 136,000 |
| U - On-Post Solid Waste Landfill                                         | LS        | 3          | --       | 4.07           | 57,000  | /BCY      | 1.00                  | 1.00         | Productivity | 231,969     | 285,000   | 285,000   | 240,000 |
| U - Installation of 6 Inches of Topsoil                                  | LS        | 3          | --       | 3.24           | 110,000 | /SY       | 1.00                  | 1.00         | Productivity | 356,400     | 407,000   | 407,000   | 369,000 |
| U - Revetement of Disturbed Areas                                        | LS        | 3          | --       | 0.18           | 110,000 | /SY       | 1.00                  | 1.00         | Disturbance  | 19,800      | 25,000    | 25,000    | 23,000  |
| Subtotal (f)                                                             |           |            |          |                |         |           |                       |              |              |             | 2,484,000 | 2,232,000 |         |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                               |           |            |          |                |         |           |                       |              |              |             |           |           |         |
| Mob/Demob                                                                |           |            |          | 5.1%           |         |           |                       |              |              |             | 126,000   | 114,000   |         |
| Indirects, Overhead & Profit                                             |           |            |          | 40.3%          |         |           |                       |              |              |             | 1,055,000 | 944,000   |         |
| Engineering Design                                                       |           |            |          | 1.5%           |         |           |                       |              |              |             | 55,000    | 49,000    |         |
| Resident Engineering                                                     |           |            |          | 2.0%           |         |           |                       |              |              |             | 74,000    | 66,000    |         |
| Contingency                                                              |           |            |          | 31.3%          |         |           |                       |              |              |             | 1,188,000 | 1,064,000 |         |
| Subtotal (O = J+K+L+M+N)                                                 |           |            |          |                |         |           |                       |              |              |             | 2,501,000 | 2,238,000 |         |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                     |           |            |          |                |         |           |                       |              |              |             |           |           |         |
| H - Cement-Based Solidification                                          | A         | 3          | 5        | 70.10          | 31,000  | /BCY      | 1.00                  | 1.00         | Productivity | 2,173,100   | 2,480,000 | 2,144,000 |         |
| A - Incineration                                                         | LS        | 3          | --       | 96.24          | 12      | /BCY      | 1.00                  | 1.00         | Productivity | 1,155       | 1,000     | 1,000     |         |
| U - Packaging and Transportation of HE Filled Used to Army Off-Post Fac  | LS        | 3          | --       | 59.50          | 550     | /BCY      | 1.00                  | 1.00         | Productivity | 32,725      | 37,000    | 34,000    |         |
| Subtotal (f)                                                             |           |            |          |                |         |           |                       |              |              |             | 2,519,000 | 2,179,000 |         |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |                |         |           |                       |              |              |             |           |           |         |
| Mob/Demob                                                                |           |            |          | 0.0%           |         |           |                       |              |              |             | 0         | 0         |         |
| Contractor Markup                                                        |           |            |          | 10.0%          |         |           |                       |              |              |             | 252,000   | 218,000   |         |
| Engineering Design                                                       |           |            |          | 0.0%           |         |           |                       |              |              |             | 0         | 0         |         |
| Resident Engineering                                                     |           |            |          | 2.0%           |         |           |                       |              |              |             | 55,000    | 48,000    |         |
| Contingency                                                              |           |            |          | 40.0%          |         |           |                       |              |              |             | 1,130,000 | 978,000   |         |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                           |           |            |          |                |         |           |                       |              |              |             | 1,438,000 | 1,244,000 |         |
| TOTAL O&M COSTS (OPERATIONS) (OO = f+O1+O2)                              |           |            |          |                |         |           |                       |              |              |             | 8,951,000 | 7,893,000 |         |

Table B4.23-10 Cost Estimate - Undifferentiated Medium Group - Burial Trenches Subgroup  
Alternative 10: Direct Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | Unit Cost | Units   | Quantity | Units | Volume Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|---------|----------|-------|-----------------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |           |         |          |       |                       |              |             |                          |                         |                      |
| H - Long Term Monitoring of Solidified Soil                                                             | A         | 5          | 30       | 0.25      | /SY-YR  | 43,000   | SY    | 1,000                 | 1,000        | 1,000       | 12,000                   | 318,000                 | 152,000              |
| H - Site Reviews                                                                                        | A         | 5          | 30       | 5,400.00  | /EA-YR  | 1        | EA    | 1,000                 | 1,000        | 1,000       | 6,000                    | 160,000                 | 77,000               |
| B - On-Post Hazardous Waste Landfill Closure                                                            | A         | 3          | 30       | 0.13      | /BCY-YR | 130      | BCY   | 1,000                 | 1,000        | 1,000       | 20                       | 1,000                   | 300                  |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 3          | 30       | 0.13      | /BCY-YR | 1        | BCY   | 1,000                 | 1,000        | 1,000       | 0                        | 4                       | 2                    |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                                   | A         | 3          | 30       | 0.13      | /BCY-YR | 57,000   | BCY   | 1,000                 | 1,000        | 1,000       | 8,000                    | 237,000                 | 120,000              |
| Subtotal (P)                                                                                            |           |            |          |           |         |          |       |                       |              |             | 27,000                   | 718,000                 | 349,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |           |         |          |       |                       |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                                         |           |            |          |           |         |          |       |                       |              |             | 10,000                   | 278,000                 | 136,000              |
| Indirects, Overhead & Profit 38.0% Q = 0.380 * (P)                                                      |           |            |          |           |         |          |       |                       |              |             | 11,000                   | 289,000                 | 146,000              |
| Contingency 30.0% R = 0.300 * (P+Q)                                                                     |           |            |          |           |         |          |       |                       |              |             | 22,000                   | 578,000                 | 282,000              |
| Subtotal (S = Q+R)                                                                                      |           |            |          |           |         |          |       |                       |              |             | 49,000                   | 1,295,000               | 631,000              |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |           |         |          |       |                       |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |           |         |          |       |                       |              |             | 11,400,000               | 9,630,000               |                      |

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| Cost Item                                                             | Cost Type       | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------|-----------------|-------------------------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT CAPITAL COSTS</b>                                           |                 |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| U - On-Post Solid Waste Landfill                                      | LS              | 1                             | --       | 7.08                   | /BCY  | 90,000   | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 727,000                 | 727,000              |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS              | 2                             | --       | 4.72                   | /BCY  | 90,000   | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 485,000                 | 485,000              |
| Subtotal (A)                                                          |                 |                               |          |                        |       |          |       |               |                |              |             |                          | 1,212,000               | 1,189,000            |
| <b>INDIRECT CAPITAL COSTS</b>                                         |                 |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                             | COST CODE: L1SS |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                          | 3.3%            | B = 0.033 * (A)               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                    | 36.0%           | C = 0.360 * (A+B)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                  | 3.0%            | D = 0.030 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                           | 1.3%            | E = 0.013 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                                                       | 28.3%           | F = 0.283 * (A+B+C+D+E)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                              |                 |                               |          |                        |       |          |       |               |                |              |             |                          | 1,077,000               | 1,057,000            |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                               |                 |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (A1)                                                         |                 |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                             |                 |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                             | COST CODE: E    |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                                     | 0.0%            | B1 = 0.000 * (A1)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                    | 0.0%            | C1 = 0.000 * (A1+B1)          |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                  | 0.0%            | D1 = 0.000 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                           | 30.0%           | E1 = 0.000 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
|                                                                       |                 | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                        |                 |                               |          |                        |       |          |       |               |                |              |             |                          | 0                       | 0                    |
| <b>TOTAL CAPITAL COSTS (H1 = A+G+AI+GI)</b>                           |                 |                               |          |                        |       |          |       |               |                |              |             |                          | 2,289,000               | 2,246,000            |
| M: U4 W01                                                             |                 |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| SOILS DAA                                                             |                 |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

Table B5.M1-U4a RESIZED ALTERNATIVE - Cost Estimate - Munitions Testing Medium Group  
Alternative U4a: Detonation (Off-Post Army Facility)

| Cost Item                                                                    | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$) | 1995 (\$) | PW Cost   |
|------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|--------------|-----------|-----------|-----------|
| DIRECT O&M COSTS (OPERATIONS)                                                |           |            |          |           |           |          |       |               |                |              |              |           |           |           |
| U - UXO Clearance by Geophysics                                              | LS        | 2          | --       | 0.85      | /SY       | 270,000  | SY    | 1.000         | 1.000          | 1.000        |              | 282,000   |           | 248,000   |
| U - Removal of Soil with UXO                                                 | LS        | 2          | --       | 70.57     | /BCY      | 450      | BCY   | 1.000         | 1.000          | 1.000        |              | 36,000    |           | 35,000    |
| U - Excavation of Debris from Surface Soil                                   | LS        | 2          | --       | 3.91      | /BCY      | 90,000   | BCY   | 1.000         | 1.000          | 1.300        | Productivity | 522,000   |           | 497,000   |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill  | LS        | 2          | --       | 0.71      | /BCY-MILE | 90,000   | BCY   | 1.000         | 3.000          | 1.300        | Productivity | 284,000   |           | 271,000   |
| U - On-Post Solid Waste Landfill                                             | LS        | 2          | --       | 3.93      | /BCY      | 90,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 404,000   |           | 384,000   |
| U - Installation of 6 Inches of Topsoil                                      | LS        | 2          | --       | 3.24      | /SY       | 270,000  | SY    | 1.000         | 1.000          | 1.000        |              | 998,000   |           | 951,000   |
| U - Revegetation of Disturbed Areas                                          | LS        | 2          | --       | 0.18      | /SY       | 270,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance  | 61,000    |           | 58,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 2,588,000 |           | 2,445,000 |
| INDIRECT O&M COSTS (OPERATIONS)                                              |           |            |          |           |           |          |       |               |                |              |              |           |           |           |
| Mod/Demob                                                                    |           |            |          | 4.5%      |           |          |       |               |                |              |              |           |           |           |
| Indirects, Overhead & Profit                                                 |           |            |          | 39.0%     |           |          |       |               |                |              |              |           |           |           |
| Engineering Design                                                           |           |            |          | 1.5%      |           |          |       |               |                |              |              |           |           |           |
| Resident Engineering                                                         |           |            |          | 1.8%      |           |          |       |               |                |              |              |           |           |           |
| Contingency                                                                  |           |            |          | 28.8%     |           |          |       |               |                |              |              |           |           |           |
| Subtotal (O = J+K+L+M+N)                                                     |           |            |          |           |           |          |       |               |                |              |              | 116,000   |           | 110,000   |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 1,046,000 |           | 997,000   |
| Subtotal (O)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 56,000    |           | 53,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 65,000    |           | 62,000    |
| Subtotal (O = J+K+L+M+N)                                                     |           |            |          |           |           |          |       |               |                |              |              | 1,107,000 |           | 1,054,000 |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 2,390,000 |           | 2,278,000 |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                    |           |            |          |           |           |          |       |               |                |              |              |           |           |           |
| U - Packaging and Transportation of IIE Filled UXO to Army Off-Post Facility | LS        | 2          | --       | 59.50     | /BCY      | 450      | BCY   | 1.000         | 1.000          | 1.000        |              | 31,000    |           | 28,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                  |           |            |          |           |           |          |       |               |                |              |              |           |           |           |
| Mod/Demob                                                                    |           |            |          | 0.0%      |           |          |       |               |                |              |              | 0         |           | 0         |
| Contractor Markup                                                            |           |            |          | 0.0%      |           |          |       |               |                |              |              | 0         |           | 0         |
| Engineering Design                                                           |           |            |          | 0.0%      |           |          |       |               |                |              |              | 0         |           | 0         |
| Resident Engineering                                                         |           |            |          | 0.0%      |           |          |       |               |                |              |              | 0         |           | 0         |
| Contingency                                                                  |           |            |          | 30.0%     |           |          |       |               |                |              |              | 9,000     |           | 9,000     |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                               |           |            |          |           |           |          |       |               |                |              |              | 9,000     |           | 9,000     |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                               |           |            |          |           |           |          |       |               |                |              |              | 9,000     |           | 9,000     |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
| Subtotal (I)                                                                 |           |            |          |           |           |          |       |               |                |              |              | 31,000    |           | 29,000    |
|                                                                              |           |            |          |           |           |          |       |               |                |              |              |           |           |           |

Table B5.M1-U4a RESIZED ALTERNATIVE - Cost Estimate - Munitions Testing Medium Group  
Alternative U4a: Detonation (Off-Post Army Facility)

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                                  | A         | 2          | 30       | 0.13                   | /BCY-YR | 90,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 13,000                   | 387,000                 | 202,000              |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                           |           |            |          |                        |         |          |       |               |                |              |             | 5,000                    | 151,000                 | 79,000               |
| Contingency                                                                                            |           |            |          |                        |         |          |       |               |                |              |             | 6,000                    | 161,000                 | 84,000               |
| <b>Subtotal (S = O+P)</b>                                                                              |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (U)</b>                                                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (U)</b>                                                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |

M-U1.W01  
SOILS DATA

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Table B5.A1-A4  
RESIZED ALTERNATIVE - Cost Estimate - Agent Storage Medium Group - North Plants Subgroup  
Alternative A4: Incineration/Pyrolysis (Rotary Kiln)

| Cost Item                                                                    | Cost Type | Start Year | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | Annual Cost | 1995 (\$) | Total Cost | 1995 (\$) | PW Cost |
|------------------------------------------------------------------------------|-----------|------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-------------|-----------|------------|-----------|---------|
| <b>DIRECT CAPITAL COSTS</b>                                                  |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| A - On-Post Hazardous Waste Landfill (Isolated Exceedances and Particulates) | LS        | 2          | --       | 7.08      | /BCY  | 610      | BCY   | 1.000         | 1.000          | 1.000        |             | 5,000     |             | 5,000     |            | 5,000     |         |
| A - On-Post Hazardous Waste Landfill Closure                                 | LS        | 3          | --       | 4.72      | /BCY  | 610      | BCY   | 1.000         | 1.000          | 1.000        |             | 3,000     |             | 3,000     |            | 3,000     |         |
| <b>Subtotal (A)</b>                                                          |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>INDIRECT CAPITAL COSTS</b>                                                |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>COST CODE: LUSS</b>                                                       |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Mob/Demob                                                                    |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Indirects, Overhead & Profit                                                 |           |            |          |           |       |          |       |               |                |              |             | 300       |             | 300       |            | 200       |         |
| Engineering Design                                                           |           |            |          |           |       |          |       |               |                |              |             | 3,000     |             | 3,000     |            | 3,000     |         |
| Resident Engineering                                                         |           |            |          |           |       |          |       |               |                |              |             | 400       |             | 400       |            | 300       |         |
| Contingency                                                                  |           |            |          |           |       |          |       |               |                |              |             | 100       |             | 100       |            | 100       |         |
|                                                                              |           |            |          |           |       |          |       |               |                |              |             | 3,000     |             | 3,000     |            | 3,000     |         |
| <b>Subtotal (G = B+C+D+E+F)</b>                                              |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                                      |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| A - Incineration                                                             | A         | 1          | 2        | 72.34     | /BCY  | 63       | BCY   | 1.000         | 1.000          | 1.000        |             | 5,000     |             | 5,000     |            | 5,000     |         |
| <b>Subtotal (A1)</b>                                                         |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                                    |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>COST CODE: C</b>                                                          |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Mob/Demob                                                                    |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| Contractor Markup                                                            |           |            |          |           |       |          |       |               |                |              |             | 100       |             | 100       |            | 100       |         |
| Engineering Design                                                           |           |            |          |           |       |          |       |               |                |              |             | 1,000     |             | 1,000     |            | 1,000     |         |
| Resident Engineering                                                         |           |            |          |           |       |          |       |               |                |              |             | 200       |             | 200       |            | 200       |         |
| Contingency                                                                  |           |            |          |           |       |          |       |               |                |              |             | 2,000     |             | 2,000     |            | 2,000     |         |
|                                                                              |           |            |          |           |       |          |       |               |                |              |             | 3,000     |             | 3,000     |            | 3,000     |         |
| <b>Subtotal (G1 = B1+C1+D1+E1+F1)</b>                                        |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>                                   |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>Subtotal</b>                                                              |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |
| <b>24,000</b>                                                                |           |            |          |           |       |          |       |               |                |              |             |           |             |           |            |           |         |



Table B5.A1-A4 RESIZED ALTERNATIVE - Cost Estimate - Agent Storage Medium Group - North Plants Subgroup  
Alternative A4: Incineration/Pyrolysis (Rotary Kiln)

| Cost Item                                                                    | Cost Type | Start Year | End Year | 1992 (\$) | Units                        | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |
|------------------------------------------------------------------------------|-----------|------------|----------|-----------|------------------------------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|---------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                     |           |            |          |           |                              |          |       |               |                |              |             |           |           |           |         |
| A - Drilling and Agent Screening Prior to Excavation                         | LS        | 2          | --       | 4.89      | /BCY                         | 28,000   | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 156,000   | 148,000   |           |         |
| A - Excavation of Soil with Agent and Isolated Exceedances                   | LS        | 3          | --       | 4.55      | /BCY                         | 670      | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 3,000     | 3,000     |           |         |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility     | LS        | 3          | --       | 1.07      | /BCY-MILE                    | 63       | BCY   | 1.000         | 2.000          | 1.000        | 1.000       | 200       | 200       |           |         |
| A - Load Treated Soil for Transport to Hazardous Landfill                    | LS        | 3          | --       | 1.55      | /BCY                         | 610      | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 1,000     | 1,000     |           |         |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill       | LS        | 3          | --       | 1.07      | /BCY-MILE                    | 610      | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 1,000     | 1,000     |           |         |
| A - On-Post Hazardous Waste Landfill (Isolated Exceedances and Particulates) | LS        | 3          | --       | 3.93      | /BCY                         | 510      | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 3,000     | 2,000     |           |         |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill               | LS        | 3          | --       | 1.28      | /BCY                         | 610      | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 1,000     | 1,000     |           |         |
| A - Transportation of Treated Soil to Backfill Excavation                    | LS        | 3          | --       | 0.86      | /BCY-MILE                    | 63       | BCY   | 1.000         | 2.000          | 1.000        | 1.000       | 100       | 100       |           |         |
| A - Backfill with Treated Soil                                               | LS        | 3          | --       | 1.72      | /BCY                         | 63       | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 100       | 100       |           |         |
| A - Excavation of Borrow Material                                            | LS        | 3          | --       | 1.89      | /BCY                         | 610      | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 1,000     | 1,000     |           |         |
| A - Transportation of Borrow Material to Backfill Area                       | LS        | 3          | --       | 0.86      | /BCY-MILE                    | 610      | BCY   | 1.000         | 1.500          | 1.000        | 1.000       | 1,000     | 1,000     |           |         |
| A - Backfill with Borrow Material                                            | LS        | 3          | --       | 1.72      | /BCY                         | 610      | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 1,000     | 1,000     |           |         |
| A - Installation of 6 Inches of Topsoil                                      | LS        | 3          | --       | 3.24      | /SY                          | 1,960    | SY    | 1.000         | 1.000          | 1.000        | 1.000       | 7,000     | 7,000     |           |         |
| A - Revegetation of Disturbed Areas                                          | LS        | 3          | --       | 0.18      | /SY                          | 1,960    | SY    | 1.000         | 1.000          | 1.100        | Disturbance | 400       | 400       |           |         |
| Subtotal (f)                                                                 |           |            |          |           |                              |          |       |               |                |              |             | 177,000   | 167,000   |           |         |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                   |           |            |          |           |                              |          |       |               |                |              |             |           |           |           |         |
| Mod/Demob                                                                    |           |            |          | 4.5%      | J = 0.045 * (f)              |          |       |               |                |              |             | 8,000     | 8,000     |           |         |
| Indirects, Overhead & Profit                                                 |           |            |          | 41.5%     | K = 0.415 * (f+J)            |          |       |               |                |              |             | 77,000    | 73,000    |           |         |
| Engineering Design                                                           |           |            |          | 0.5%      | L = 0.005 * (f+J+K)          |          |       |               |                |              |             | 1,000     | 1,000     |           |         |
| Resident Engineering                                                         |           |            |          | 1.8%      | M = 0.018 * (f+J+K)          |          |       |               |                |              |             | 5,000     | 4,000     |           |         |
| Contingency                                                                  |           |            |          | 30.0%     | N = 0.300 * (f+J+K+L+M)      |          |       |               |                |              |             | 80,000    | 76,000    |           |         |
| Subtotal (G) = J+K+L+M+N                                                     |           |            |          |           |                              |          |       |               |                |              |             | 171,000   | 162,000   |           |         |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                         |           |            |          |           |                              |          |       |               |                |              |             |           |           |           |         |
| A - Incineration                                                             | LS        | 3          | --       | 201.09    | /BCY                         | 63       | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 14,000    | 13,000    |           |         |
| Subtotal (H)                                                                 |           |            |          |           |                              |          |       |               |                |              |             | 14,000    | 13,000    |           |         |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                       |           |            |          |           |                              |          |       |               |                |              |             |           |           |           |         |
| Mod/Demob                                                                    |           |            |          | 0.0%      | J1 = 0.000 * (H)             |          |       |               |                |              |             | 0         | 0         |           |         |
| Contractor Markup                                                            |           |            |          | 10.0%     | K1 = 0.100 * (H+J1)          |          |       |               |                |              |             | 1,000     | 1,000     |           |         |
| Engineering Design                                                           |           |            |          | 0.0%      | L1 = 0.000 * (H+J1+K1)       |          |       |               |                |              |             | 0         | 0         |           |         |
| Resident Engineering                                                         |           |            |          | 2.0%      | M1 = 0.020 * (H+J1+K1)       |          |       |               |                |              |             | 300       | 300       |           |         |
| Contingency                                                                  |           |            |          | 40.0%     | N1 = 0.400 * (H+J1+K1+L1+M1) |          |       |               |                |              |             | 6,000     | 6,000     |           |         |
| Subtotal (O1) = J1+K1+L1+M1+N1                                               |           |            |          |           |                              |          |       |               |                |              |             | 8,000     | 7,000     |           |         |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = f+G+H+O1)</b>                      |           |            |          |           |                              |          |       |               |                |              |             | 370,000   | 350,000   |           |         |

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| Cost Item                                                                                | Cost Type | Start Year | End Year | 1992 (\$) | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |
|------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|---------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|---------|
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                  |           |            |          |           |         |          |       |               |                |              |             |           |           |           |         |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                              | A         | 3          | 30       | 0.13      | /BCY-YR | 610      | BCY   | 1.000         | 1.000          | 1.000        |             | 100       | 3,000     | 1,000     | 1,000   |
| Subtotal (P)                                                                             |           |            |          |           |         |          |       |               |                |              |             | 100       | 3,000     | 1,000     | 1,000   |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                |           |            |          |           |         |          |       |               |                |              |             |           |           |           |         |
| Indirects, Overhead & Profit                                                             |           |            |          |           |         |          |       |               |                |              |             | 40        | 1,000     | 1,000     | 1,000   |
| Contingency                                                                              |           |            |          |           |         |          |       |               |                |              |             | 40        | 1,000     | 1,000     | 1,000   |
| Subtotal (S = O+P)                                                                       |           |            |          |           |         |          |       |               |                |              |             | 100       | 2,000     | 1,000     | 1,000   |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                         |           |            |          |           |         |          |       |               |                |              |             | 200       | 5,000     | 2,000     | 2,000   |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (OPERATIONS & LONG-TERM ACTIVITIES) (U = H+OO+T) |           |            |          |           |         |          |       |               |                |              |             |           |           |           |         |
|                                                                                          |           |            |          |           |         |          |       |               |                |              |             |           | 399,000   | 375,000   |         |

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Table B5.A2-A4 RESIZED ALTERNATIVE - Cost Estimate - Agent Storage Medium Group - Tonic Storage Yards Subgroup  
Alternative A4: Incineration/Pyrolysis (Rotary Kiln)

| Cost Item                                                                            | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                                                 |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| A - On-Post Hazardous Waste Landfill (Isolated Exceedances and Particulates)         | LS        | 2                             | --       | 7.08                   | /BCY  | 270      | BCY   | 1.000         | 1.000          | 1.000        |             | 2,000                    | 2,000                   | 2,000                |
| A - On-Post Hazardous Waste Landfill Closure (Isolated Exceedances and Particulates) | LS        | 3                             | --       | 4.72                   | /BCY  | 220      | BCY   | 1.000         | 1.000          | 1.000        |             | 1,000                    | 1,000                   | 1,000                |
| Subtotal (A)                                                                         |           |                               |          |                        |       |          |       |               |                |              |             | 3,000                    | 3,000                   | 3,000                |
| INDIRECT CAPITAL COSTS                                                               |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSS                                                                      |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                                            | 3.3%      | B = 0.033 * (A)               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                         | 39.0%     | C = 0.390 * (A+B)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                                   | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                                 | 1.3%      | E = 0.013 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                          | 28.3%     | F = 0.283 * (A+B+C+D+E)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                                             |           |                               |          |                        |       |          |       |               |                |              |             | 3,000                    | 3,000                   | 2,000                |
| DIRECT SUBCONTRACT CAPITAL COSTS                                                     |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| A - Incineration                                                                     | A         | 1                             | 2        | 72.34                  | /BCY  | 450      | BCY   | 1.000         | 1.000          | 1.000        |             | 37,000                   | 37,000                  | 36,000               |
| Subtotal (A1)                                                                        |           |                               |          |                        |       |          |       |               |                |              |             | 37,000                   | 37,000                  | 36,000               |
| INDIRECT SUBCONTRACT CAPITAL COSTS                                                   |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: C                                                                         |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                                            | 2.0%      | B1 = 0.020 * (A1)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                                                    | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                                   | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                                 | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                          | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                                       |           |                               |          |                        |       |          |       |               |                |              |             | 24,000                   | 24,000                  | 23,000               |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                                                  |           |                               |          |                        |       |          |       |               |                |              |             | 88,000                   | 88,000                  | 84,000               |

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Table B5.A2-A4 RESIZED ALTERNATIVE - Cost Estimate - Agent Storage Medium Group - Toxic Storage Yards Subgroup  
Alternative A4: Incineration/Pyrolysis (Rotary Klin)

| Cost Item                                                                 | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units                         | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------|-----------|------------|----------|------------------------|-------------------------------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |            |          |                        |                               |          |       |               |                |              |             |                          |                         |                      |
| A - Drilling and Agent Screening Prior to Excavation                      | LS        | 2          | --       | 4.89                   | /SY                           | 270,000  | SY    | 1.000         | 1.000          | 1.000        |             | 1,507,000                | 1,507,000               | 1,436,000            |
| A - Excavation of Soil with Agent                                         | LS        | 3          | --       | 4.55                   | /BCY                          | 660      | BCY   | 1.000         | 1.000          | 1.000        |             | 3,000                    | 3,000                   | 3,000                |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility  | LS        | 3          | --       | 1.07                   | /BCY-MILE                     | 450      | BCY   | 1.000         | 2.500          | 1.000        |             | 1,000                    | 1,000                   | 1,000                |
| A - Load Treated Soil for Transport to Hazardous Landfill                 | LS        | 3          | --       | 1.55                   | /BCY                          | 450      | BCY   | 1.000         | 1.000          | 1.000        |             | 1,000                    | 1,000                   | 1,000                |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill    | LS        | 3          | --       | 1.07                   | /BCY-MILE                     | 220      | BCY   | 1.000         | 1.000          | 1.000        |             | 300                      | 300                     | 200                  |
| A - On-Post Hazardous Waste Landfill (Isolated Excesses and Particulates) | LS        | 3          | --       | 3.93                   | /BCY                          | 220      | BCY   | 1.000         | 1.000          | 1.000        |             | 1,000                    | 1,000                   | 1,000                |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill            | LS        | 3          | --       | 1.28                   | /BCY                          | 220      | BCY   | 1.000         | 1.000          | 1.000        |             | 300                      | 300                     | 300                  |
| A - Transportation of Treated Soil to Backfill Excavation                 | LS        | 3          | --       | 0.86                   | /BCY-MILE                     | 450      | BCY   | 1.000         | 2.500          | 1.000        |             | 1,000                    | 1,000                   | 1,000                |
| A - Backfill with Treated Soil                                            | LS        | 3          | --       | 1.72                   | /BCY                          | 450      | BCY   | 1.000         | 1.000          | 1.000        |             | 1,000                    | 1,000                   | 1,000                |
| A - Excavation of Borrow Material                                         | LS        | 3          | --       | 1.89                   | /BCY                          | 220      | BCY   | 1.000         | 1.000          | 1.000        |             | 500                      | 500                     | 400                  |
| A - Transportation of Borrow Material to Backfill Area                    | LS        | 3          | --       | 0.86                   | /BCY-MILE                     | 220      | BCY   | 1.000         | 1.500          | 1.000        |             | 300                      | 300                     | 300                  |
| A - Backfill with Borrow Material                                         | LS        | 3          | --       | 1.72                   | /BCY                          | 220      | BCY   | 1.000         | 1.000          | 1.000        |             | 400                      | 400                     | 400                  |
| A - Installation of 6 Inches of Topsoil                                   | LS        | 3          | --       | 3.24                   | /SY                           | 520      | SY    | 1.000         | 1.000          | 1.000        |             | 2,000                    | 2,000                   | 2,000                |
| A - Revegetation of Disturbed Areas                                       | LS        | 3          | --       | 0.18                   | /SY                           | 520      | SY    | 1.000         | 1.000          | 1.100        | Disturbance | 100                      | 100                     | 100                  |
| Subtotal (I)                                                              |           |            |          |                        |                               |          |       |               |                |              |             | 1,519,000                | 1,446,000               |                      |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                |           |            |          |                        |                               |          |       |               |                |              |             |                          |                         |                      |
| Mobil/Demob                                                               |           |            |          | 4.5%                   | J = 0.045 * (I)               |          |       |               |                |              |             |                          | 68,000                  | 65,000               |
| Indirects, Overhead & Profit                                              |           |            |          | 41.5%                  | K = 0.415 * (I+J)             |          |       |               |                |              |             |                          | 658,000                 | 627,000              |
| Engineering Design                                                        |           |            |          | 0.5%                   | L = 0.005 * (I+J+K)           |          |       |               |                |              |             |                          | 11,000                  | 11,000               |
| Resident Engineering                                                      |           |            |          | 1.8%                   | M = 0.018 * (I+J+K)           |          |       |               |                |              |             |                          | 36,000                  | 37,000               |
| Contingency                                                               |           |            |          | 30.0%                  | N = 0.300 * (I+J+K+L+M)       |          |       |               |                |              |             |                          | 688,000                 | 656,000              |
| Subtotal (O = J+K+L+M+N)                                                  |           |            |          |                        |                               |          |       |               |                |              |             | 1,467,000                | 1,396,000               |                      |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |            |          |                        |                               |          |       |               |                |              |             |                          |                         |                      |
| A - Incineration                                                          | LS        | 3          | --       | 201.09                 | /BCY                          | 450      | BCY   | 1.000         | 1.000          | 1.000        |             | 103,000                  | 103,000                 | 94,000               |
| Subtotal (I1)                                                             |           |            |          |                        |                               |          |       |               |                |              |             | 103,000                  | 84,000                  |                      |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                    |           |            |          |                        |                               |          |       |               |                |              |             |                          |                         |                      |
| Mobil/Demob                                                               |           |            |          | 0.0%                   | J1 = 0.000 * (I1)             |          |       |               |                |              |             |                          | 0                       | 0                    |
| Contractor Markup                                                         |           |            |          | 10.0%                  | K1 = 0.100 * (I1+J1)          |          |       |               |                |              |             |                          | 10,000                  | 8,000                |
| Engineering Design                                                        |           |            |          | 0.0%                   | L1 = 0.000 * (I1+J1+K1)       |          |       |               |                |              |             |                          | 0                       | 0                    |
| Resident Engineering                                                      |           |            |          | 2.0%                   | M1 = 0.020 * (I1+J1+K1)       |          |       |               |                |              |             |                          | 2,000                   | 2,000                |
| Contingency                                                               |           |            |          | 40.0%                  | N1 = 0.400 * (I1+J1+K1+L1+M1) |          |       |               |                |              |             |                          | 46,000                  | 42,000               |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                            |           |            |          |                        |                               |          |       |               |                |              |             | 58,000                   | 53,000                  |                      |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O+I1+O1)                             |           |            |          |                        |                               |          |       |               |                |              |             | 3,148,000                | 2,990,000               |                      |

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| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| A - On Post Hazardous Waste Landfill Closure (Isolated Excesses and Particul                            | A         | 3          | 30       | 0.13                   | /BCY-YR | 220      | BCY   | 1.000         | 1.000          | 1.000        |             | 30                       | 1,000                   | 500                  |
| <b>Subtotal (P)</b>                                                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                            |           |            |          |                        |         |          |       |               |                |              |             | 10                       | 400                     | 200                  |
| Contingency                                                                                             |           |            |          |                        |         |          |       |               |                |              |             | 10                       | 400                     | 200                  |
| <b>Subtotal (S = Q+R)</b>                                                                               |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 3,220,000               | 3,060,000            |

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**Table B5.B2-B9**  
**RESIZED ALTERNATIVE - Cost Estimate - Surficial Soils Medium Group**  
**Alternative B9: In Situ Biological Treatment (Landfarm/Agricultural Practice)**

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Table B5.B2-B9 RESIZED ALTERNATIVE - Cost Estimate - Surficial Soils Medium Group  
Alternative B9: In Situ Biological Treatment (Landfarm/Agricultural Practice)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | Units  | Quantity  | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|--------|-----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |        |           |       |               |                |              |             |                          |                         |                      |
| B - Agricultural Practices                                                                                    | A         | 1          | 4        | /SY    | 5,500,000 | SY    | 1.000         | 1.000          | 1.000        |             | 1,255,000                | 1,255,000               | 1,168,000            |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |        |           |       |               |                |              |             |                          |                         |                      |
| Mobil/Demob                                                                                                   |           |            |          |        |           |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |        |           |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                                                            |           |            |          |        |           |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                                                          |           |            |          |        |           |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                                   |           |            |          |        |           |       |               |                |              |             |                          |                         |                      |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |        |           |       |               |                |              |             |                          |                         |                      |
| B - Long Term Soil Monitoring, Surficial Soils                                                                | A         | 4          | 30       | /EA-YR | 1         | EA    | 1.000         | 1.000          | 1.000        |             | 22,000                   | 585,000                 | 288,000              |
| B - Site Reviews                                                                                              | A         | 4          | 30       | /EA-YR | 1         | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 166,000                 | 82,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |        |           |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |        |           |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                                                   |           |            |          |        |           |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |        |           |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>                                                  |           |            |          |        |           |       |               |                |              |             |                          |                         |                      |

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| Cost Item                            | Cost Type | Start Year | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor             | Description | Annual Cost | 1995 (\$) | Total Cost | 1995 (\$) | PW Cost |
|--------------------------------------|-----------|------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------------------|-------------|-------------|-----------|------------|-----------|---------|
| <b>DIRECT CAPITAL COSTS</b>          |           |            |          |           |       |          |       |               |                |                          |             |             |           |            |           |         |
| <b>INDIRECT CAPITAL COSTS</b>        |           |            |          |           |       |          |       |               |                |                          |             |             |           |            |           |         |
| Mod/Demob                            |           |            |          |           |       |          |       |               |                |                          |             |             |           |            |           |         |
| Indirects, Overhead & Profit         |           |            |          |           |       |          |       |               |                |                          |             |             |           |            |           |         |
| Engineering Design                   |           |            |          |           |       |          |       |               |                |                          |             |             |           |            |           |         |
| Resident Engineering                 |           |            |          |           |       |          |       |               |                |                          |             |             |           |            |           |         |
| Contingency                          |           |            |          |           |       |          |       |               |                |                          |             |             |           |            |           |         |
|                                      |           |            |          |           |       |          |       |               |                | Subtotal (A)             |             | 0           |           | 0          |           |         |
|                                      |           |            |          |           |       |          |       |               |                | COST CODE                |             | LLSS        |           |            |           |         |
|                                      |           |            |          |           |       |          |       |               |                | B = 0.033 * (A)          |             |             |           | 0          |           | 0       |
|                                      |           |            |          |           |       |          |       |               |                | C = 0.390 * (A+B)        |             |             |           | 0          |           | 0       |
|                                      |           |            |          |           |       |          |       |               |                | D = 0.050 * (A+B+C)      |             |             |           | 0          |           | 0       |
|                                      |           |            |          |           |       |          |       |               |                | E = 0.013 * (A+B+C)      |             |             |           | 0          |           | 0       |
|                                      |           |            |          |           |       |          |       |               |                | F = 0.263 * (A+B+C+D+E)  |             |             |           | 0          |           | 0       |
|                                      |           |            |          |           |       |          |       |               |                | Subtotal (G = B+C+D+E+F) |             |             |           | 0          |           | 0       |
| <b>TOTAL CAPITAL COSTS (H = A+G)</b> |           |            |          |           |       |          |       |               |                |                          |             |             |           |            |           |         |
|                                      |           |            |          |           |       |          |       |               |                | Subtotal (H)             |             | 0           |           | 0          |           |         |

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**Table B5.B3-B5a**      **RESIZED ALTERNATIVE - Cost Estimate - Ditches/Drainage Areas Medium Group**  
Alternative B5a: Caps/Covers (Clay/Soil Cap) with Consolidation

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Table B5.1-6f RESIZED ALTERNATIVE - Cost Estimate - Basin A Medium Group  
Alternative 6f: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume: Caps/Covers (Clay/Soil Cap)

| Cost Item                                                   | Cost Type | Start Year | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1992 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |
|-------------------------------------------------------------|-----------|------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|---------|
| <b>DIRECT CAPITAL COSTS</b>                                 |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2          | --       | 7.08      | /BCY  | 46       | BCY   | 1.000         | 1.000          | 1.000        |             |           | 400       | 400       |         |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3          | --       | 4.72      | /BCY  | 46       | BCY   | 1.000         | 1.000          | 1.000        |             |           | 200       | 200       |         |
| <b>Subtotal (A)</b>                                         |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>INDIRECT CAPITAL COSTS</b>                               |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>COST CODE: LSS</b>                                       |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Mob/Demob                                                   |           |            |          |           |       |          |       |               |                |              |             |           | 20        | 20        |         |
| Indirects Overhead & Profit                                 |           |            |          |           |       |          |       |               |                |              |             |           | 200       | 200       |         |
| Engineering Design                                          |           |            |          |           |       |          |       |               |                |              |             |           | 30        | 30        |         |
| Resident Engineering                                        |           |            |          |           |       |          |       |               |                |              |             |           | 10        | 10        |         |
| Contingency                                                 |           |            |          |           |       |          |       |               |                |              |             |           | 200       | 200       |         |
| <b>Subtotal (G = B+C+D+E+F)</b>                             |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                     |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| H - Thermal Desorption (Saturated Soil)                     | A         | 1          | 2        | 34.85     | /BCY  | 4,600    | BCY   | 1.000         | 1.000          | 1.000        |             |           | 183,000   | 179,000   |         |
| <b>Subtotal (A1)</b>                                        |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                   |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>COST CODE: C</b>                                         |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| Mob/Demob                                                   |           |            |          |           |       |          |       |               |                |              |             |           | 4,000     | 4,000     |         |
| Contractor Markup                                           |           |            |          |           |       |          |       |               |                |              |             |           | 18,000    | 18,000    |         |
| Engineering Design                                          |           |            |          |           |       |          |       |               |                |              |             |           | 18,000    | 18,000    |         |
| Resident Engineering                                        |           |            |          |           |       |          |       |               |                |              |             |           | 6,000     | 6,000     |         |
| Contingency                                                 |           |            |          |           |       |          |       |               |                |              |             |           | 68,000    | 67,000    |         |
| <b>Subtotal (G1 = B1+C1+D1+E1+F1)</b>                       |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>                  |           |            |          |           |       |          |       |               |                |              |             |           |           |           |         |
|                                                             |           |            |          |           |       |          |       |               |                |              |             |           | 116,000   | 113,000   |         |
|                                                             |           |            |          |           |       |          |       |               |                |              |             |           | 300,000   | 293,000   |         |

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Table B5.1-6f RESIZED ALTERNATIVE - Cost Estimate - Basin A Medium Group  
Alternative 6f: Direct Thermal Description (Direct Heating) of Principal Threat Volume: Caps/Covers (Clay/Soil Cap)

| Cost Item                                                               | Cost Type | Start Year | End Year | 1992 (\$) | Unit Cost                     | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | Annual Cost | 1995 (\$) | Total Cost | 1995 (\$) | PW Cost    |
|-------------------------------------------------------------------------|-----------|------------|----------|-----------|-------------------------------|-----------|----------|-------|---------------|----------------|--------------|--------------|-------------|-----------|------------|-----------|------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                |           |            |          |           |                               |           |          |       |               |                |              |              |             |           |            |           |            |
| H - Soil Excavation                                                     | LS        | 3          | --       |           | 3.91                          | /BCY      | 4,600    | BCY   | 1.000         | 1.000          | 1.200        | Odor Control |             |           | 25,000     |           | 22,000     |
| H - Transportation of Contaminated Soil to Thermal Description Facility | LS        | 3          | --       |           | 1.07                          | /BCY-MILE | 4,600    | BCY   | 1.000         | 1.250          | 1.000        |              |             |           | 7,000      |           | 6,000      |
| H - Load Treated Soil for Transport to Hazardous Landfill               | LS        | 3          | --       |           | 1.55                          | /BCY      | 46       | BCY   | 1.000         | 1.000          | 1.000        |              |             |           | 100        |           | 100        |
| H - Transportation of Particulates to On-Pad Hazardous Waste Landfill   | LS        | 3          | --       |           | 1.07                          | /BCY-MILE | 46       | BCY   | 1.000         | 1.000          | 1.000        |              |             |           | 100        |           | 100        |
| H - On-Pad Hazardous Waste Landfill (Particulates)                      | LS        | 3          | --       |           | 3.93                          | /BCY      | 46       | BCY   | 1.000         | 1.000          | 1.000        |              |             |           | 200        |           | 200        |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill          | LS        | 3          | --       |           | 1.28                          | /BCY      | 4,600    | BCY   | 1.000         | 1.000          | 1.000        |              |             |           | 7,000      |           | 6,000      |
| H - Transportation of Treated Soil to Backfill Excavation               | LS        | 3          | --       |           | 0.86                          | /BCY-MILE | 4,600    | BCY   | 1.000         | 1.250          | 1.000        |              |             |           | 6,000      |           | 5,000      |
| H - Backfill with Treated Soil                                          | LS        | 3          | --       |           | 1.72                          | /BCY      | 4,600    | BCY   | 1.000         | 1.000          | 1.000        |              |             |           | 8,000      |           | 8,000      |
| HBAU - Subgrade Preparation Prior to Installing Cap/Cover               | LS        | 2          | --       |           | 0.06                          | /SY       | 560,000  | SY    | 1.000         | 1.000          | 1.000        |              |             |           | 36,000     |           | 37,000     |
| HBAU - Installation of Clay/Soil Cap                                    | A         | 3          | 4        |           | 23.30                         | /SY       | 560,000  | SY    | 1.000         | 1.000          | 1.000        |              |             |           | 14,860,000 |           | 13,184,000 |
| HBAU - Revegetation of Disturbed Areas                                  | A         | 3          | 4        |           | 0.18                          | /SY       | 560,000  | SY    | 1.000         | 1.000          | 1.000        | Disturbance  |             |           | 127,000    |           | 112,000    |
| A - Drilling and Agent Screening Prior to Excavation                    | LS        | 2          | --       |           | 4.89                          | /SY       | 17,000   | SY    | 1.000         | 1.000          | 1.000        |              |             |           | 96,000     |           | 80,000     |
| U - UXO Clearance In Surface Soil by Geophysics                         | LS        | 2          | --       |           | 0.24                          | /SY       | 130,000  | SY    | 1.000         | 1.000          | 1.000        |              |             |           | 36,000     |           | 34,000     |
| <b>Subtotal (I)</b>                                                     |           |            |          |           |                               |           |          |       |               |                |              |              |             |           | 15,238,000 |           | 13,505,000 |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                              |           |            |          |           |                               |           |          |       |               |                |              |              |             |           |            |           |            |
| Mob/Demob                                                               |           |            |          | 3.9%      | COST CODE: MLLS               |           |          |       |               |                |              |              |             |           |            |           |            |
| Indirects, Overhead & Profit                                            |           |            |          | 37.8%     | J = 0.038 * (I)               |           |          |       |               |                |              |              |             |           |            |           |            |
| Engineering Design                                                      |           |            |          | 0.5%      | K = 0.378 * (I+J)             |           |          |       |               |                |              |              |             |           |            |           |            |
| Resident Engineering                                                    |           |            |          | 1.5%      | L = 0.005 * (I+J+K)           |           |          |       |               |                |              |              |             |           |            |           |            |
| Contingency                                                             |           |            |          | 27.5%     | M = 0.015 * (I+J+K)           |           |          |       |               |                |              |              |             |           |            |           |            |
|                                                                         |           |            |          |           | N = 0.275 * (I+J+K+L+M)       |           |          |       |               |                |              |              |             |           |            |           |            |
| <b>Subtotal (O) = J+K+L+M+N</b>                                         |           |            |          |           |                               |           |          |       |               |                |              |              |             |           | 6,116,000  |           | 5,420,000  |
| <b>Subtotal (I) = J+K+L+M+N</b>                                         |           |            |          |           |                               |           |          |       |               |                |              |              |             |           | 13,118,000 |           | 11,628,000 |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                    |           |            |          |           |                               |           |          |       |               |                |              |              |             |           |            |           |            |
| H - Thermal Description (Saturated Soil)                                | LS        | 3          | --       |           | 93.33                         | /BCY      | 4,600    | BCY   | 1.000         | 1.000          | 1.000        |              |             |           | 480,000    |           | 444,000    |
| <b>Subtotal (I)</b>                                                     |           |            |          |           |                               |           |          |       |               |                |              |              |             |           | 480,000    |           | 444,000    |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                  |           |            |          |           |                               |           |          |       |               |                |              |              |             |           |            |           |            |
| Mob/Demob                                                               |           |            |          | 0.0%      | COST CODE: D                  |           |          |       |               |                |              |              |             |           |            |           |            |
| Contractor Markup                                                       |           |            |          | 10.0%     | J1 = 0.000 * (I1)             |           |          |       |               |                |              |              |             |           |            |           |            |
| Engineering Design                                                      |           |            |          | 0.0%      | K1 = 0.100 * (I1+J1)          |           |          |       |               |                |              |              |             |           |            |           |            |
| Resident Engineering                                                    |           |            |          | 2.0%      | L1 = 0.000 * (I1+J1+K1)       |           |          |       |               |                |              |              |             |           |            |           |            |
| Contingency                                                             |           |            |          | 40.0%     | M1 = 0.020 * (I1+J1+K1)       |           |          |       |               |                |              |              |             |           |            |           |            |
|                                                                         |           |            |          |           | N1 = 0.400 * (I1+J1+K1+L1+M1) |           |          |       |               |                |              |              |             |           |            |           |            |
| <b>Subtotal (O1) = J1+K1+L1+M1+N1</b>                                   |           |            |          |           |                               |           |          |       |               |                |              |              |             |           | 280,000    |           | 254,000    |
| <b>Subtotal (I) = J1+K1+L1+M1+N1</b>                                    |           |            |          |           |                               |           |          |       |               |                |              |              |             |           | 280,000    |           | 254,000    |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+I1+O1)</b>                |           |            |          |           |                               |           |          |       |               |                |              |              |             |           | 29,127,000 |           | 25,829,000 |

Table BS.1-6f RESIZED ALTERNATIVE - Cost Estimate - Basin A Medium Group  
Alternative 6f: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume: Caps/Covers (Clay/Soil Cap)

| Cost Item                                                                                              | Cost Type         | Start Year | End Year | 1992 (\$) | Units   | Quantity | Units | Volume Factor | Mileage Factor | Obser Factor | Description | 1995 (\$)  | 1995 (\$)  | 1995 (\$)  |
|--------------------------------------------------------------------------------------------------------|-------------------|------------|----------|-----------|---------|----------|-------|---------------|----------------|--------------|-------------|------------|------------|------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |                   |            |          |           |         |          |       |               |                |              |             |            |            |            |
| H - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A                 | 3          | 30       | 0.13      | /BCY-YR | 46       | BCY   | 1.000         | 1.000          | 1.000        |             | 10         | 200        | 100        |
| HBAU - Installation of Clay/Soil Cap                                                                   | A                 | 3          | 30       | 0.80      | /SY-YR  | 560,000  | SY    | 1.000         | 1.000          | 1.000        |             | 511,000    | 14,315,000 | 7,254,000  |
| HBAU - Site Reviews                                                                                    | A                 | 3          | 30       | 5,400.00  | /EA-YR  | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000      | 173,000    | 87,000     |
| <b>Subtotal (P)</b>                                                                                    |                   |            |          |           |         |          |       |               |                |              |             |            |            |            |
|                                                                                                        |                   |            |          |           |         |          |       |               |                |              |             | 517,000    | 14,488,000 | 7,341,000  |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |                   |            |          |           |         |          |       |               |                |              |             |            |            |            |
| Indirects, Overhead & Profit                                                                           | COST CODE: LLSL   |            |          |           |         |          |       |               |                |              |             |            |            |            |
| Contingency                                                                                            | Q = 0.390 * (P)   |            |          |           |         |          |       |               |                |              |             |            |            |            |
|                                                                                                        | R = 0.300 * (P+Q) |            |          |           |         |          |       |               |                |              |             |            |            |            |
| <b>Subtotal (S = Q+R)</b>                                                                              |                   |            |          |           |         |          |       |               |                |              |             | 202,000    | 5,650,000  | 2,863,000  |
|                                                                                                        |                   |            |          |           |         |          |       |               |                |              |             | 216,000    | 6,041,000  | 3,081,000  |
|                                                                                                        |                   |            |          |           |         |          |       |               |                |              |             | 418,000    | 11,681,000 | 5,925,000  |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |                   |            |          |           |         |          |       |               |                |              |             |            |            |            |
|                                                                                                        |                   |            |          |           |         |          |       |               |                |              |             | 935,000    | 26,179,000 | 13,266,000 |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |                   |            |          |           |         |          |       |               |                |              |             |            |            |            |
|                                                                                                        |                   |            |          |           |         |          |       |               |                |              |             | 55,600,000 | 39,400,000 |            |

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Table B5.2-6e RESIZED ALTERNATIVE - Cost Estimate - Basin F Wastepile Medium Group  
Alternative 6e: Caps/Covers (Composite Cap)

| Cost Item                                                                                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units  | Quantity | Units  | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|--------|----------|--------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                      |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| H - Subgrade Preparation Prior to Installing Cap/Cover                                                        | LS        | 1          | --       | 0.06                   | /SY    | 75,000   | SY     | 1.000         | 1.000          | 1.000        |             |                          | 5,000                   | 5,000                |
| H - Installation of Composite Cap                                                                             | LS        | 1          | --       | 36.04                  | /SY    | 75,000   | SY     | 1.000         | 1.000          | 1.000        |             |                          | 3,095,000               | 3,095,000            |
| H - Revegetation of Disturbed Areas                                                                           | LS        | 1          | --       | 0.18                   | /SY    | 75,000   | SY     | 1.000         | 1.000          | 1.100        | Disturbance |                          | 17,000                  | 17,000               |
| H - Modification to Existing Sump                                                                             | LS        | 1          | --       | 9,410.00               | /EA    | 1        | EA     | 1.000         | 1.000          | 1.000        |             |                          | 11,000                  | 11,000               |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                                                    |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                                                                     |           |            |          |                        |        |          |        |               |                |              |             |                          | 3,117,000               | 3,117,000            |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |        |               |                |              |             |                          | 101,000                 | 101,000              |
| Engineering Design                                                                                            |           |            |          |                        |        |          |        |               |                |              |             |                          | 1,215,000               | 1,215,000            |
| Resident Engineering                                                                                          |           |            |          |                        |        |          |        |               |                |              |             |                          | 22,000                  | 22,000               |
| Contingency                                                                                                   |           |            |          |                        |        |          |        |               |                |              |             |                          | 55,000                  | 55,000               |
|                                                                                                               |           |            |          |                        |        |          |        |               |                |              |             |                          | 1,184,000               | 1,184,000            |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                            |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| H - Installation of Composite Cap                                                                             | A         | 1          | 30       | 1.23                   | /SY-YR | 75,000   | SY     | 1.000         | 1.000          | 1.000        |             | 105,000                  | 3,158,000               | 1,674,000            |
| H - Treatment and Disposal of Wastepile Leachate                                                              | A         | 1          | 30       | 18.00                  | /GAL   | 550      | GAL/YR | 1.000         | 1.000          | 1.000        |             | 11,000                   | 339,000                 | 180,000              |
| H - Site Reviews                                                                                              | A         | 1          | 30       | 5,400.00               | /EA-YR | 1        | EA     | 1.000         | 1.000          | 1.000        |             | 6,000                    | 185,000                 | 98,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                          |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                  |           |            |          |                        |        |          |        |               |                |              |             |                          | 48,000                  | 1,438,000            |
| Contingency                                                                                                   |           |            |          |                        |        |          |        |               |                |              |             |                          | 51,000                  | 1,535,000            |
|                                                                                                               |           |            |          |                        |        |          |        |               |                |              |             |                          | 98,000                  | 2,971,000            |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S) [Note: Total O&amp;M Annual Cost Only Includes Long-Term Activities]</b> |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |        |               |                |              |             | 222,000                  | 12,349,000              | 9,222,000            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = I+T)</b>                                                  |           |            |          |                        |        |          |        |               |                |              |             |                          |                         |                      |
|                                                                                                               |           |            |          |                        |        |          |        |               |                |              |             |                          | 12,300,000              | 9,220,000            |

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**Table B5.3-6g**  
**RESIZED ALTERNATIVE - Cost Estimate - Secondary Basins Medium Group - Secondary Basins Subgroup**  
**Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation**

| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$) |           | Units | Quantity | Units | Volume |        | Other  |        | 1995 (\$) | 1995 (\$) | PW Cost |
|-------------------------------|-----------|------------|----------|-----------|-----------|-------|----------|-------|--------|--------|--------|--------|-----------|-----------|---------|
|                               |           |            |          | Unit Cost | Unit Cost |       |          |       | Factor | Factor | Factor | Factor |           |           |         |
| DIRECT CAPITAL COSTS          |           |            |          |           |           |       |          |       |        |        |        |        |           |           |         |
| Subtotal (A)                  |           |            |          |           |           |       |          |       |        |        |        |        |           |           |         |
| COST CODE LLSS                |           |            |          |           |           |       |          |       |        |        |        |        |           |           |         |
| 3.3% B = 0.033 * (A)          |           |            |          |           |           |       |          |       |        |        |        |        |           |           |         |
| 39.0% C = 0.390 * (A+B)       |           |            |          |           |           |       |          |       |        |        |        |        |           |           |         |
| 3.0% D = 0.030 * (A+B+C)      |           |            |          |           |           |       |          |       |        |        |        |        |           |           |         |
| 1.3% E = 0.013 * (A+B+C)      |           |            |          |           |           |       |          |       |        |        |        |        |           |           |         |
| 26.3% F = 0.263 * (A+B+C+D+E) |           |            |          |           |           |       |          |       |        |        |        |        |           |           |         |
| Subtotal (G =B+C+D+E+F)       |           |            |          |           |           |       |          |       |        |        |        |        |           |           |         |
| INDIRECT CAPITAL COSTS        |           |            |          |           |           |       |          |       |        |        |        |        |           |           |         |
| Mod/Demob                     |           |            |          |           |           |       |          |       |        |        |        |        |           |           |         |
| Indirects, Overhead & Profit  |           |            |          |           |           |       |          |       |        |        |        |        |           |           |         |
| Engineering Design            |           |            |          |           |           |       |          |       |        |        |        |        |           |           |         |
| Resident Engineering          |           |            |          |           |           |       |          |       |        |        |        |        |           |           |         |
| Contingency                   |           |            |          |           |           |       |          |       |        |        |        |        |           |           |         |
| Subtotal (H = A+G)            |           |            |          |           |           |       |          |       |        |        |        |        |           |           |         |
| TOTAL CAPITAL COSTS (H = A+G) |           |            |          |           |           |       |          |       |        |        |        |        |           |           |         |

| Cost Item                                                      | Cost Type | Start Year | End Year | 1992 (\$)               | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | Annual Cost | 1995 (\$)  | Total Cost | 1995 (\$) | PW Cost    |
|----------------------------------------------------------------|-----------|------------|----------|-------------------------|-----------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|------------|-----------|------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                       |           |            |          |                         |           |          |       |               |                |              |             |             |            |            |           |            |
| HB - Soil Excavation                                           | A         | 1          | 2        | 3.91                    | /BCY      | 300,000  | BCY   | 1.000         | 1.000          | 1.000        |             |             | 1,308,000  |            |           | 1,307,000  |
| HB - Transportation of Contaminated Soil to Consolidation Area | A         | 1          | 2        | 1.07                    | /BCY-MILE | 300,000  | BCY   | 1.000         | 1.500          | 1.000        |             |             | 549,000    |            |           | 538,000    |
| HB - Grade Filling w/Consolidated Soil Prior to Capping        | A         | 1          | 2        | 3.63                    | /BCY      | 300,000  | BCY   | 1.000         | 1.000          | 1.000        |             |             | 1,243,000  |            |           | 1,213,000  |
| HB - Excavation of Borrow Material                             | A         | 1          | 2        | 1.89                    | /BCY      | 300,000  | BCY   | 1.000         | 1.000          | 1.000        |             |             | 647,000    |            |           | 632,000    |
| HB - Transportation of Borrow Material to Backfill Area        | A         | 1          | 2        | 0.86                    | /BCY-MILE | 300,000  | BCY   | 1.000         | 1.500          | 1.000        |             |             | 442,000    |            |           | 431,000    |
| HB - Backfill with Borrow Material                             | A         | 1          | 2        | 1.72                    | /BCY      | 300,000  | BCY   | 1.000         | 1.000          | 1.000        |             |             | 586,000    |            |           | 575,000    |
| HB - Installation of 6 Inches of Topsoil                       | A         | 1          | 2        | 3.24                    | /SY       | 430,000  | SY    | 1.000         | 1.000          | 1.000        |             |             | 1,390,000  |            |           | 1,352,000  |
| HB - Revegetation of Disturbed Areas                           | A         | 1          | 2        | 0.18                    | /SY       | 430,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance |             | 97,000     |            |           | 95,000     |
|                                                                |           |            |          |                         |           |          |       |               |                |              |             |             | 6,495,000  |            |           | 6,341,000  |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                     |           |            |          |                         |           |          |       |               |                |              |             |             |            |            |           |            |
| Mob/Demob                                                      |           |            |          | J = 0.038 * (I)         |           |          |       |               |                |              |             |             |            |            |           |            |
| Indirects Overhead & Profit                                    |           |            |          | K = 0.390 * (I+J)       |           |          |       |               |                |              |             |             | 252,000    |            |           | 246,000    |
| Engineering Design                                             |           |            |          | L = 0.005 * (I+J+K)     |           |          |       |               |                |              |             |             | 47,000     |            |           | 46,000     |
| Resident Engineering                                           |           |            |          | M = 0.015 * (I+J+K)     |           |          |       |               |                |              |             |             | 141,000    |            |           | 137,000    |
| Contingency                                                    |           |            |          | N = 0.275 * (I+J+K+L+M) |           |          |       |               |                |              |             |             | 2,631,000  |            |           | 2,568,000  |
| Subtotal (O) = J+K+L+M+N                                       |           |            |          |                         |           |          |       |               |                |              |             |             | 5,701,000  |            |           | 5,585,000  |
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>             |           |            |          |                         |           |          |       |               |                |              |             |             |            |            |           |            |
| HB - No Action                                                 | A         | 2          | 30       | 0.00                    | /SY       | 430,000  | SY    | 1.000         | 1.000          | 1.000        |             |             | 0          | 0          | 0         | 0          |
|                                                                |           |            |          |                         |           |          |       |               |                |              |             |             | 0          | 0          | 0         | 0          |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>           |           |            |          |                         |           |          |       |               |                |              |             |             |            |            |           |            |
| Indirects Overhead & Profit                                    |           |            |          | O = 0.390 * (P)         |           |          |       |               |                |              |             |             | 0          | 0          | 0         | 0          |
| Contingency                                                    |           |            |          | R = 0.300 * (P+Q)       |           |          |       |               |                |              |             |             | 0          | 0          | 0         | 0          |
| Subtotal (S)                                                   |           |            |          |                         |           |          |       |               |                |              |             |             | 0          | 0          | 0         | 0          |
|                                                                |           |            |          |                         |           |          |       |               |                |              |             |             | 0          | 0          | 0         | 0          |
| <b>TOTAL O&amp;M COSTS (T = I+O+P+S)</b>                       |           |            |          |                         |           |          |       |               |                |              |             |             | 0          | 0          | 0         | 0          |
|                                                                |           |            |          |                         |           |          |       |               |                |              |             |             | 12,197,000 |            |           | 11,906,000 |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (U = H+T)</b>   |           |            |          |                         |           |          |       |               |                |              |             |             | 12,200,000 |            |           | 11,900,000 |

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Table BS.4-6c RESIZED ALTERNATIVE - Cost Estimate - Secondary Basins Medium Group - Former Basin F Subgroup  
Alternative 6c: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume: Caps/Covers (Clay/Soil Cap) with Modifications to Existing System

| Cost Item                                                   | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                        |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | --       | 7.08                   | /BCY  | 2,200    | BCY   | 1,000         | 1,000          | 1,000        |             |                          | 18,000                  | 17,000               |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 2                             | --       | 4.72                   | /BCY  | 2,200    | BCY   | 1,000         | 1,000          | 1,000        |             |                          | 12,000                  | 11,000               |
| Subtotal (A)                                                |           |                               |          |                        |       |          |       |               |                |              |             |                          | 30,000                  | 28,000               |
| INDIRECT CAPITAL COSTS                                      |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSS                                             |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                   | 3.3%      | B = 0.033 * (A)               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                | 38.0%     | C = 0.380 * (A+B)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                          | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                        | 1.3%      | E = 0.013 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                 | 26.3%     | F = 0.263 * (A+B+C+D+E)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                    |           |                               |          |                        |       |          |       |               |                |              |             |                          | 26,000                  | 25,000               |
| DIRECT SUBCONTRACT CAPITAL COSTS                            |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - Thermal Desorption (Dry Soil)                           | A         | 1                             | 2        | 34.85                  | /BCY  | 220,000  | BCY   | 1,000         | 1,000          | 1,000        |             |                          | 8,749,000               | 8,541,000            |
| Subtotal (A1)                                               |           |                               |          |                        |       |          |       |               |                |              |             |                          | 8,749,000               | 8,541,000            |
| INDIRECT SUBCONTRACT CAPITAL COSTS                          |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: C                                                |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                   | 2.0%      | B1 = 0.020 * (A1)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                           | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                          | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                        | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                 | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |                               |          |                        |       |          |       |               |                |              |             |                          | 5,544,000               | 5,412,000            |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                         |           |                               |          |                        |       |          |       |               |                |              |             |                          | 14,349,000              | 14,006,000           |
| HFBF-06C.WQ1<br>SOILS DAA<br>16-Jul-93                      |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

| Cost Item                                                              | Cost Type       | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|------------------------------------------------------------------------|-----------------|-------------------------------|----------|------------------------|-----------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                               |                 |                               |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| H - Excavation of Cover Overburden                                     | LS              | 3                             | --       | 1.89                   | /BCY      | 110,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 237,000                 | 215,000              |
| H - Soil Excavation                                                    | LS              | 3                             | --       | 3.91                   | /BCY      | 220,000  | BCY   | 1.000         | 1.000          | 1.200        |             |                          | 1,178,000               | 1,098,000            |
| H - Transportation of Contaminated Soil to Thermal Desorption Facility | LS              | 3                             | --       | 1.07                   | /BCY-MILE | 220,000  | BCY   | 1.000         | 2.000          | 1.000        |             |                          | 537,000                 | 487,000              |
| H - Load Treated Soil for Transport to Hazardous Landfill              | LS              | 3                             | --       | 1.55                   | /BCY      | 2,200    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 4,000                   | 4,000                |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill | LS              | 3                             | --       | 1.07                   | /BCY-MILE | 2,200    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 3,000                   | 2,000                |
| H - On-Post Hazardous Waste Landfill (Particulates)                    | LS              | 3                             | --       | 3.93                   | /BCY      | 2,200    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 10,000                  | 8,000                |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill         | LS              | 3                             | --       | 1.28                   | /BCY      | 220,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 321,000                 | 281,000              |
| H - Transportation of Treated Soil to Backfill Excavation              | LS              | 3                             | --       | 0.86                   | /BCY-MILE | 220,000  | BCY   | 1.000         | 2.000          | 1.000        |             |                          | 432,000                 | 392,000              |
| H - Backfill with Treated Soil                                         | LS              | 3                             | --       | 1.72                   | /BCY      | 220,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 432,000                 | 392,000              |
| H - Backfill of Cover Overburden                                       | LS              | 3                             | --       | 1.72                   | /BCY      | 110,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 216,000                 | 196,000              |
| HB - Subgrade Preparation Prior to Installing Cap/Cover                | LS              | 2                             | --       | 0.06                   | /SY       | 420,000  | SY    | 1.000         | 1.000          | 1.000        |             |                          | 29,000                  | 27,000               |
| HB - Modification of Existing Soil Cover                               | LS              | 3                             | --       | 22.80                  | /SY       | 420,000  | SY    | 1.000         | 1.000          | 1.000        |             |                          | 10,928,000              | 9,912,000            |
| HB - Revegetation of Disturbed Areas                                   | LS              | 3                             | --       | 0.18                   | /SY       | 420,000  | SY    | 1.000         | 1.000          | 1.100        |             |                          | 95,000                  | 86,000               |
| Subtotal (f)                                                           |                 |                               |          |                        |           |          |       |               |                |              |             | 14,421,000               | 13,082,000              |                      |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                             |                 |                               |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                              | COST CODE: MILS |                               |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                           | 3.9%            | J = 0.039 * (f)               |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                     | 0.5%            | K = 0.378 * (f+J)             |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                   | 1.5%            | L = 0.005 * (f+J+K)           |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                            | 27.5%           | M = 0.015 * (f+J+K)           |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
|                                                                        |                 | N = 0.275 * (f+J+K+L+M)       |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (O = J+K+L+M+N)                                               |                 |                               |          |                        |           |          |       |               |                |              |             | 559,000                  | 507,000                 |                      |
|                                                                        |                 |                               |          |                        |           |          |       |               |                |              |             | 5,655,000                | 5,130,000               |                      |
|                                                                        |                 |                               |          |                        |           |          |       |               |                |              |             | 103,000                  | 94,000                  |                      |
|                                                                        |                 |                               |          |                        |           |          |       |               |                |              |             | 310,000                  | 281,000                 |                      |
|                                                                        |                 |                               |          |                        |           |          |       |               |                |              |             | 5,798,000                | 5,251,000               |                      |
| Subtotal (I) = J+K+L+M+N                                               |                 |                               |          |                        |           |          |       |               |                |              |             | 12,415,000               | 11,282,000              |                      |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |                 |                               |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| H - Thermal Desorption (Dry Soil)                                      | LS              | 3                             | --       | 93.33                  | /BCY      | 220,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 23,431,000              | 21,253,000           |
| Subtotal (I1)                                                          |                 |                               |          |                        |           |          |       |               |                |              |             | 23,431,000               | 21,253,000              |                      |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                 |                 |                               |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                              | COST CODE: D    |                               |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                                      | 0.0%            | J1 = 0.000 * (I1)             |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                                     | 10.0%           | K1 = 0.100 * (I1+J1)          |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                                   | 0.0%            | L1 = 0.000 * (I1+J1+K1)       |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                            | 2.0%            | M1 = 0.020 * (I1+J1+K1)       |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
|                                                                        | 40.0%           | N1 = 0.400 * (I1+J1+K1+L1+M1) |          |                        |           |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                         |                 |                               |          |                        |           |          |       |               |                |              |             | 0                        | 0                       |                      |
|                                                                        |                 |                               |          |                        |           |          |       |               |                |              |             | 2,343,000                | 2,125,000               |                      |
|                                                                        |                 |                               |          |                        |           |          |       |               |                |              |             | 0                        | 0                       |                      |
|                                                                        |                 |                               |          |                        |           |          |       |               |                |              |             | 515,000                  | 468,000                 |                      |
|                                                                        |                 |                               |          |                        |           |          |       |               |                |              |             | 10,516,000               | 9,538,000               |                      |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                         |                 |                               |          |                        |           |          |       |               |                |              |             | 13,374,000               | 12,131,000              |                      |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O1+I1+O1)                         |                 |                               |          |                        |           |          |       |               |                |              |             | 63,842,000               | 57,727,000              |                      |



Table B5.5-6g  
RESIZED ALTERNATIVE - Cost Estimate - Secondary Basins Medium Group - Basin F Exterior Subgroup  
Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation

[illegible]

**Table B5.5-6g**  
**RESIZED ALTERNATIVE - Cost Estimate - Secondary Basins Medium Group - Basin F Exterior Subgroup**  
**Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation**

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$) | Units               | Quantity  | Units | Volume Factor | Mileage Factor | Other Factor | Description | Annual Cost | 1995 (\$) | 1995 (\$) | PW Cost   |  |           |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|---------------------|-----------|-------|---------------|----------------|--------------|-------------|-------------|-----------|-----------|-----------|--|-----------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |           |                     |           |       |               |                |              |             |             |           |           |           |  |           |
| H - Soil Excavation                                                                            | LS        | 1          | --       | 3.91      | /BCY                | 80,000    | BCY   | 1.000         | 1.000          | 1.000        |             |             | 357,000   |           | 357,000   |  |           |
| H - Transportation of Contaminated Soil to Consolidation Area                                  | LS        | 1          | --       | 1.07      | /BCY-MILE           | 80,000    | BCY   | 1.000         | 2.000          | 1.000        |             |             | 195,000   |           | 195,000   |  |           |
| H - Grade Filling w/Consolidated Soil Prior to Capping                                         | LS        | 1          | --       | 3.63      | /BCY                | 80,000    | BCY   | 1.000         | 1.000          | 1.000        |             |             | 331,000   |           | 331,000   |  |           |
| H - Excavation of Borrow Material                                                              | LS        | 1          | --       | 1.89      | /BCY                | 80,000    | BCY   | 1.000         | 1.000          | 1.000        |             |             | 173,000   |           | 173,000   |  |           |
| H - Transportation of Borrow Material to Backfill Area                                         | LS        | 1          | --       | 0.86      | /BCY-MILE           | 80,000    | BCY   | 1.000         | 1.500          | 1.000        |             |             | 118,000   |           | 118,000   |  |           |
| H - Backfill with Borrow Material                                                              | LS        | 1          | --       | 1.72      | /BCY                | 80,000    | BCY   | 1.000         | 1.000          | 1.000        |             |             | 157,000   |           | 157,000   |  |           |
| H - Installation of 6 Inches of Topsoil                                                        | LS        | 1          | --       | 3.24      | /SY                 | 260,000   | SY    | 1.000         | 1.000          | 1.000        |             |             | 981,000   |           | 981,000   |  |           |
| H - Revegetation of Disturbed Areas                                                            | LS        | 1          | --       | 0.18      | /SY                 | 260,000   | SY    | 1.000         | 1.000          | 1.000        | Disturbance |             | 59,000    |           | 59,000    |  |           |
| B - Agricultural Practices                                                                     | A         | 1          | 2        | 0.20      | /SY                 | 2,000,000 | SY    | 1.000         | 1.000          | 1.000        |             |             | 456,000   |           | 446,000   |  |           |
|                                                                                                |           |            |          |           |                     |           |       |               |                |              |             |             | 2,808,000 |           | 2,797,000 |  |           |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |           |                     |           |       |               |                |              |             |             |           |           |           |  |           |
| Mob/Demob                                                                                      |           |            |          |           |                     |           |       |               |                |              |             |             |           |           |           |  |           |
| Indirects, Overhead & Profit                                                                   |           |            |          | 3.9%      | J = 0.039 * (I)     |           |       |               |                |              |             |             | 109,000   |           | 109,000   |  |           |
| Engineering Design                                                                             |           |            |          | 0.5%      | K = 0.390 * (I+J)   |           |       |               |                |              |             |             | 1,137,000 |           | 1,133,000 |  |           |
| Resident Engineering                                                                           |           |            |          | 1.5%      | L = 0.005 * (I+J+K) |           |       |               |                |              |             |             | 20,000    |           | 20,000    |  |           |
| Contingency                                                                                    |           |            |          | 27.5%     | M = 0.015 * (I+J+K) |           |       |               |                |              |             |             | 61,000    |           | 61,000    |  |           |
|                                                                                                |           |            |          |           |                     |           |       |               |                |              |             |             | 1,137,000 |           | 1,133,000 |  |           |
|                                                                                                |           |            |          |           |                     |           |       |               |                |              |             |             | 2,464,000 |           | 2,455,000 |  |           |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |           |                     |           |       |               |                |              |             |             |           |           |           |  |           |
| H - No Action                                                                                  | A         | 1          | 30       | 0.00      | /SY                 | 260,000   | SY    | 1.000         | 1.000          | 1.000        |             | 0           | 0         |           | 0         |  |           |
| B - Long Term Soil Monitoring, Basin F Exterior                                                | A         | 3          | 30       | 7,000.00  | /EA-YR              | 1         | EA    | 1.000         | 1.000          | 1.000        |             | 8,000       | 224,000   |           | 113,000   |  |           |
| H - Site Reviews                                                                               | A         | 3          | 30       | 5,400.00  | /EA-YR              | 1         | EA    | 1.000         | 1.000          | 1.000        |             | 6,000       | 173,000   |           | 87,000    |  |           |
|                                                                                                |           |            |          |           |                     |           |       |               |                |              |             |             | 14,000    |           | 398,000   |  | 201,000   |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |           |                     |           |       |               |                |              |             |             |           |           |           |  |           |
| Indirects, Overhead & Profit                                                                   |           |            |          | 38.0%     | Q = 0.390 * (P)     |           |       |               |                |              |             |             | 8,000     |           | 155,000   |  |           |
| Contingency                                                                                    |           |            |          | 30.0%     | R = 0.300 * (P+Q)   |           |       |               |                |              |             |             | 6,000     |           | 165,000   |  |           |
|                                                                                                |           |            |          |           |                     |           |       |               |                |              |             |             | 11,000    |           | 320,000   |  | 162,000   |
|                                                                                                |           |            |          |           |                     |           |       |               |                |              |             |             | 28,000    |           | 5,988,000 |  | 5,614,000 |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |           |                     |           |       |               |                |              |             |             |           |           |           |  |           |
|                                                                                                |           |            |          |           |                     |           |       |               |                |              |             |             |           |           | 5,990,000 |  | 5,610,000 |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |           |                     |           |       |               |                |              |             |             |           |           |           |  |           |

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**Table B5.6-2**  
**RESIZED ALTERNATIVE - Cost Estimate - Sewer Systems Medium Group - Sanitary/Process Water Sewers Subgroup**  
**Alternative 2: Access Restrictions (Modifications to FFA)**

| Cost Item                       | Cost Type | Start Year | End Year | 1992 (\$) | Units | Quantity | Units | Volume | Mileage | Other  | 1993 (\$)   | 1995 (\$)  | 1995 (\$) |
|---------------------------------|-----------|------------|----------|-----------|-------|----------|-------|--------|---------|--------|-------------|------------|-----------|
|                                 |           |            |          | Unit Cost |       |          |       | Factor | Factor  | Factor | Annual Cost | Total Cost | PW Cost   |
| DIRECT CAPITAL COSTS            |           |            |          |           |       |          |       |        |         |        |             |            |           |
| H - Public Education            | LS        | 1          | --       | 13,500.00 | /EA   | 1        | EA    | 1.000  | 1.000   | 1.000  | 15,000      | 15,000     | 15,000    |
| B - No Action                   | LS        | 1          | --       | 0.00      | /SY   | 19,000   | SY    | 1.000  | 1.000   | 1.000  | 0           | 0          | 0         |
|                                 |           |            |          |           |       |          |       |        |         |        | 15,000      | 15,000     | 15,000    |
| INDIRECT CAPITAL COSTS          |           |            |          |           |       |          |       |        |         |        |             |            |           |
| Mod/Demob                       |           |            |          |           |       |          |       |        |         |        |             | 1,000      | 1,000     |
| Indirects, Overhead & Profit    |           |            |          |           |       |          |       |        |         |        |             | 6,000      | 6,000     |
| Engineering Design              |           |            |          |           |       |          |       |        |         |        |             | 1,000      | 1,000     |
| Resident Engineering            |           |            |          |           |       |          |       |        |         |        |             | 300        | 300       |
| Contingency                     |           |            |          |           |       |          |       |        |         |        |             | 6,000      | 6,000     |
|                                 |           |            |          |           |       |          |       |        |         |        | 14,000      | 14,000     | 14,000    |
|                                 |           |            |          |           |       |          |       |        |         |        | 15,000      | 15,000     | 15,000    |
| TOTAL CAPITAL COSTS (H + A + G) |           |            |          |           |       |          |       |        |         |        |             |            |           |
|                                 |           |            |          |           |       |          |       |        |         |        | 29,000      | 29,000     | 29,000    |





| Cost Item                                                   | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|----------|-------|------------------|-------------------|-----------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                        |           |                               |          |                        |          |       |                  |                   |                 |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | --       | 7.08                   | 470      | /BCY  | 1.000            | 1.000             | 1.000           | 4,000                    | 4,000                   | 4,000                |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                             | --       | 4.72                   | 470      | /BCY  | 1.000            | 1.000             | 1.000           | 3,000                    | 3,000                   | 2,000                |
| H - On-Post Hazardous Waste Landfill                        | LS        | 2                             | --       | 7.08                   | 35,000   | /BCY  | 1.000            | 1.000             | 1.000           | 283,000                  | 283,000                 | 289,000              |
| H - On-Post Hazardous Waste Landfill Closure                | LS        | 3                             | --       | 4.72                   | 35,000   | /BCY  | 1.000            | 1.000             | 1.000           | 189,000                  | 189,000                 | 171,000              |
| A - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | --       | 7.08                   | 6        | /BCY  | 1.000            | 1.000             | 1.000           | 50                       | 50                      | 50                   |
| A - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                             | --       | 4.72                   | 6        | /BCY  | 1.000            | 1.000             | 1.000           | 30                       | 30                      | 30                   |
| Subtotal (A)                                                |           |                               |          |                        |          |       |                  |                   |                 |                          | 478,000                 | 448,000              |
| INDIRECT CAPITAL COSTS                                      |           |                               |          |                        |          |       |                  |                   |                 |                          |                         |                      |
| Mod/Demob                                                   | 3.3%      | COST CODE: LLSS               |          |                        |          |       |                  |                   |                 |                          |                         |                      |
| Indirects: Overhead & Profit                                | 39.0%     | B = 0.033 * (A)               |          |                        |          |       |                  |                   |                 |                          |                         |                      |
| Engineering Design                                          | 3.0%      | C = 0.380 * (A+B)             |          |                        |          |       |                  |                   |                 |                          |                         |                      |
| Resident Engineering                                        | 1.3%      | D = 0.030 * (A+B+C)           |          |                        |          |       |                  |                   |                 |                          |                         |                      |
| Contingency                                                 | 26.3%     | E = 0.013 * (A+B+C)           |          |                        |          |       |                  |                   |                 |                          |                         |                      |
|                                                             |           | F = 0.263 * (A+B+C+D+E)       |          |                        |          |       |                  |                   |                 |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                    |           |                               |          |                        |          |       |                  |                   |                 |                          | 425,000                 | 397,000              |
| DIRECT SUBCONTRACT CAPITAL COSTS                            |           |                               |          |                        |          |       |                  |                   |                 |                          |                         |                      |
| H - Thermal Description (Saturated Soil)                    | A         | 1                             | 2        | 34.85                  | 47,000   | /BCY  | 1.000            | 1.000             | 1.000           | 1,689,000                | 1,689,000               | 1,825,000            |
| A - Incineration                                            | A         | 1                             | 2        | 72.34                  | 640      | /BCY  | 1.000            | 1.000             | 1.000           | 53,000                   | 53,000                  | 52,000               |
| Subtotal (A1)                                               |           |                               |          |                        |          |       |                  |                   |                 |                          | 1,922,000               | 1,876,000            |
| INDIRECT SUBCONTRACT CAPITAL COSTS                          |           |                               |          |                        |          |       |                  |                   |                 |                          |                         |                      |
| Mod/Demob                                                   | 2.0%      | COST CODE: C                  |          |                        |          |       |                  |                   |                 |                          |                         |                      |
| Contractor Markup                                           | 10.0%     | B1 = 0.020 * (A1)             |          |                        |          |       |                  |                   |                 |                          |                         |                      |
| Engineering Design                                          | 9.0%      | C1 = 0.100 * (A1+B1)          |          |                        |          |       |                  |                   |                 |                          |                         |                      |
| Resident Engineering                                        | 3.0%      | D1 = 0.080 * (A1+B1+C1)       |          |                        |          |       |                  |                   |                 |                          |                         |                      |
| Contingency                                                 | 30.0%     | E1 = 0.030 * (A1+B1+C1)       |          |                        |          |       |                  |                   |                 |                          |                         |                      |
|                                                             |           | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |          |       |                  |                   |                 |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |                               |          |                        |          |       |                  |                   |                 |                          | 38,000                  | 38,000               |
|                                                             |           |                               |          |                        |          |       |                  |                   |                 |                          | 196,000                 | 191,000              |
|                                                             |           |                               |          |                        |          |       |                  |                   |                 |                          | 194,000                 | 189,000              |
|                                                             |           |                               |          |                        |          |       |                  |                   |                 |                          | 65,000                  | 63,000               |
|                                                             |           |                               |          |                        |          |       |                  |                   |                 |                          | 725,000                 | 707,000              |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |                               |          |                        |          |       |                  |                   |                 |                          | 1,218,000               | 1,189,000            |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                         |           |                               |          |                        |          |       |                  |                   |                 |                          | 4,042,000               | 3,908,000            |
|                                                             |           |                               |          |                        |          |       |                  |                   |                 |                          |                         | 16-Jul-93            |

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| Cost Item                                                                   | Cost Type | Start Year | End Year | 1992 (\$) | Units                         | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$) | Annual Cost | 1995 (\$) | Total Cost | PW Cost   |
|-----------------------------------------------------------------------------|-----------|------------|----------|-----------|-------------------------------|----------|-------|---------------|----------------|--------------|--------------|-----------|-------------|-----------|------------|-----------|
| DIRECT O&M COSTS (OPERATIONS)                                               |           |            |          |           |                               |          |       |               |                |              |              |           |             |           |            |           |
| H - Excavation of Sewer Overburden                                          | LS        | 3          | --       | 1.51      | /BCY                          | 340,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 586,000   |             | 586,000   |            | 531,000   |
| HA - Removal of Steel/Cast Iron Pipe                                        | LS        | 3          | --       | 20.68     | /LF                           | 15,100   | LF    | 1.000         | 1.000          | 1.200        | Odor Control | 428,000   |             | 428,000   |            | 398,000   |
| HA - Excavate Chemical Sewers                                               | LS        | 3          | --       | 7.25      | /BCY                          | 82,000   | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 814,000   |             | 814,000   |            | 736,000   |
| HA - Transportation of Chemical Sewers to Thermal Description Unit          | LS        | 3          | --       | 1.05      | /BCY-MILE                     | 47,000   | BCY   | 1.010         | 0.500          | 1.000        |              | 26,000    |             | 26,000    |            | 26,000    |
| H - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3          | --       | 1.55      | /BCY                          | 470      | BCY   | 1.010         | 1.000          | 1.000        |              | 1,000     |             | 1,000     |            | 1,000     |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill      | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 470      | BCY   | 1.000         | 1.000          | 1.000        |              | 1,000     |             | 1,000     |            | 1,000     |
| H - On-Post Hazardous Waste Landfill (Particulates)                         | LS        | 3          | --       | 3.93      | /BCY                          | 470      | BCY   | 1.000         | 1.000          | 1.000        |              | 2,000     |             | 2,000     |            | 2,000     |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill              | LS        | 3          | --       | 1.28      | /BCY                          | 47,000   | BCY   | 1.010         | 1.000          | 1.000        |              | 89,000    |             | 89,000    |            | 83,000    |
| H - Transportation of Treated Soil to Backfill Excavation                   | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 47,000   | BCY   | 1.010         | 0.500          | 1.000        |              | 23,000    |             | 23,000    |            | 21,000    |
| H - Backfill of Treated Soil for Chemical Sewers                            | LS        | 3          | --       | 1.56      | /BCY                          | 47,000   | BCY   | 1.010         | 1.000          | 1.000        |              | 85,000    |             | 85,000    |            | 77,000    |
| H - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 35,000   | BCY   | 1.010         | 1.500          | 1.000        |              | 59,000    |             | 59,000    |            | 54,000    |
| H - On-Post Hazardous Waste Landfill                                        | LS        | 3          | --       | 3.93      | /BCY                          | 35,000   | BCY   | 1.010         | 1.000          | 1.000        |              | 159,000   |             | 159,000   |            | 144,000   |
| H - Excavation of Borrow Material                                           | LS        | 3          | --       | 1.89      | /BCY                          | 35,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 75,000    |             | 75,000    |            | 68,000    |
| H - Transportation of Borrow Material to Backfill Area                      | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 35,000   | BCY   | 1.000         | 1.500          | 1.000        |              | 52,000    |             | 52,000    |            | 47,000    |
| H - Backfill with Borrow Material                                           | LS        | 3          | --       | 1.72      | /BCY                          | 35,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 62,000    |             | 62,000    |            | 56,000    |
| H - Backfill of Sewer Overburden                                            | LS        | 3          | --       | 1.56      | /BCY                          | 340,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 605,000   |             | 605,000   |            | 549,000   |
| H - Revegetation of Disturbed Areas                                         | LS        | 3          | --       | 0.18      | /SY                           | 100,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance  | 23,000    |             | 23,000    |            | 20,000    |
| A - Agent Screening During Excavation                                       | LS        | 3          | --       | 0.10      | /BCY                          | 640      | BCY   | 1.000         | 1.000          | 1.000        |              | 7,000     |             | 7,000     |            | 4,000     |
| A - Excavation of Soil with Agent                                           | LS        | 3          | --       | 4.55      | /BCY                          | 640      | BCY   | 1.000         | 1.500          | 1.000        | Odor Control | 4,000     |             | 4,000     |            | 4,000     |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility    | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 640      | BCY   | 1.000         | 1.000          | 1.000        |              | 1,000     |             | 1,000     |            | 1,000     |
| A - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3          | --       | 1.55      | /BCY                          | 6        | BCY   | 1.000         | 1.000          | 1.000        |              | 10        |             | 10        |            | 10        |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill      | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 6        | BCY   | 1.000         | 1.000          | 1.000        |              | 10        |             | 10        |            | 10        |
| A - On-Post Hazardous Waste Landfill (Particulates)                         | LS        | 3          | --       | 3.93      | /BCY                          | 6        | BCY   | 1.000         | 1.000          | 1.000        |              | 30        |             | 30        |            | 30        |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill              | LS        | 3          | --       | 1.28      | /BCY                          | 640      | BCY   | 1.000         | 1.000          | 1.000        |              | 1,000     |             | 1,000     |            | 1,000     |
| A - Transportation of Treated Soil to Backfill Excavation                   | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 640      | BCY   | 1.000         | 1.500          | 1.000        |              | 1,000     |             | 1,000     |            | 1,000     |
| A - Backfill with Treated Soil                                              | LS        | 3          | --       | 1.72      | /BCY                          | 640      | BCY   | 1.000         | 1.000          | 1.000        |              | 1,000     |             | 1,000     |            | 1,000     |
| Subtotal (I)                                                                |           |            |          |           |                               |          |       |               |                |              |              |           | 3,099,000   |           | 2,811,000  |           |
| INDIRECT O&M COSTS (OPERATIONS)                                             |           |            |          |           |                               |          |       |               |                |              |              |           |             |           |            |           |
| Mod/Demob                                                                   |           |            |          | 4.5%      | J = 0.045 * (I)               |          |       |               |                |              |              | 139,000   |             | 139,000   |            | 126,000   |
| Indirects, Overhead & Profit                                                |           |            |          | 40.3%     | K = 0.403 * (I+J)             |          |       |               |                |              |              | 1,304,000 |             | 1,304,000 |            | 1,182,000 |
| Engineering Design                                                          |           |            |          | 0.5%      | L = 0.005 * (I+J+K)           |          |       |               |                |              |              | 23,000    |             | 23,000    |            | 21,000    |
| Resident Engineering                                                        |           |            |          | 1.8%      | M = 0.018 * (I+J+K)           |          |       |               |                |              |              | 79,000    |             | 79,000    |            | 72,000    |
| Contingency                                                                 |           |            |          | 30.0%     | N = 0.300 * (I+J+K+L+M)       |          |       |               |                |              |              | 1,393,000 |             | 1,393,000 |            | 1,264,000 |
| Subtotal (O) = J+K+L+M+N                                                    |           |            |          |           |                               |          |       |               |                |              |              |           | 2,939,000   |           | 2,665,000  |           |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                   |           |            |          |           |                               |          |       |               |                |              |              |           |             |           |            |           |
| H - Thermal Description (Saturated Soil)                                    | LS        | 3          | --       | 93.33     | /BCY                          | 47,000   | BCY   | 1.010         | 1.000          | 1.000        |              | 5,056,000 |             | 5,056,000 |            | 4,586,000 |
| A - Incineration                                                            | LS        | 3          | --       | 201.09    | /BCY                          | 640      | BCY   | 1.000         | 1.000          | 1.000        |              | 147,000   |             | 147,000   |            | 133,000   |
| Subtotal (II)                                                               |           |            |          |           |                               |          |       |               |                |              |              |           | 5,203,000   |           | 4,719,000  |           |
| INDIRECT SUBCONTR. O&M COSTS (OPERATIONS)                                   |           |            |          |           |                               |          |       |               |                |              |              |           |             |           |            |           |
| Mod/Demob                                                                   |           |            |          | 0.0%      | J1 = 0.000 * (II)             |          |       |               |                |              |              | 0         |             | 0         |            | 0         |
| Contractor Markup                                                           |           |            |          | 10.0%     | K1 = 0.100 * (II+J1)          |          |       |               |                |              |              | 520,000   |             | 520,000   |            | 472,000   |
| Engineering Design                                                          |           |            |          | 0.0%      | L1 = 0.000 * (II+J1+K1)       |          |       |               |                |              |              | 0         |             | 0         |            | 0         |
| Resident Engineering                                                        |           |            |          | 2.0%      | M1 = 0.020 * (II+J1+K1)       |          |       |               |                |              |              | 114,000   |             | 114,000   |            | 104,000   |
| Contingency                                                                 |           |            |          | 40.0%     | N1 = 0.400 * (II+J1+K1+L1+M1) |          |       |               |                |              |              | 2,335,000 |             | 2,335,000 |            | 2,118,000 |
| Subtotal (O1) = J1+K1+L1+M1+N1                                              |           |            |          |           |                               |          |       |               |                |              |              |           | 2,970,000   |           | 2,694,000  |           |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O+II+O1)                               |           |            |          |           |                               |          |       |               |                |              |              |           | 14,210,000  |           | 12,889,000 |           |

Table B5.7-3a RESIZED ALTERNATIVE - Cost Estimate - Sewer Systems Medium Group - Chemical Sewers Subgroup  
Alternative 3a: Direct Thermal Description (Direct Heating) of Principal Threat Volume; Landfill (On-Post Landfill)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 3          | 30       | 0.13                   | /BCY-YR | 470      | BCY   | 1,000            | 1,000             | 1,000           |             | 100                      | 2,000                   | 1,000                |
| H - On-Post Hazardous Waste Landfill Closure                                                            | A         | 3          | 30       | 0.13                   | /BCY-YR | 31,000   | BCY   | 1,000            | 1,000             | 1,000           |             | 5,000                    | 129,000                 | 65,000               |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 3          | 30       | 0.13                   | /BCY-YR | 6        | BCY   | 1,000            | 1,000             | 1,000           |             | 1                        | 20                      | 10                   |
| <b>Subtotal (P)</b>                                                                                     |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |                  |                   |                 |             | 5,000                    | 131,000                 | 66,000               |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
| Indirects: Overhead & Profit                                                                            |           |            |          |                        |         |          |       |                  |                   |                 |             | 2,000                    | 51,000                  | 28,000               |
| Contingency                                                                                             |           |            |          |                        |         |          |       |                  |                   |                 |             | 2,000                    | 55,000                  | 28,000               |
| <b>Subtotal (S = Q+R)</b>                                                                               |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |                  |                   |                 |             | 4,000                    | 106,000                 | 53,000               |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (P + S)</b>                                               |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |                  |                   |                 |             | 8,000                    | 236,000                 | 120,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |                  |                   |                 |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |                  |                   |                 |             |                          | 18,500,000              | 16,900,000           |

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| Cost Item                                                             | Cost Type | Start Year                    | End Year | 1992 (\$)  | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$) |
|-----------------------------------------------------------------------|-----------|-------------------------------|----------|------------|-------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|-----------|
|                                                                       |           | Year                          | Year     | Unit Cost  |       |          |       |               |                |              |             | Annual Cost | Total Cost | PW Cost   |
| DIRECT CAPITAL COSTS                                                  |           |                               |          |            |       |          |       |               |                |              |             |             |            |           |
| H - Long-Term Dewatering, Complex Trenches                            | LS        | 2                             | --       | 280,740.00 | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             |             | 320,000    | 305,000   |
| A - On-Post Hazardous Waste Landfill (Particulates)                   | LS        | 2                             | --       | 7.08       | /BCY  | 7        | BCY   | 1.000         | 1.000          | 1.000        |             |             | 100        | 100       |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS        | 4                             | --       | 4.72       | /BCY  | 7        | BCY   | 1.000         | 1.000          | 1.000        |             |             | 40         | 30        |
| U - On-Post Solid Waste Landfill                                      | LS        | 2                             | --       | 7.08       | /BCY  | 91,000   | BCY   | 1.000         | 1.000          | 1.000        |             |             | 735,000    | 700,000   |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS        | 4                             | --       | 4.72       | /BCY  | 91,000   | BCY   | 1.000         | 1.000          | 1.000        |             |             | 480,000    | 423,000   |
| Subtotal (A)                                                          |           |                               |          |            |       |          |       |               |                |              |             |             | 1,546,000  | 1,429,000 |
| INDIRECT CAPITAL COSTS                                                |           |                               |          |            |       |          |       |               |                |              |             |             |            |           |
| COST CODE: NMSS                                                       |           |                               |          |            |       |          |       |               |                |              |             |             |            |           |
| Mod/Demob                                                             | 4.5%      | B = 0.045 * (A)               |          |            |       |          |       |               |                |              |             |             |            |           |
| Indirects, Overhead & Profit                                          | 40.3%     | C = 0.403 * (A+B)             |          |            |       |          |       |               |                |              |             |             |            |           |
| Engineering Design                                                    | 4.5%      | D = 0.045 * (A+B+C)           |          |            |       |          |       |               |                |              |             |             |            |           |
| Resident Engineering                                                  | 1.8%      | E = 0.018 * (A+B+C)           |          |            |       |          |       |               |                |              |             |             |            |           |
| Contingency                                                           | 28.8%     | F = 0.288 * (A+B+C+D+E)       |          |            |       |          |       |               |                |              |             |             |            |           |
| Subtotal (G = B+C+D+E+F)                                              |           |                               |          |            |       |          |       |               |                |              |             |             | 1,553,000  | 1,436,000 |
| DIRECT SUBCONTRACT CAPITAL COSTS                                      |           |                               |          |            |       |          |       |               |                |              |             |             |            |           |
| A - Incineration                                                      | A         | 1                             | 2        | 72.34      | /BCY  | 170      | BCY   | 1.000         | 1.000          | 1.000        |             |             | 14,000     | 14,000    |
| Subtotal (A1)                                                         |           |                               |          |            |       |          |       |               |                |              |             |             | 14,000     | 14,000    |
| INDIRECT SUBCONTRACT CAPITAL COSTS                                    |           |                               |          |            |       |          |       |               |                |              |             |             |            |           |
| COST CODE: C                                                          |           |                               |          |            |       |          |       |               |                |              |             |             |            |           |
| Mod/Demob                                                             | 2.0%      | B1 = 0.020 * (A1)             |          |            |       |          |       |               |                |              |             |             |            |           |
| Contractor Markup                                                     | 10.0%     | C1 = 0.100 * (A1+B1)          |          |            |       |          |       |               |                |              |             |             |            |           |
| Engineering Design                                                    | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |            |       |          |       |               |                |              |             |             |            |           |
| Resident Engineering                                                  | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |            |       |          |       |               |                |              |             |             |            |           |
| Contingency                                                           | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |            |       |          |       |               |                |              |             |             |            |           |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                        |           |                               |          |            |       |          |       |               |                |              |             |             | 9,000      | 9,000     |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                                   |           |                               |          |            |       |          |       |               |                |              |             |             | 3,122,000  | 2,887,000 |

Table B5.8-5b RESIZED ALTERNATIVE - Cost Estimate - Disposal Trenches Medium Group - Complex Trenches Subgroup  
Alternative 5b: Caps/Covers (Clay/Soil Cap); Vertical Barriers (Slurry Walls) with Consolidation

| Cost Item                                                                   | Cost Type | Start Year | End Year | Unit Cost (\$) | Quantity                     | Units     | Volume Factor | Mileage Factor | Other Factor | Description  | Annual Cost (\$) | Total Cost (\$) | 1995 (\$)  | PW Cost    |
|-----------------------------------------------------------------------------|-----------|------------|----------|----------------|------------------------------|-----------|---------------|----------------|--------------|--------------|------------------|-----------------|------------|------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                    |           |            |          |                |                              |           |               |                |              |              |                  |                 |            |            |
| H - Slurry Wall (20 - 65 ft Deep)                                           | A         | 3          | 4        | 47.22          | 27,100                       | /SY       | 1.000         | 1.000          | 1.000        |              |                  | 1,460,000       | 1,283,000  |            |
| HB - Soil Excavation                                                        | A         | 3          | 4        | 3.91           | 70,000                       | /BCY      | 1.000         | 1.000          | 1.000        |              |                  | 375,000         | 332,000    |            |
| HB - Grade Filling w/Consolidated Soil Prior to Capping                     | A         | 3          | 4        | 3.63           | 70,000                       | /BCY      | 1.000         | 1.000          | 1.000        |              |                  | 280,000         | 257,000    |            |
| H - Subgrade Preparation Prior to Installing Cap/Cover                      | LS        | 2          | --       | 0.06           | 130,000                      | /SY       | 1.000         | 1.000          | 1.000        |              |                  | 8,000           | 8,000      |            |
| H - Grade Filling w/Excav Soil from Slurry Trench Prior to Capping          | A         | 3          | 4        | 3.63           | 27,100                       | /BCY      | 1.000         | 1.000          | 1.000        |              |                  | 112,000         | 98,000     |            |
| HAU - Installation of Clay/Soil Cap                                         | A         | 3          | 4        | 23.30          | 130,000                      | /SY       | 1.000         | 1.000          | 1.000        |              |                  | 3,457,000       | 3,081,000  |            |
| HB - Installation of 6 Inches of Topsoil                                    | A         | 3          | 4        | 3.24           | 240,000                      | /SY       | 1.000         | 1.000          | 1.000        |              |                  | 887,000         | 786,000    |            |
| HB - Re-vegetation of Disturbed Areas                                       | A         | 3          | 4        | 0.18           | 350,000                      | /SY       | 1.000         | 1.000          | 1.000        |              |                  | 79,000          | 70,000     |            |
| A - Drilling and Agent Screening Prior to Excavation                        | LS        | 3          | --       | 4.89           | 280,000                      | /SY       | 1.000         | 1.000          | 1.000        |              |                  | 1,562,000       | 1,417,000  |            |
| A - Excavation of Soil with Agent                                           | A         | 3          | 4        | 4.55           | 1,700                        | /BCY      | 1.000         | 1.000          | 1.000        |              |                  | 11,000          | 9,000      |            |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility    | A         | 3          | 4        | 1.07           | 1,700                        | /BCY-MILE | 1.000         | 1.000          | 1.000        |              |                  | 2,000           | 2,000      |            |
| A - Load Treated Soil for Transport to Hazardous Landfill                   | A         | 3          | 4        | 1.55           | 7                            | /BCY      | 1.000         | 1.000          | 1.000        |              |                  | 10              | 10         |            |
| A - Transportation of Periculates to On-Post Hazardous Waste Landfill       | A         | 3          | 4        | 1.07           | 7                            | /BCY-MILE | 1.000         | 1.000          | 1.000        |              |                  | 10              | 10         |            |
| A - On-Post Hazardous Waste Landfill (Particulates)                         | A         | 3          | 4        | 3.93           | 7                            | /BCY      | 1.000         | 1.000          | 1.000        |              |                  | 30              | 30         |            |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill              | A         | 3          | 4        | 1.28           | 1,700                        | /BCY      | 1.000         | 1.000          | 1.000        |              |                  | 2,000           | 2,000      |            |
| A - Transportation of Treated Soil to Backfill Excavation                   | A         | 3          | 4        | 0.86           | 1,700                        | /BCY-MILE | 1.000         | 1.000          | 1.000        |              |                  | 2,000           | 1,000      |            |
| A - Backfill with Treated Soil                                              | A         | 3          | 4        | 1.72           | 1,700                        | /BCY      | 1.000         | 1.000          | 1.000        |              |                  | 3,000           | 3,000      |            |
| U - UXO Clearance by Geophysics                                             | LS        | 2          | --       | 0.85           | 280,000                      | /SY       | 1.000         | 1.000          | 1.000        |              |                  | 272,000         | 259,000    |            |
| U - Removal of Soil with UXO                                                | A         | 3          | 4        | 70.57          | 1,700                        | /BCY      | 1.000         | 1.000          | 1.000        |              |                  | 137,000         | 121,000    |            |
| U - Excavation of Debris from Surface Soil                                  | A         | 3          | 4        | 3.91           | 17,000                       | /BCY      | 1.000         | 1.000          | 1.000        |              |                  | 98,000          | 87,000     |            |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill | A         | 3          | 4        | 0.71           | 17,000                       | /BCY-MILE | 1.000         | 0.750          | 1.300        | Productivity |                  | 13,000          | 12,000     |            |
| U - On-Post Solid Waste Landfill                                            | A         | 3          | 4        | 3.93           | 17,000                       | /BCY      | 1.000         | 1.000          | 1.000        |              |                  | 76,000          | 68,000     |            |
| Subtotal (I)                                                                |           |            |          |                |                              |           |               |                |              |              |                  |                 | 8,649,000  | 7,896,000  |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |            |          |                |                              |           |               |                |              |              |                  |                 |            |            |
| Mob/Demob                                                                   |           |            |          | 5.1%           | J = 0.051 * (I)              |           |               |                |              |              |                  |                 |            |            |
| Indirects, Overhead & Profit                                                |           |            |          | 40.3%          | K = 0.403 * (I+J)            |           |               |                |              |              |                  |                 |            |            |
| Engineering Design                                                          |           |            |          | 1.5%           | L = 0.015 * (I+J+K)          |           |               |                |              |              |                  |                 |            |            |
| Resident Engineering                                                        |           |            |          | 2.0%           | M = 0.020 * (I+J+K+L)        |           |               |                |              |              |                  |                 |            |            |
| Contingency                                                                 |           |            |          | 31.3%          | N = 0.313 * (I+J+K+L+M)      |           |               |                |              |              |                  |                 |            |            |
| Subtotal (O = J+K+L+M+N)                                                    |           |            |          |                |                              |           |               |                |              |              |                  |                 | 453,000    | 404,000    |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                        |           |            |          |                |                              |           |               |                |              |              |                  |                 |            |            |
| A - Incineration                                                            | A         | 3          | 4        | 201.09         | 1,700                        | /BCY      | 1.000         | 1.000          | 1.000        |              |                  | 380,000         | 345,000    |            |
| U - Packaging and Transportation of Agent UXO to Army Off-Post UXO Facility | A         | 3          | 4        | 2,200.00       | 1,700                        | /BCY      | 1.000         | 1.000          | 1.000        |              |                  | 4,288,000       | 3,779,000  |            |
| Subtotal (H)                                                                |           |            |          |                |                              |           |               |                |              |              |                  |                 | 4,658,000  | 4,124,000  |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |            |          |                |                              |           |               |                |              |              |                  |                 |            |            |
| Mob/Demob                                                                   |           |            |          | 0.0%           | J1 = 0.000 * (H)             |           |               |                |              |              |                  |                 |            |            |
| Contractor Markup                                                           |           |            |          | 10.0%          | K1 = 0.100 * (H+J1)          |           |               |                |              |              |                  |                 |            |            |
| Engineering Design                                                          |           |            |          | 0.0%           | L1 = 0.000 * (H+J1+K1)       |           |               |                |              |              |                  |                 |            |            |
| Resident Engineering                                                        |           |            |          | 2.0%           | M1 = 0.020 * (H+J1+K1+L1)    |           |               |                |              |              |                  |                 |            |            |
| Contingency                                                                 |           |            |          | 40.0%          | N1 = 0.400 * (H+J1+K1+L1+M1) |           |               |                |              |              |                  |                 |            |            |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                              |           |            |          |                |                              |           |               |                |              |              |                  |                 | 0          | 0          |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                              |           |            |          |                |                              |           |               |                |              |              |                  |                 | 466,000    | 412,000    |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                              |           |            |          |                |                              |           |               |                |              |              |                  |                 | 0          | 0          |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                              |           |            |          |                |                              |           |               |                |              |              |                  |                 | 102,000    | 91,000     |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                              |           |            |          |                |                              |           |               |                |              |              |                  |                 | 2,081,000  | 1,851,000  |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                              |           |            |          |                |                              |           |               |                |              |              |                  |                 | 2,659,000  | 2,354,000  |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                              |           |            |          |                |                              |           |               |                |              |              |                  |                 | 25,040,000 | 22,275,000 |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+H+O1)</b>                     |           |            |          |                |                              |           |               |                |              |              |                  |                 |            |            |

Table B5.8-5b RESIZED ALTERNATIVE - Cost Estimate - Disposal Trenches Medium Group - Complex Trenches Subgroup  
Alternative 5b: Caps/Covers (Clay/Soil Cap); Vertical Barriers (Slurry Walls) with Consolidation

| Cost Item                                                                               | Cost Type                                   | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------------------------|---------------------------------------------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                      |                                             |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| HAU - Installation of Clay/Soil Cap                                                     | A                                           | 4          | 30       | 0.80                   | /SY-YR  | 130,000  | SY    | 1,000         | 1,000          | 1,000        | 1,000       | 119,000                  | 3,204,000               | 1,578,000            |
| H - Long-Term Dewatering, Complex Trenches                                              | A                                           | 4          | 30       | 50,214.00              | /EA-YR  | 1        | EA    | 1,000         | 1,000          | 1,000        | 1,000       | 57,000                   | 1,547,000               | 781,000              |
| HB - Site Reviews                                                                       | A                                           | 4          | 30       | 5,400.00               | /EA-YR  | 1        | EA    | 1,000         | 1,000          | 1,000        | 1,000       | 6,000                    | 168,000                 | 82,000               |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                             | A                                           | 4          | 30       | 0.13                   | /BCY-YR | 7        | BCY   | 1,000         | 1,000          | 1,000        | 1,000       | 1                        | 30                      | 10                   |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                   | A                                           | 4          | 30       | 0.13                   | /BCY-YR | 17,000   | BCY   | 1,000         | 1,000          | 1,000        | 1,000       | 3,000                    | 88,000                  | 33,000               |
| Subtotal (P)                                                                            |                                             |            |          |                        |         |          |       |               |                |              |             | 185,000                  | 4,986,000               | 2,453,000            |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                    |                                             |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects Overhead & Profit                                                             | COST CODE: LLSL<br>Q = 0.390 * (P)<br>38.0% |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                                             | R = 0.300 * (P+Q)<br>30.0%                  |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (S = Q+R)                                                                      |                                             |            |          |                        |         |          |       |               |                |              |             | 72,000                   | 1,945,000               | 957,000              |
| TOTAL O&M COSTS (LONG-TERM ACTIVITIES) (T = P+S)                                        |                                             |            |          |                        |         |          |       |               |                |              |             | 77,000                   | 2,079,000               | 1,023,000            |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (OPERATIONS & LONG-TERM ACTIVITIES) (U = H+O+T) |                                             |            |          |                        |         |          |       |               |                |              |             | 149,000                  | 4,024,000               | 1,979,000            |
| HCT-05B.WQ1                                                                             |                                             |            |          |                        |         |          |       |               |                |              |             | 334,000                  | 9,010,000               | 4,432,000            |
| SOILS DAA                                                                               |                                             |            |          |                        |         |          |       |               |                |              |             |                          | 37,200,000              | 29,600,000           |

16-Jul-93

Table B5.9-14  
RESIZED ALTERNATIVE - Cost Estimate - Disposal Trenches Medium Group - Shell Trenches Subgroup  
Alternative 14: Incineration/Pyrolysis (Rotary Kiln); Landfill (On-Post Landfill)

| Cost Item                                            | Cost Type | Start Year                    | End Year | 1992(\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |           |
|------------------------------------------------------|-----------|-------------------------------|----------|-----------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|-----------|
| DIRECT CAPITAL COSTS                                 |           |                               |          |                       |       |          |       |               |                |              |             |                          |                         |                      |           |
| H - Excavation Dewatering, Shell Trenches            | LS        | 1                             | -        | 172,685.00            | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 197,000                  | 197,000                 | 197,000              |           |
| H - Shell Trench Excavation Including Vapor Controls | LS        | 2                             | -        | 9,988,750.00          | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 11,389,000               | 10,856,000              | 10,856,000           |           |
| H - On-Post Hazardous Waste Landfill                 | LS        | 2                             | -        | 7.08                  | /BCY  | 100,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 806,000                  | 789,000                 | 789,000              |           |
| H - On-Post Hazardous Waste Landfill Closure         | LS        | 2                             | -        | 4.72                  | /BCY  | 100,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 539,000                  | 513,000                 | 513,000              |           |
| Subtotal (A)                                         |           |                               |          |                       |       |          |       |               |                |              |             | 12,942,000               | 12,338,000              |                      |           |
| INDIRECT CAPITAL COSTS                               |           |                               |          |                       |       |          |       |               |                |              |             |                          |                         |                      |           |
| COST CODE: UMMS                                      |           |                               |          |                       |       |          |       |               |                |              |             |                          |                         |                      |           |
| Mob/Demob                                            | 3.9%      | B = 0.038 * (A)               |          |                       |       |          |       |               |                |              |             |                          |                         |                      |           |
| Indirects, Overhead & Profit                         | 37.6%     | C = 0.378 * (A+B)             |          |                       |       |          |       |               |                |              |             |                          |                         | 502,000              | 478,000   |
| Engineering Design                                   | 4.5%      | D = 0.045 * (A+B+C)           |          |                       |       |          |       |               |                |              |             |                          |                         | 5,075,000            | 4,837,000 |
| Resident Engineering                                 | 1.5%      | E = 0.015 * (A+B+C)           |          |                       |       |          |       |               |                |              |             |                          |                         | 833,000              | 794,000   |
| Contingency                                          | 27.5%     | F = 0.275 * (A+B+C+D+E)       |          |                       |       |          |       |               |                |              |             |                          |                         | 278,000              | 265,000   |
| Subtotal (G = B+C+D+E+F)                             |           |                               |          |                       |       |          |       |               |                |              |             | 5,388,000                | 5,145,000               |                      |           |
| Subtotal (A)                                         |           |                               |          |                       |       |          |       |               |                |              |             | 12,085,000               | 11,519,000              |                      |           |
| DIRECT SUBCONTRACT CAPITAL COSTS                     |           |                               |          |                       |       |          |       |               |                |              |             |                          |                         |                      |           |
| H - Incineration                                     | A         | 1                             | 2        | 72.34                 | /BCY  | 100,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 8,255,000                | 8,059,000               | 8,059,000            |           |
| Subtotal (A1)                                        |           |                               |          |                       |       |          |       |               |                |              |             | 8,255,000                | 8,059,000               |                      |           |
| INDIRECT SUBCONTRACT CAPITAL COSTS                   |           |                               |          |                       |       |          |       |               |                |              |             |                          |                         |                      |           |
| COST CODE: C                                         |           |                               |          |                       |       |          |       |               |                |              |             |                          |                         |                      |           |
| Mob/Demob                                            | 2.0%      | B1 = 0.020 * (A1)             |          |                       |       |          |       |               |                |              |             |                          |                         |                      |           |
| Contractor Markup                                    | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                       |       |          |       |               |                |              |             |                          |                         | 165,000              | 161,000   |
| Engineering Design                                   | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |                       |       |          |       |               |                |              |             |                          |                         | 842,000              | 822,000   |
| Resident Engineering                                 | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |                       |       |          |       |               |                |              |             |                          |                         | 834,000              | 814,000   |
| Contingency                                          | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                       |       |          |       |               |                |              |             |                          |                         | 278,000              | 271,000   |
| Subtotal (G1 = B1+C1+D1+E1+F1)                       |           |                               |          |                       |       |          |       |               |                |              |             | 3,112,000                | 3,036,000               |                      |           |
| Subtotal (G1)                                        |           |                               |          |                       |       |          |       |               |                |              |             | 5,231,000                | 5,108,000               |                      |           |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                  |           |                               |          |                       |       |          |       |               |                |              |             | 38,514,000               | 37,020,000              |                      |           |
| HST-1.4.W01<br>SOILS DAA<br>16-Jan-93                |           |                               |          |                       |       |          |       |               |                |              |             |                          |                         |                      |           |



Table B5.9-14 RESIZED ALTERNATIVE - Cost Estimate - Disposal Trenches Medium Group - Shell Trenches Subgroup  
Alternative 14: Incineration/Pyrolysis (Rotary Kiln): Landfill (On-Post Landfill)

| Cost Item                                                                   | Cost Type | Start Year | End Year | Unit Cost  | 1992 (\$) | Units | Quantity | Volume Factor | Mileage Factor | Other Factor | Description  | Annual Cost | 1995 (\$)  | 1995 (\$)  | PW Cost |
|-----------------------------------------------------------------------------|-----------|------------|----------|------------|-----------|-------|----------|---------------|----------------|--------------|--------------|-------------|------------|------------|---------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                    |           |            |          |            |           |       |          |               |                |              |              |             |            |            |         |
| H - Excavation Dewatering, Shell Trenches                                   | A         | 1          | 3        | 452.612.00 | /EA-YR    |       | 1        |               |                |              | EA           | 1,000       | 1,550,000  | 1,477,000  |         |
| H - Excavation of Cover Overburden                                          | LS        | 2          | -        | 1.89       | /BCY      |       | 31,000   | 1,000         | 1,000          | 1,000        | BCY          | 1,000       | 67,000     | 64,000     |         |
| H - Shell Trench Excavation Including Vapor Controls                        | LS        | 3          | -        | 88.42      | /BCY      |       | 100,000  | 1,000         | 1,000          | 1,000        | BCY          | 1,000       | 10,080,000 | 8,152,000  |         |
| H - Transportation of Contaminated Soil to On-Post Incineration Facility    | LS        | 3          | -        | 1.07       | /BCY-MILE |       | 100,000  | 1,000         | 1,000          | 1,300        | Productivity | 1,000       | 159,000    | 144,000    |         |
| H - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3          | -        | 1.55       | /BCY      |       | 100,000  | 1,000         | 1,000          | 1,000        | BCY          | 1,000       | 177,000    | 160,000    |         |
| H - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill | LS        | 3          | -        | 1.07       | /BCY-MILE |       | 100,000  | 1,000         | 1,000          | 1,300        | Productivity | 1,000       | 159,000    | 144,000    |         |
| H - On-Post Hazardous Waste Landfill                                        | LS        | 3          | -        | 3.93       | /BCY      |       | 100,000  | 1,000         | 1,000          | 1,000        | BCY          | 1,000       | 448,000    | 407,000    |         |
| H - Excavation of Borrow Material                                           | LS        | 3          | -        | 1.89       | /BCY      |       | 100,000  | 1,000         | 1,000          | 1,000        | BCY          | 1,000       | 216,000    | 198,000    |         |
| H - Transportation of Borrow Material to Backfill Area                      | LS        | 3          | -        | 0.86       | /BCY-MILE |       | 100,000  | 1,000         | 1,500          | 1,000        | BCY          | 1,000       | 147,000    | 134,000    |         |
| H - Backfill with Borrow Material                                           | LS        | 3          | -        | 1.72       | /BCY      |       | 100,000  | 1,000         | 1,000          | 1,000        | BCY          | 1,000       | 196,000    | 178,000    |         |
| H - Backfill of Cover Overburden                                            | LS        | 3          | -        | 1.72       | /BCY      |       | 31,000   | 1,000         | 1,000          | 1,000        | BCY          | 1,000       | 61,000     | 55,000     |         |
| H - Revegetation of Disturbed Areas                                         | LS        | 3          | -        | 0.18       | /SY       |       | 32,000   | 1,000         | 1,000          | 1,100        | Disturbance  | 1,000       | 7,000      | 7,000      |         |
| <b>Subtotal (I)</b>                                                         |           |            |          |            |           |       |          |               |                |              |              |             | 13,277,000 | 12,117,000 |         |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |            |          |            |           |       |          |               |                |              |              |             |            |            |         |
| <b>COST CODE: HMLS</b>                                                      |           |            |          |            |           |       |          |               |                |              |              |             |            |            |         |
| Mod/Demob                                                                   |           |            |          |            |           |       |          |               |                |              |              |             |            |            |         |
| Indirects, Overhead & Profit                                                | 5.1%      |            |          |            |           |       |          |               |                |              |              |             | 680,000    | 621,000    |         |
| Engineering Design                                                          | 39.0%     |            |          |            |           |       |          |               |                |              |              |             | 5,443,000  | 4,998,000  |         |
| Resident Engineering                                                        | 1.5%      |            |          |            |           |       |          |               |                |              |              |             | 291,000    | 268,000    |         |
| Contingency                                                                 | 2.0%      |            |          |            |           |       |          |               |                |              |              |             | 398,000    | 354,000    |         |
|                                                                             | 31.3%     |            |          |            |           |       |          |               |                |              |              |             | 6,275,000  | 5,727,000  |         |
| <b>Subtotal (O = J+K+L+M+N)</b>                                             |           |            |          |            |           |       |          |               |                |              |              |             | 13,077,000 | 11,935,000 |         |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                        |           |            |          |            |           |       |          |               |                |              |              |             |            |            |         |
| H - Incineration                                                            | LS        | 3          | -        | 201.09     | /BCY      |       | 100,000  | 1,000         | 1,000          | 1,000        | BCY          | 1,000       | 22,946,000 | 20,814,000 |         |
| <b>Subtotal (I1)</b>                                                        |           |            |          |            |           |       |          |               |                |              |              |             | 22,946,000 | 20,814,000 |         |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |            |          |            |           |       |          |               |                |              |              |             |            |            |         |
| <b>COST CODE: D</b>                                                         |           |            |          |            |           |       |          |               |                |              |              |             |            |            |         |
| Mod/Demob                                                                   |           |            |          |            |           |       |          |               |                |              |              |             |            |            |         |
| Contractor Markup                                                           | 0.0%      |            |          |            |           |       |          |               |                |              |              |             | 0          | 0          |         |
| Engineering Design                                                          | 10.0%     |            |          |            |           |       |          |               |                |              |              |             | 2,295,000  | 2,081,000  |         |
| Resident Engineering                                                        | 0.0%      |            |          |            |           |       |          |               |                |              |              |             | 0          | 0          |         |
| Contingency                                                                 | 2.0%      |            |          |            |           |       |          |               |                |              |              |             | 505,000    | 458,000    |         |
|                                                                             | 40.0%     |            |          |            |           |       |          |               |                |              |              |             | 10,295,000 | 9,341,000  |         |
| <b>Subtotal (O1 = J1+K1+L1+M1+N1)</b>                                       |           |            |          |            |           |       |          |               |                |              |              |             | 13,095,000 | 11,861,000 |         |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+I1+O1)</b>                    |           |            |          |            |           |       |          |               |                |              |              |             | 62,400,000 | 56,747,000 |         |

| Cost Item                                                                                                    | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                           |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| H - On Post Hazardous Waste Landfill Closure                                                                 | A         | 3          | 30       | 0.13                   | /BCY-YR | 100,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 15,000                   | 415,000                 | 210,000              |
| Subtotal (P)                                                                                                 |           |            |          |                        |         |          |       |               |                |              |             | 15,000                   | 415,000                 | 210,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: U.S.L.                                                                                            |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                                 |           |            |          |                        |         |          |       |               |                |              |             | 6,000                    | 162,000                 | 82,000               |
| Contingency                                                                                                  |           |            |          |                        |         |          |       |               |                |              |             | 6,000                    | 173,000                 | 88,000               |
| Subtotal (S = Q+R)                                                                                           |           |            |          |                        |         |          |       |               |                |              |             | 12,000                   | 335,000                 | 170,000              |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                                  |           |            |          |                        |         |          |       |               |                |              |             | 27,000                   | 751,000                 | 380,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O&amp;M+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          | 102,000,000             | 94,100,000           |

Table B5.10-14 RESIZED ALTERNATIVE - Cost Estimate - Disposal Trenches Medium Group - Hex Pit Subgroup  
Alternative 14: Incineration/Pyrolysis (Rotary Kiln); Landfill (On-Post Landfill)

| Cost Item                                       | Cost Type                     | Start Year | End Year | 1992 (\$)  | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) |
|-------------------------------------------------|-------------------------------|------------|----------|------------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|
| DIRECT CAPITAL COSTS                            |                               |            |          |            |       |          |       |               |                |              |             |           |           |           |
| H - On-Post Hazardous Waste Landfill            | LS                            | 2          | --       | 7.08       | /BCY  | 3,300    | BCY   | 1.000         | 1.000          | 1.000        |             | 27,000    | 27,000    | 25,000    |
| H - On-Post Hazardous Waste Landfill Closure    | LS                            | 2          | --       | 4.72       | /BCY  | 3,300    | BCY   | 1.000         | 1.000          | 1.000        |             | 18,000    | 18,000    | 17,000    |
| H - Hex Pit Excavation Including Vapor Controls | LS                            | 2          | --       | 499,437.00 | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 570,000   | 570,000   | 543,000   |
| Subtotal (A)                                    |                               |            |          |            |       |          |       |               |                |              |             | 614,000   | 585,000   |           |
| INDIRECT CAPITAL COSTS                          |                               |            |          |            |       |          |       |               |                |              |             |           |           |           |
| COST CODE: LMSS                                 |                               |            |          |            |       |          |       |               |                |              |             |           |           |           |
| Mob/Demob                                       | B = 0.039 * (A)               |            |          |            |       |          |       |               |                |              |             |           |           |           |
| Indirects, Overhead & Profit                    | C = 0.390 * (A+B)             |            |          |            |       |          |       |               |                |              |             |           |           |           |
| Engineering Design                              | D = 0.045 * (A+B+C)           |            |          |            |       |          |       |               |                |              |             |           |           |           |
| Resident Engineering                            | E = 0.015 * (A+B+C)           |            |          |            |       |          |       |               |                |              |             |           |           |           |
| Contingency                                     | F = 0.275 * (A+B+C+D+E)       |            |          |            |       |          |       |               |                |              |             |           |           |           |
| Subtotal (G = B+C+D+E+F)                        |                               |            |          |            |       |          |       |               |                |              |             | 595,000   | 557,000   |           |
| DIRECT SUBCONTRACT CAPITAL COSTS                |                               |            |          |            |       |          |       |               |                |              |             |           |           |           |
| H - Incineration                                | A                             | 1          | 2        | 72.34      | /BCY  | 3,300    | BCY   | 1.000         | 1.000          | 1.000        |             | 272,000   | 272,000   | 266,000   |
| Subtotal (A1)                                   |                               |            |          |            |       |          |       |               |                |              |             | 272,000   | 266,000   |           |
| INDIRECT SUBCONTRACT CAPITAL COSTS              |                               |            |          |            |       |          |       |               |                |              |             |           |           |           |
| COST CODE: C                                    |                               |            |          |            |       |          |       |               |                |              |             |           |           |           |
| Mob/Demob                                       | B1 = 0.020 * (A1)             |            |          |            |       |          |       |               |                |              |             |           |           |           |
| Contractor Markup                               | C1 = 0.100 * (A1+B1)          |            |          |            |       |          |       |               |                |              |             |           |           |           |
| Engineering Design                              | D1 = 0.090 * (A1+B1+C1)       |            |          |            |       |          |       |               |                |              |             |           |           |           |
| Resident Engineering                            | E1 = 0.030 * (A1+B1+C1)       |            |          |            |       |          |       |               |                |              |             |           |           |           |
| Contingency                                     | F1 = 0.300 * (A1+B1+C1+D1+E1) |            |          |            |       |          |       |               |                |              |             |           |           |           |
| Subtotal (G1 = B1+C1+D1+E1+F1)                  |                               |            |          |            |       |          |       |               |                |              |             | 173,000   | 169,000   |           |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)             |                               |            |          |            |       |          |       |               |                |              |             | 1,644,000 | 1,576,000 |           |

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Table B5.10-14 RESIZED ALTERNATIVE - Cost Estimate - Disposal Trenches Medium Group - Hex Pit Subgroup  
Alternative 14: Incineration/Pyrolysis (Rotary Kbin); Landfill (On-Post Landfill)

| Cost Item                                                                   | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|-----------|----------|-------|---------------|----------------|--------------|--------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                    |           |                               |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| H - Hex Pit Excavation Including Vapor Controls                             | LS        | 3                             | --       | 100.07                 | /BCY      | 3,300    | BCY   | 1,000         | 1,000          | 1,000        | Productivity | 377,000                  | 377,000                 | 342,000              |
| H - Transportation of Contaminated Soil to On-Post Incineration Facility    | LS        | 3                             | --       | 1.07                   | /BCY-MILE | 3,300    | BCY   | 1,000         | 0.500          | 1,300        | Productivity | 3,000                    | 3,000                   | 2,000                |
| H - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3                             | --       | 1.55                   | /BCY      | 3,300    | BCY   | 1,000         | 1,000          | 1,000        | Productivity | 5,000                    | 5,000                   | 5,000                |
| H - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill | LS        | 3                             | --       | 1.07                   | /BCY-MILE | 3,300    | BCY   | 1,000         | 1,000          | 1,300        | Productivity | 5,000                    | 5,000                   | 5,000                |
| H - On-Post Hazardous Waste Landfill                                        | LS        | 3                             | --       | 3.93                   | /BCY      | 3,300    | BCY   | 1,000         | 1,000          | 1,000        | Productivity | 15,000                   | 15,000                  | 13,000               |
| H - Excavation of Borrow Material                                           | LS        | 3                             | --       | 1.89                   | /BCY      | 3,300    | BCY   | 1,000         | 1,000          | 1,000        | Productivity | 7,000                    | 7,000                   | 6,000                |
| H - Transportation of Borrow Material to Backfill Area                      | LS        | 3                             | --       | 0.86                   | /BCY-MILE | 3,300    | BCY   | 1,000         | 1,500          | 1,000        | Productivity | 5,000                    | 5,000                   | 4,000                |
| H - Backfill with Borrow Material                                           | LS        | 3                             | --       | 1.72                   | /BCY      | 3,300    | BCY   | 1,000         | 1,000          | 1,000        | Productivity | 6,000                    | 6,000                   | 6,000                |
| H - Installation of 6 inches of Topsoil                                     | LS        | 3                             | --       | 3.24                   | /SY       | 1,000    | SY    | 1,000         | 1,000          | 1,000        | Disturbance  | 4,000                    | 4,000                   | 3,000                |
| H - Revegetation of Disturbed Areas                                         | LS        | 3                             | --       | 0.18                   | /SY       | 1,000    | SY    | 1,000         | 1,000          | 1,100        | Disturbance  | 200                      | 200                     | 200                  |
| Subtotal (I)                                                                |           |                               |          |                        |           |          |       |               |                |              |              | 428,000                  | 428,000                 | 388,000              |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |                               |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Mobile/Demob                                                                | 5.1%      | J = 0.051 * (I)               |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Indirects, Overhead & Profit                                                | 41.5%     | K = 0.415 * (I+J)             |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Engineering Design                                                          | 1.5%      | L = 0.015 * (I+J+K)           |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Resident Engineering                                                        | 2.0%      | M = 0.020 * (I+J+K+L)         |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Contingency                                                                 | 31.3%     | N = 0.313 * (I+J+K+L+M)       |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Subtotal (O) = J+K+L+M+N                                                    |           |                               |          |                        |           |          |       |               |                |              |              | 22,000                   | 22,000                  | 20,000               |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                        |           |                               |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| H - Incineration                                                            | LS        | 3                             | --       | 201.09                 | /BCY      | 3,300    | BCY   | 1,000         | 1,000          | 1,000        | Productivity | 757,000                  | 757,000                 | 687,000              |
| Subtotal (II)                                                               |           |                               |          |                        |           |          |       |               |                |              |              | 757,000                  | 757,000                 | 687,000              |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |                               |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Mobile/Demob                                                                | 0.0%      | J1 = 0.000 * (II)             |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Contractor Markup                                                           | 10.0%     | K1 = 0.100 * (II+J1)          |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Engineering Design                                                          | 0.0%      | L1 = 0.000 * (II+J1+K1)       |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Resident Engineering                                                        | 2.0%      | M1 = 0.020 * (II+J1+K1+L1)    |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Contingency                                                                 | 40.0%     | N1 = 0.400 * (II+J1+K1+L1+M1) |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
| Subtotal (OI) = J1+K1+L1+M1+N1                                              |           |                               |          |                        |           |          |       |               |                |              |              | 76,000                   | 76,000                  | 66,000               |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO) = I+O+II+OI</b>                    |           |                               |          |                        |           |          |       |               |                |              |              |                          |                         |                      |
|                                                                             |           |                               |          |                        |           |          |       |               |                |              |              | 2,054,000                | 2,054,000               | 1,853,000            |

Table B5.10-14 RESIZED ALTERNATIVE - Cost Estimate - Disposal Trenches Medium Group - Hex Pit Subgroup  
Alternative 14: Incineration/Pyrolysis (Rotary Kiln); Landfill (On-Post Landfill)

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill Closure                                                           | A         | 3          | 30       | 0.13                   | /BCY-YR | 3,300    | BCY   | 1.000         | 1.000          | 1.000        |             | 500                      | 14,000                  | 7,000                |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                           |           |            |          |                        |         |          |       |               |                |              |             | 200                      | 5,000                   | 3,000                |
| Contingency                                                                                            |           |            |          |                        |         |          |       |               |                |              |             | 200                      | 6,000                   | 3,000                |
| <b>Subtotal (S = Q+R)</b>                                                                              |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (U)</b>                                                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (U)</b>                                                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |

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Table B5.11-3 RESIZED ALTERNATIVE - Cost Estimate - Sanitary Landfills Medium Group  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume<br>Factor | Mileage<br>Factor | Other<br>Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|------------------|-------------------|-----------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill         | LS        | 1          | --       | 7.08                   | /BCY  | 430,000  | BCY   | 1.000            | 1.000             | 1.000           |             |                          | 3,474,000               | 3,474,000            |
| HB - On-Post Hazardous Waste Landfill Closure | LS        | 2          | --       | 4.72                   | /BCY  | 430,000  | BCY   | 1.000            | 1.000             | 1.000           |             |                          | 2,316,000               | 2,206,000            |
| Subtotal (A)                                  |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 5,790,000               | 5,680,000            |
| INDIRECT CAPITAL COSTS                        |           |            |          |                        |       |          |       |                  |                   |                 |             |                          |                         |                      |
| Mob/Demob                                     |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 186,000                 | 186,000              |
| Indirects, Overhead & Profit                  |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 2,214,000               | 2,214,000            |
| Engineering Design                            |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 247,000                 | 242,000              |
| Resident Engineering                          |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 103,000                 | 101,000              |
| Contingency                                   |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 2,254,000               | 2,211,000            |
| Subtotal (G =B+C+D+E+F)                       |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 5,049,000               | 4,953,000            |
| TOTAL CAPITAL COSTS (H = A+G)                 |           |            |          |                        |       |          |       |                  |                   |                 |             |                          | 10,839,000              | 10,633,000           |

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Table B5.11-3 RESIZED ALTERNATIVE - Cost Estimate - Sanitary Landfills Medium Group  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost   | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |            |         |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|--------------------------|-----------|----------|-------|---------------|----------------|--------------|--------------|--------------------------|-------------------------|----------------------|------------|---------|
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |                          |           |          |       |               |                |              |              |                          |                         |                      |            |         |
| HB - Landfill Excavation                                                                       | LS        | 2          | --       | 3.91                     | /BCY      | 430,000  | BCY   | 1.000         | 1.000          | 1.300        | Productivity |                          | 2,494,000               | 2,375,000            |            |         |
| HB - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill                   | LS        | 2          | --       | 1.07                     | /BCY-MILE | 430,000  | BCY   | 1.000         | 3.000          | 1.300        | Productivity |                          | 2,048,000               | 1,950,000            |            |         |
| HB - On-Post Hazardous Waste Landfill                                                          | LS        | 2          | --       | 3.93                     | /BCY      | 430,000  | BCY   | 1.000         | 1.000          | 1.000        |              |                          | 1,928,000               | 1,837,000            |            |         |
| HB - Excavation of Borrow Material                                                             | LS        | 2          | --       | 1.89                     | /BCY      | 430,000  | BCY   | 1.000         | 1.000          | 1.000        |              |                          | 827,000                 | 883,000              |            |         |
| HB - Transportation of Borrow Material to Backfill Area                                        | LS        | 2          | --       | 0.86                     | /BCY-MILE | 430,000  | BCY   | 1.000         | 1.500          | 1.000        |              |                          | 633,000                 | 603,000              |            |         |
| HB - Backfill with Borrow Material                                                             | LS        | 2          | --       | 1.72                     | /BCY      | 430,000  | BCY   | 1.000         | 1.000          | 1.000        |              |                          | 844,000                 | 804,000              |            |         |
| HB - Installation of 6 Inches of Topsoil                                                       | LS        | 2          | --       | 3.24                     | /SY       | 150,000  | SY    | 1.000         | 1.000          | 1.000        |              |                          | 555,000                 | 528,000              |            |         |
| HB - Revegetation of Disturbed Areas                                                           | LS        | 2          | --       | 0.18                     | /SY       | 150,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance  |                          | 34,000                  | 32,000               |            |         |
|                                                                                                |           |            |          |                          |           |          |       |               |                |              |              | 9,463,000                | 9,013,000               |                      |            |         |
| INDIRECT O&M COSTS (OPERATIONS)                                                                |           |            |          |                          |           |          |       |               |                |              |              |                          |                         |                      |            |         |
| Mod/Demob                                                                                      |           |            |          | 3.9%                     |           |          |       |               |                |              |              |                          |                         | 367,000              | 348,000    |         |
| Indirects, Overhead & Profit                                                                   |           |            |          | 39.0%                    |           |          |       |               |                |              |              |                          |                         | 3,834,000            | 3,651,000  |         |
| Engineering Design                                                                             |           |            |          | 0.5%                     |           |          |       |               |                |              |              |                          |                         | 68,000               | 65,000     |         |
| Resident Engineering                                                                           |           |            |          | 1.5%                     |           |          |       |               |                |              |              |                          |                         | 205,000              | 195,000    |         |
| Contingency                                                                                    |           |            |          | 27.5%                    |           |          |       |               |                |              |              |                          |                         | 3,833,000            | 3,650,000  |         |
|                                                                                                |           |            |          | Subtotal (I) = J+K+L+M+N |           |          |       |               |                |              |              |                          | 8,306,000               | 7,911,000            |            |         |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |                          |           |          |       |               |                |              |              |                          |                         |                      |            |         |
| HB - On-Post Hazardous Waste Landfill Closure                                                  | A         | 2          | 30       | 0.13                     | /BCY-YR   | 430,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 64,000                   | 1,850,000               | 966,000              |            |         |
|                                                                                                |           |            |          |                          |           |          |       |               |                |              |              | 64,000                   | 1,850,000               | 966,000              |            |         |
| INDIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                      |           |            |          |                          |           |          |       |               |                |              |              |                          |                         |                      |            |         |
| Indirects, Overhead & Profit                                                                   |           |            |          | 39.0%                    |           |          |       |               |                |              |              |                          |                         | 25,000               | 721,000    | 377,000 |
| Contingency                                                                                    |           |            |          | 30.0%                    |           |          |       |               |                |              |              |                          |                         | 27,000               | 771,000    | 403,000 |
|                                                                                                |           |            |          |                          |           |          |       |               |                |              |              | 51,000                   | 1,493,000               | 779,000              |            |         |
| Subtotal (S)                                                                                   |           |            |          |                          |           |          |       |               |                |              |              | 115,000                  | 21,113,000              | 18,689,000           |            |         |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long-Term Activities] |           |            |          |                          |           |          |       |               |                |              |              |                          |                         |                      |            |         |
|                                                                                                |           |            |          |                          |           |          |       |               |                |              |              |                          |                         | 32,000,000           | 29,300,000 |         |
| TOTAL CAPITAL COSTS AND TOTAL O&M COSTS (U = H+T)                                              |           |            |          |                          |           |          |       |               |                |              |              |                          |                         |                      |            |         |

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**Table B5.12-6d**  
**RESIZED ALTERNATIVE - Cost Estimate - Lime Basins Medium Group - Section 36 Lime Basins Subgroup**  
**Alternative 6d: Caps/Covers (Clay/Soil Cap) with Modifications to Existing Systems**

[illegible]



| Cost Item                                                | Cost Type | Start Year | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) |
|----------------------------------------------------------|-----------|------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|
| DIRECT O&M COSTS (OPERATIONS)                            |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
| HBA - Subgrade Preparation Prior to Installing Cap/Cover | LS        | 1          | --       | 0.06      | /SY   | 63,000   | SY    | 1.000         | 1.000          | 1.000        |             | 4,000     |           | 4,000     |
| HBA - Modification of Existing Soil Cover                | LS        | 1          | --       | 22.80     | /SY   | 63,000   | SY    | 1.000         | 1.000          | 1.000        |             | 1,638,000 |           | 1,638,000 |
| HBA - Revegetation of Disturbed Areas                    | LS        | 1          | --       | 0.18      | /SY   | 63,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance | 14,000    |           | 14,000    |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
|                                                          |           |            |          |           |       |          |       |               |                |              |             |           |           |           |
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Table B5.13-10 RESIZED ALTERNATIVE - Cost Estimate - Lime Basins Medium Group - Buried M-1 Plus Subgroup  
Alternative 10: Direct Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                           | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-----------------------------------------------------|-----------|-------------------------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| A - On-Post Hazardous Waste Landfill (Particulates) | LS        | 2                             | --       | 7.08                   | /BCY  | 1        | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 10                       | 10                      | 10                   |
| A - On-Post Hazardous Waste Landfill Closure        | LS        | 3                             | --       | 4.72                   | /BCY  | 1        | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 10                       | 10                      | 5                    |
| Subtotal (A)                                        |           |                               |          |                        |       |          |       |               |                |              |             | 10                       |                         |                      |
| INDIRECT CAPITAL COSTS                              |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LSS                                      |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                           | 3.3%      | B = 0.033 * (A)               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                        | 38.0%     | C = 0.380 * (A+B)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                  | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                | 1.3%      | E = 0.013 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                         | 26.3%     | F = 0.263 * (A+B+C+D+E)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                            |           |                               |          |                        |       |          |       |               |                |              |             | 10                       |                         |                      |
| DIRECT SUBCONTRACT CAPITAL COSTS                    |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - Cement-Based Solidification                     | LS        | 2                             | --       | 3.35                   | /BCY  | 29,000   | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 111,000                  | 111,000                 | 108,000              |
| A - Incineration                                    | A         | 1                             | 2        | 72.34                  | /BCY  | 29       | BCY   | 1.000         | 1.000          | 1.000        | 1.000       | 2,000                    | 2,000                   | 2,000                |
| Subtotal (A1)                                       |           |                               |          |                        |       |          |       |               |                |              |             | 113,000                  |                         | 108,000              |
| INDIRECT SUBCONTRACT CAPITAL COSTS                  |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: C                                        |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                           | 2.0%      | B1 = 0.020 * (A1)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                   | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                  | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                         | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                      |           |                               |          |                        |       |          |       |               |                |              |             | 72,000                   |                         | 68,000               |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                 |           |                               |          |                        |       |          |       |               |                |              |             | 185,000                  |                         | 176,000              |
| HBMI-10.W01<br>SOILS DAA                            |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |

Table B5.13-10 RESIZED ALTERNATIVE - Cost Estimate - Lime Basins Medium Group - Buried M-1 Pits Subgroup  
Alternative 10: Direct Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                | Cost Type | Start Year | End Year | 1997 (\$) | Units                        | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$) | Annual Cost | 1995 (\$) | Total Cost | 1995 (\$) | PW Cost   |
|--------------------------------------------------------------------------|-----------|------------|----------|-----------|------------------------------|----------|-------|---------------|----------------|--------------|--------------|-----------|-------------|-----------|------------|-----------|-----------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                 |           |            |          |           |                              |          |       |               |                |              |              |           |             |           |            |           |           |
| H - Soil Excavation                                                      | A         | 3          | 5        | 3.91      | /BCY                         | 29,000   | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 155,000   |             |           | 155,000    |           | 134,000   |
| H - Transportation of Contaminated Soil to Solidification Facility       | A         | 3          | 5        | 1.07      | /BCY-MILE                    | 29,000   | BCY   | 1.000         | 0.250          | 1.000        |              | 9,000     |             |           | 9,000      |           | 8,000     |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill           | A         | 3          | 5        | 1.28      | /BCY                         | 29,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 51,000    |             |           | 51,000     |           | 44,000    |
| H - Transportation of Treated Soil to Backfill Excavation                | A         | 3          | 5        | 0.86      | /BCY-MILE                    | 29,000   | BCY   | 1.000         | 0.250          | 1.000        |              | 9,000     |             |           | 9,000      |           | 7,000     |
| H - Backfill with Treated Soil                                           | A         | 3          | 5        | 1.72      | /BCY                         | 29,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 68,000    |             |           | 68,000     |           | 58,000    |
| H - Soil Cover for Solidified Materials                                  | A         | 3          | 5        | 9.14      | /SY                          | 8,600    | SY    | 1.000         | 1.000          | 1.000        | Disturbance  | 90,000    |             |           | 90,000     |           | 78,000    |
| H - Revegetation of Disturbed Areas                                      | A         | 3          | 5        | 0.18      | /SY                          | 8,600    | SY    | 1.000         | 1.000          | 1.000        |              | 2,000     |             |           | 2,000      |           | 2,000     |
| A - Drilling and Agent Screening Prior to Excavation                     | LS        | 3          | --       | 4.89      | /SY                          | 8,600    | SY    | 1.000         | 1.000          | 1.000        |              | 48,000    |             |           | 48,000     |           | 44,000    |
| A - Excavation of Soil with Agent                                        | LS        | 3          | --       | 4.55      | /BCY                         | 29       | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 200       |             |           | 200        |           | 200       |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility | LS        | 3          | --       | 1.07      | /BCY-MILE                    | 29       | BCY   | 1.000         | 0.250          | 1.000        |              | 10        |             |           | 10         |           | 10        |
| A - Load Treated Soil for Transport to Hazardous Landfill                | LS        | 3          | --       | 1.55      | /BCY                         | 1        | BCY   | 1.000         | 1.000          | 1.000        |              | 2         |             |           | 2          |           | 2         |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill   | LS        | 3          | --       | 1.07      | /BCY-MILE                    | 1        | BCY   | 1.000         | 1.000          | 1.000        |              | 1         |             |           | 1          |           | 1         |
| A - On-Post Hazardous Waste Landfill (Particulates)                      | LS        | 3          | --       | 3.93      | /BCY                         | 1        | BCY   | 1.000         | 1.000          | 1.000        |              | 4         |             |           | 4          |           | 4         |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill           | LS        | 3          | --       | 1.28      | /BCY                         | 29       | BCY   | 1.000         | 1.000          | 1.000        |              | 40        |             |           | 40         |           | 40        |
| A - Transportation of Treated Soil to Backfill Excavation                | LS        | 3          | --       | 0.86      | /BCY-MILE                    | 29       | BCY   | 1.000         | 0.250          | 1.000        |              | 10        |             |           | 10         |           | 10        |
| A - Backfill with Treated Soil                                           | LS        | 3          | --       | 1.72      | /BCY                         | 29       | BCY   | 1.000         | 1.000          | 1.000        |              | 100       |             |           | 100        |           | 100       |
| Subtotal (I)                                                             |           |            |          |           |                              |          |       |               |                |              |              | 432,000   |             |           | 432,000    |           | 375,000   |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                               |           |            |          |           |                              |          |       |               |                |              |              |           |             |           |            |           |           |
| COST CODE: HLSS                                                          |           |            |          |           |                              |          |       |               |                |              |              |           |             |           |            |           |           |
| Mob/Demob                                                                |           |            |          | 4.5%      | J = 0.045 * (I)              |          |       |               |                |              |              | 19,000    |             |           | 19,000     |           | 17,000    |
| Indirects, Overhead & Profit                                             |           |            |          | 41.5%     | K = 0.415 * (I+J)            |          |       |               |                |              |              | 187,000   |             |           | 187,000    |           | 163,000   |
| Engineering Design                                                       |           |            |          | 0.5%      | L = 0.005 * (I+J+K)          |          |       |               |                |              |              | 3,000     |             |           | 3,000      |           | 3,000     |
| Resident Engineering                                                     |           |            |          | 1.8%      | M = 0.018 * (I+J+K)          |          |       |               |                |              |              | 11,000    |             |           | 11,000     |           | 10,000    |
| Contingency                                                              |           |            |          | 30.0%     | N = 0.300 * (I+J+K+L+M)      |          |       |               |                |              |              | 196,000   |             |           | 196,000    |           | 170,000   |
| Subtotal (O) = J+K+L+M+N                                                 |           |            |          |           |                              |          |       |               |                |              |              | 417,000   |             |           | 417,000    |           | 362,000   |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                     |           |            |          |           |                              |          |       |               |                |              |              |           |             |           |            |           |           |
| H - Cement-Based Solidification                                          | A         | 3          | 5        | 70.10     | /BCY                         | 29,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 2,320,000 |             |           | 2,320,000  |           | 2,008,000 |
| A - Incineration                                                         | LS        | 3          | --       | 201.09    | /BCY                         | 29       | BCY   | 1.000         | 1.000          | 1.000        |              | 7,000     |             |           | 7,000      |           | 6,000     |
| Subtotal (H)                                                             |           |            |          |           |                              |          |       |               |                |              |              | 2,327,000 |             |           | 2,327,000  |           | 2,012,000 |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                   |           |            |          |           |                              |          |       |               |                |              |              |           |             |           |            |           |           |
| COST CODE: D                                                             |           |            |          |           |                              |          |       |               |                |              |              |           |             |           |            |           |           |
| Mob/Demob                                                                |           |            |          | 0.0%      | J1 = 0.000 * (H)             |          |       |               |                |              |              | 0         |             |           | 0          |           | 0         |
| Contractor Markup                                                        |           |            |          | 10.0%     | K1 = 0.100 * (H+J1)          |          |       |               |                |              |              | 233,000   |             |           | 233,000    |           | 201,000   |
| Engineering Design                                                       |           |            |          | 0.0%      | L1 = 0.000 * (H+J1+K1)       |          |       |               |                |              |              | 0         |             |           | 0          |           | 0         |
| Resident Engineering                                                     |           |            |          | 2.0%      | M1 = 0.020 * (H+J1+K1)       |          |       |               |                |              |              | 51,000    |             |           | 51,000     |           | 44,000    |
| Contingency                                                              |           |            |          | 40.0%     | N1 = 0.400 * (H+J1+K1+L1+M1) |          |       |               |                |              |              | 1,044,000 |             |           | 1,044,000  |           | 903,000   |
| Subtotal (O1) = J1+K1+L1+M1+N1                                           |           |            |          |           |                              |          |       |               |                |              |              | 1,328,000 |             |           | 1,328,000  |           | 1,148,000 |
| TOTAL O&M COSTS (OPERATIONS) (OO = I+O+H1+O1)                            |           |            |          |           |                              |          |       |               |                |              |              | 4,593,000 |             |           | 4,593,000  |           | 3,898,000 |

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Table B5.13-10 RESIZED ALTERNATIVE - Cost Estimate - Lime Basins Medium Group - Buried M-1 Plus Subgroup  
Alternative 10: Direct Solidification/Stabilization (Cement-Based Solidification)

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$) | Unit Cost | Units | Quantity | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|-------|----------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |           |           |       |          |               |                |              |             |           |           |           |
| H - Long Term Monitoring of Solidified Soil                                                            | A         | 5          | 30       | 0.25      | /SY-YR    | 8,600 | SY       | 1.000         | 1.000          | 1.000        |             | 2,000     | 64,000    | 30,000    |
| H - Site Reviews                                                                                       | A         | 3          | 30       | 5,400.00  | /EA-YR    | 1     | EA       | 1.000         | 1.000          | 1.000        |             | 6,000     | 173,000   | 87,000    |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       | 0.13      | /BCY-YR   | 1     | BCY      | 1.000         | 1.000          | 1.000        |             | 0         | 4         | 2         |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |           |           |       |          |               |                |              |             |           |           |           |
|                                                                                                        |           |            |          |           |           |       |          |               |                |              |             | 9,000     | 238,000   | 118,000   |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |           |           |       |          |               |                |              |             |           |           |           |
| Indirects: Overhead & Profit                                                                           |           |            |          |           |           |       |          |               |                |              |             | 3,000     | 82,000    | 48,000    |
| Contingency                                                                                            |           |            |          |           |           |       |          |               |                |              |             | 4,000     | 99,000    | 49,000    |
| <b>Subtotal (S = Q+R)</b>                                                                              |           |            |          |           |           |       |          |               |                |              |             |           |           |           |
|                                                                                                        |           |            |          |           |           |       |          |               |                |              |             | 7,000     | 191,000   | 95,000    |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |           |           |       |          |               |                |              |             |           |           |           |
|                                                                                                        |           |            |          |           |           |       |          |               |                |              |             | 16,000    | 427,000   | 213,000   |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |           |           |       |          |               |                |              |             |           |           |           |
|                                                                                                        |           |            |          |           |           |       |          |               |                |              |             |           | 5,120,000 | 4,290,000 |

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Table BS.14-6a RESIZED ALTERNATIVE - Cost Estimate - South Plants Medium Group - South Plants Central Processing Area Subgroup  
Alternative 6a: Direct Thermal Desorption (Direct Heating) and Direct Solidification/Stabilization (Cement-Based Solidification) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap)

| Cost Item                                                   | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2          | --       | 7.08                   | /BCY  | 3,200    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 28,000                  | 25,000               |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3          | --       | 4.72                   | /BCY  | 3,200    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 17,000                  | 16,000               |
| Subtotal (A)                                                |           |            |          |                        |       |          |       |               |                |              |             |                          | 43,000                  | 40,000               |
| INDIRECT CAPITAL COSTS                                      |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                   |           |            |          |                        |       |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
| Indirects, Overhead & Profit                                |           |            |          |                        |       |          |       |               |                |              |             |                          | 17,000                  | 16,000               |
| Engineering Design                                          |           |            |          |                        |       |          |       |               |                |              |             |                          | 2,000                   | 2,000                |
| Resident Engineering                                        |           |            |          |                        |       |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
| Contingency                                                 |           |            |          |                        |       |          |       |               |                |              |             |                          | 17,000                  | 16,000               |
| Subtotal (B = B+C+D+E+F)                                    |           |            |          |                        |       |          |       |               |                |              |             |                          | 38,000                  | 36,000               |
| DIRECT SUBCONTRACT CAPITAL COSTS                            |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - Thermal Desorption (Saturated Soil)                     | A         | 1          | 2        | 34.85                  | /BCY  | 320,000  | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 12,728,000              | 12,423,000           |
| H - Cement-Based Solidification                             | LS        | 2          | --       | 3.35                   | /BCY  | 4,000    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 15,000                  | 15,000               |
| Subtotal (A1)                                               |           |            |          |                        |       |          |       |               |                |              |             |                          | 12,742,000              | 12,438,000           |
| INDIRECT SUBCONTRACT CAPITAL COSTS                          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                                                   |           |            |          |                        |       |          |       |               |                |              |             |                          | 255,000                 | 249,000              |
| Contractor Markup                                           |           |            |          |                        |       |          |       |               |                |              |             |                          | 1,300,000               | 1,289,000            |
| Engineering Design                                          |           |            |          |                        |       |          |       |               |                |              |             |                          | 1,287,000               | 1,256,000            |
| Resident Engineering                                        |           |            |          |                        |       |          |       |               |                |              |             |                          | 428,000                 | 419,000              |
| Contingency                                                 |           |            |          |                        |       |          |       |               |                |              |             |                          | 4,803,000               | 4,689,000            |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |            |          |                        |       |          |       |               |                |              |             |                          | 8,073,000               | 7,881,000            |
| TOTAL CAPITAL COSTS (H = A+G-A1+G1)                         |           |            |          |                        |       |          |       |               |                |              |             |                          | 20,896,000              | 20,395,000           |



Table B5.14-6a RESIZED ALTERNATIVE - Cost Estimate - South Plants Medium Group - South Plants Central Processing Area Subgroup  
Alternative 6a: Direct Thermal Desorption (Direct Heating) and Direct Solidification/Stabilization (Cement-Based Solidification) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap)

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 3          | 30       | 0.13                   | /BCY-YR | 3,200    | BCY   | 1.000         | 1.000          | 1.000        |             | 500                      | 13,000                  | 7,000                |
| H - Long Term Monitoring of Solidified Soil                                                             | A         | 3          | 30       | 0.25                   | /SY-YR  | 6,100    | SY    | 1.000         | 1.000          | 1.000        |             | 2,000                    | 49,000                  | 25,000               |
| HBA - Installation of Clay/Soil Cap                                                                     | A         | 3          | 30       | 0.80                   | /SY-YR  | 230,000  | SY    | 1.000         | 1.000          | 1.000        |             | 210,000                  | 5,879,000               | 2,979,000            |
| HBA - Site Reviews                                                                                      | A         | 3          | 30       | 5,400.00               | /EA-YR  | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000                    | 173,000                 | 87,000               |
| Subtotal (P)                                                                                            |           |            |          |                        |         |          |       |               |                |              |             | 218,000                  | 6,114,000               | 3,098,000            |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                                                            |           |            |          |                        |         |          |       |               |                |              |             | 85,000                   | 2,394,000               | 1,208,000            |
| Contingency                                                                                             |           |            |          |                        |         |          |       |               |                |              |             | 91,000                   | 2,548,000               | 1,292,000            |
| Subtotal (S = Q+R)                                                                                      |           |            |          |                        |         |          |       |               |                |              |             | 176,000                  | 4,942,000               | 2,500,000            |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |               |                |              |             | 395,000                  | 11,048,000              | 5,598,000            |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 104,000,000             | 91,200,000           |

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Table B5.15-6b RESIZED ALTERNATIVE - Cost Estimate - South Plants Medium Group - South Plants Ditches Subgroup  
Alternative 6b: Direct Thermal Description (Direct Heating) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                   | Cost Type | Start Year                    | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------------------------------------|-----------|-------------------------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS                                        |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - On-Post Hazardous Waste Landfill (Particulates)         | LS        | 2                             | -        | 7.08                   | /BCY  | 63       | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 1,000                   | 500                  |
| H - On-Post Hazardous Waste Landfill Closure (Particulates) | LS        | 3                             | -        | 4.72                   | /BCY  | 63       | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 300                     | 300                  |
| Subtotal (A)                                                |           |                               |          |                        |       |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
| INDIRECT CAPITAL COSTS                                      |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLLS                                             |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                   | 3.3%      | B = 0.033 * (A)               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit                                | 36.5%     | C = 0.365 * (A+B)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                          | 3.0%      | D = 0.030 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                        | 1.3%      | E = 0.013 * (A+B+C)           |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                 | 26.3%     | F = 0.263 * (A+B+C+D+E)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G = B+C+D+E+F)                                    |           |                               |          |                        |       |          |       |               |                |              |             |                          | 1,000                   | 1,000                |
| DIRECT SUBCONTRACT CAPITAL COSTS                            |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| H - Thermal Description (Dry Soil)                          | A         | 1                             | 2        | 34.85                  | /BCY  | 6,300    | BCY   | 1.000         | 1.000          | 1.000        |             |                          | 251,000                 | 245,000              |
| Subtotal (A1)                                               |           |                               |          |                        |       |          |       |               |                |              |             |                          | 251,000                 | 245,000              |
| INDIRECT SUBCONTRACT CAPITAL COSTS                          |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: C                                                |           |                               |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mod/Demob                                                   | 2.0%      | B1 = 0.020 * (A1)             |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contractor Markup                                           | 10.0%     | C1 = 0.100 * (A1+B1)          |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Engineering Design                                          | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Resident Engineering                                        | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Contingency                                                 | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Subtotal (G1 = B1+C1+D1+E1+F1)                              |           |                               |          |                        |       |          |       |               |                |              |             |                          | 159,000                 | 155,000              |
|                                                             |           |                               |          |                        |       |          |       |               |                |              |             |                          | 411,000                 | 401,000              |

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SOILS DAA



Table B5.15-6b RESIZED ALTERNATIVE - Cost Estimate - South Plants Medium Group - South Plants Ditches Subgroup  
Alternative 6b: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                              | Cost Type | Start Year                      | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | PW Cost |
|------------------------------------------------------------------------|-----------|---------------------------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|---------|
| DIRECT O&M COSTS (OPERATIONS)                                          |           |                                 |          |           |           |          |       |               |                |              |             |           |           |         |
| H - Soil Excavation                                                    | LS        | 3                               | --       | 3.91      | /BCY      | 6,300    | BCY   | 1.000         | 1.000          | 1.000        |             | 28,000    | 25,000    |         |
| H - Transportation of Contaminated Soil to Thermal Desorption Facility | LS        | 3                               | --       | 1.07      | /BCY-MILE | 6,300    | BCY   | 1.000         | 0.500          | 1.000        |             | 4,000     | 3,000     |         |
| H - Load Treated Soil for Transport to Hazardous Landfill              | LS        | 3                               | --       | 1.55      | /BCY      | 63       | BCY   | 1.000         | 1.000          | 1.000        |             | 100       | 100       |         |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill | LS        | 3                               | --       | 1.07      | /BCY-MILE | 63       | BCY   | 1.000         | 1.000          | 1.000        |             | 100       | 100       |         |
| H - On-Post Hazardous Waste Landfill (Particulates)                    | LS        | 3                               | --       | 3.93      | /BCY      | 63       | BCY   | 1.000         | 1.000          | 1.000        |             | 300       | 300       |         |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill         | LS        | 3                               | --       | 1.28      | /BCY      | 6,300    | BCY   | 1.000         | 1.000          | 1.000        |             | 8,000     | 8,000     |         |
| H - Transportation of Treated Soil to Backfill Excavation              | LS        | 3                               | --       | 0.86      | /BCY-MILE | 6,300    | BCY   | 1.000         | 0.500          | 1.000        |             | 3,000     | 3,000     |         |
| H - Backfill with Treated Soil                                         | LS        | 3                               | --       | 1.72      | /BCY      | 6,300    | BCY   | 1.000         | 1.000          | 1.000        |             | 12,000    | 11,000    |         |
| HB - Soil Excavation                                                   | LS        | 3                               | --       | 3.91      | /BCY      | 190,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 848,000   | 789,000   |         |
| HB - Transportation of Contaminated Soil to Consolidation Area         | LS        | 3                               | --       | 1.07      | /BCY-MILE | 190,000  | BCY   | 1.000         | 0.750          | 1.000        |             | 174,000   | 158,000   |         |
| HB - Grade Filling w/Consolidated Soil Prior to Capping                | LS        | 3                               | --       | 3.63      | /BCY      | 190,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 714,000   | 714,000   |         |
| HB - Excavation of Borrow Material                                     | LS        | 3                               | --       | 1.89      | /BCY      | 190,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 410,000   | 372,000   |         |
| HB - Transportation of Borrow Material to Backfill Area                | LS        | 3                               | --       | 0.86      | /BCY-MILE | 190,000  | BCY   | 1.000         | 1.500          | 1.000        |             | 280,000   | 254,000   |         |
| HB - Backfill with Borrow Material                                     | LS        | 3                               | --       | 1.72      | /BCY      | 190,000  | BCY   | 1.000         | 1.000          | 1.000        |             | 338,000   | 338,000   |         |
| HB - Installation of 6 Inches of Topsoil                               | LS        | 3                               | --       | 3.24      | /SY       | 93,000   | SY    | 1.000         | 1.000          | 1.000        |             | 344,000   | 312,000   |         |
| HB - Revegetation of Disturbed Areas                                   | LS        | 3                               | --       | 0.18      | /SY       | 93,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance | 21,000    | 19,000    |         |
| Subtotal (f)                                                           |           |                                 |          |           |           |          |       |               |                |              |             | 3,293,000 | 2,987,000 |         |
| INDIRECT O&M COSTS (OPERATIONS)                                        |           |                                 |          |           |           |          |       |               |                |              |             |           |           |         |
| COST CODE: MLMS                                                        |           |                                 |          |           |           |          |       |               |                |              |             |           |           |         |
| Mob/Demob                                                              | 3.9%      | $J = 0.039 * (f)$               |          |           |           |          |       |               |                |              |             |           |           |         |
| Indirects, Overhead & Profit                                           | 38.0%     | $K = 0.380 * (f+J)$             |          |           |           |          |       |               |                |              |             |           |           |         |
| Engineering Design                                                     | 0.5%      | $L = 0.005 * (f+J+K)$           |          |           |           |          |       |               |                |              |             |           |           |         |
| Resident Engineering                                                   | 1.5%      | $M = 0.015 * (f+J+K)$           |          |           |           |          |       |               |                |              |             |           |           |         |
| Contingency                                                            | 27.5%     | $N = 0.275 * (f+J+K+L+M)$       |          |           |           |          |       |               |                |              |             |           |           |         |
| Subtotal (O = J+K+L+M+N)                                               |           |                                 |          |           |           |          |       |               |                |              |             | 1,334,000 | 1,210,000 |         |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                              |           |                                 |          |           |           |          |       |               |                |              |             |           |           |         |
| H - Thermal Desorption (Dry Soil)                                      | LS        | 3                               | --       | 93.33     | /BCY      | 6,300    | BCY   | 1.000         | 1.000          | 1.000        |             | 671,000   | 609,000   |         |
| Subtotal (f)                                                           |           |                                 |          |           |           |          |       |               |                |              |             | 671,000   | 609,000   |         |
| INDIRECT SUBCONTR. O&M COSTS (OPERATIONS)                              |           |                                 |          |           |           |          |       |               |                |              |             |           |           |         |
| COST CODE: D                                                           |           |                                 |          |           |           |          |       |               |                |              |             |           |           |         |
| Mob/Demob                                                              | 0.0%      | $J1 = 0.000 * (f1)$             |          |           |           |          |       |               |                |              |             |           |           |         |
| Contractor Markup                                                      | 10.0%     | $K1 = 0.100 * (f1+J1)$          |          |           |           |          |       |               |                |              |             |           |           |         |
| Engineering Design                                                     | 0.0%      | $L1 = 0.000 * (f1+J1+K1)$       |          |           |           |          |       |               |                |              |             |           |           |         |
| Resident Engineering                                                   | 2.0%      | $M1 = 0.020 * (f1+J1+K1)$       |          |           |           |          |       |               |                |              |             |           |           |         |
| Contingency                                                            | 40.0%     | $N1 = 0.400 * (f1+J1+K1+L1+M1)$ |          |           |           |          |       |               |                |              |             |           |           |         |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                         |           |                                 |          |           |           |          |       |               |                |              |             | 383,000   | 347,000   |         |
|                                                                        |           |                                 |          |           |           |          |       |               |                |              |             | 7,238,000 | 6,565,000 |         |

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Table B5.15-6b RESIZED ALTERNATIVE - Cost Estimate - South Plants Medium Group - South Plants Ditches Subgroup  
Alternative 6b: Direct Thermal Description (Direct Heating) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                                                               | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|---------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| HB - No Action                                                                                          | A         | 3          | 30       | 0.00                   | /SY     | 93,000   | SY    | 1,000         | 1,000          | 1,000        |             | 0                        | 0                       | 0                    |
| H - On Post Hazardous Waste Landfill Closure (Particulates)                                             | A         | 3          | 30       | 0.13                   | /BCY-YR | 63       | BCY   | 1,000         | 1,000          | 1,000        |             | 10                       | 300                     | 100                  |
| <b>Subtotal (P)</b>                                                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             | 10                       | 300                     | 100                  |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit 30.0% Q = 0.390 * (P)                                                      |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Contingency 30.0% R = 0.300 * (P+Q)                                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             | 4                        | 100                     | 100                  |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             | 4                        | 100                     | 100                  |
| <b>Subtotal (S = Q+R)</b>                                                                               |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             | 10                       | 200                     | 100                  |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                             |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             | 20                       | 500                     | 200                  |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+OO+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                         |           |            |          |                        |         |          |       |               |                |              |             |                          | 7,650,000               | 6,970,000            |

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SOILS DATA

16-Jul-93

Table B5.16-16a RESIZED ALTERNATIVE - Cost Estimate - South Plants Medium Group - South Plants Tank Farm Area Subgroup  
Alternative 16a: In Situ Physical/Chemical Treatment (Vacuum Extraction)

| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|-------------------------------|-----------|------------|----------|------------------------|-------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| DIRECT CAPITAL COSTS          |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| 11 - Soil Vapor Extraction    | LS        | 1          | --       | 1,053,000.00           | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 1,202,000                | 1,202,000               | 1,202,000            |
| Subtotal (A)                  |           |            |          |                        |       |          |       |               |                |              |             |                          |                         | 1,202,000            |
| INDIRECT CAPITAL COSTS        |           |            |          |                        |       |          |       |               |                |              |             |                          |                         |                      |
| Mob/Demob                     |           |            |          |                        |       |          |       |               |                |              |             |                          | 36,000                  | 36,000               |
| Indirects, Overhead & Profit  |           |            |          |                        |       |          |       |               |                |              |             |                          | 484,000                 | 484,000              |
| Engineering Design            |           |            |          |                        |       |          |       |               |                |              |             |                          | 52,000                  | 52,000               |
| Resident Engineering          |           |            |          |                        |       |          |       |               |                |              |             |                          | 22,000                  | 22,000               |
| Contingency                   |           |            |          |                        |       |          |       |               |                |              |             |                          | 472,000                 | 472,000              |
| Subtotal (G) = B+C+D+E+F      |           |            |          |                        |       |          |       |               |                |              |             |                          |                         | 1,068,000            |
| TOTAL CAPITAL COSTS (H) = A+G |           |            |          |                        |       |          |       |               |                |              |             |                          |                         | 2,270,000            |

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HSPT-16A.W01  
SOILS DAA

table B5.16-16a  
RESIZED ALTERNATIVE - Cost Estimate - South Plants Medium Group - South Plants Tank Farm Area Subgroup  
Alternative 16a: In Situ Physical/Chemical Treatment (Vacuum Extraction)

| Cost Item                                                                                      | Cost Type | Start Year | End Year | 1992 (\$) | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$) |
|------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|-----------|
|                                                                                                |           |            |          | Unit Cost |           |          |       |               |                |              |             | Annual Cost | Total Cost | PW Cost   |
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |           |           |          |       |               |                |              |             |             |            |           |
| H - Soil Vapor Extraction                                                                      | A         | 1          | 10       | 2.97      | /SY-YR    | 73,000   | SY    | 1.000         | 1.000          | 1.000        |             |             | 2,474,000  | 2,008,000 |
| B - Agricultural Practices                                                                     | LS        | 1          | --       | 0.20      | /SY       | 21,000   | SY    | 1.000         | 1.000          | 1.000        |             |             | 5,000      | 5,000     |
| H - Load Treated Soil for Transport to Hazardous Landfill                                      | LS        | 1          | --       | 1.55      | /BCY      | 98,720   | BCY   | 1.000         | 1.000          | 1.000        |             |             | 175,000    | 175,000   |
| H - Transportation of Contaminated Soil to Consolidation Area                                  | LS        | 1          | --       | 1.07      | /BCY-MILE | 98,720   | BCY   | 1.000         | 0.500          | 1.000        |             |             | 60,000     | 60,000    |
| H - Grade Filling w/Consolidated Soil Prior to Capping                                         | LS        | 1          | --       | 3.63      | /BCY      | 98,720   | BCY   | 1.000         | 1.000          | 1.000        |             |             | 409,000    | 409,000   |
|                                                                                                |           |            |          |           |           |          |       |               |                |              |             | 3,123,000   | 2,655,000  |           |
| DIRECT O&M COSTS (OPERATIONS)                                                                  |           |            |          |           |           |          |       |               |                |              |             |             |            |           |
| Mob/Demob                                                                                      |           |            |          |           |           |          |       |               |                |              |             |             | 101,000    | 86,000    |
| Indirects, Overhead & Profit                                                                   |           |            |          |           |           |          |       |               |                |              |             |             | 1,257,000  | 1,088,000 |
| Engineering Design                                                                             |           |            |          |           |           |          |       |               |                |              |             |             | 22,000     | 19,000    |
| Resident Engineering                                                                           |           |            |          |           |           |          |       |               |                |              |             |             | 78,000     | 67,000    |
| Contingency                                                                                    |           |            |          |           |           |          |       |               |                |              |             |             | 1,375,000  | 1,168,000 |
|                                                                                                |           |            |          |           |           |          |       |               |                |              |             | 2,835,000   | 2,410,000  |           |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |           |           |          |       |               |                |              |             |             |            |           |
| H - No Action                                                                                  | A         | 11         | 30       | 0.00      | /SY       | 73,000   | SY    | 1.000         | 1.000          | 1.000        |             | 0           | 0          | 0         |
| B - Long Term Soil Monitoring, South Plants Tank Farm                                          | A         | 2          | 30       | 16,000.00 | /EA-YR    | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 18,000      | 530,000    | 276,000   |
| B - Site Reviews                                                                               | A         | 2          | 30       | 5,400.00  | /EA-YR    | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 6,000       | 179,000    | 93,000    |
|                                                                                                |           |            |          |           |           |          |       |               |                |              |             | 24,000      | 708,000    | 370,000   |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                                                        |           |            |          |           |           |          |       |               |                |              |             |             |            |           |
| Indirects, Overhead & Profit                                                                   |           |            |          |           |           |          |       |               |                |              |             |             | 276,000    | 144,000   |
| Contingency                                                                                    |           |            |          |           |           |          |       |               |                |              |             |             | 296,000    | 154,000   |
|                                                                                                |           |            |          |           |           |          |       |               |                |              |             | 20,000      | 572,000    | 299,000   |
|                                                                                                |           |            |          |           |           |          |       |               |                |              |             | 44,000      | 7,237,000  | 5,732,000 |
| TOTAL O&M COSTS (T = I+O+P+S) [Note: Total O&M Annual Cost Only Includes Long Term Activities] |           |            |          |           |           |          |       |               |                |              |             |             |            |           |
|                                                                                                |           |            |          |           |           |          |       |               |                |              |             | 9,310,000   | 8,000,000  |           |

PT-16A, WQI  
S DAA

Table B5.17-6b RESIZED ALTERNATIVE - Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
Alternative 6b: Direct Thermal Description (Direct Heating) of Principal Threat Volume: Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                            | Cost Type | Start Year                    | End Year | Unit Cost | Units | Quantity | Units | Volume Factor | Mitigation Factor | Description | Annual Cost | 1995 (\$) | 1995 (\$) | 1995 (\$) |
|----------------------------------------------------------------------|-----------|-------------------------------|----------|-----------|-------|----------|-------|---------------|-------------------|-------------|-------------|-----------|-----------|-----------|
| <b>DIRECT CAPITAL COSTS</b>                                          |           |                               |          |           |       |          |       |               |                   |             |             |           |           |           |
| H - On-Post Hazardous Waste Landfill (Particulates)                  | LS        | 2                             | --       | 7.08      | /BCY  | 190      | BCY   | 1.000         | 1.000             | 1.000       | 2,000       | 2,000     | 1,000     | 1,000     |
| H - On-Post Hazardous Waste Landfill Closure (Particulates)          | LS        | 3                             | --       | 4.72      | /BCY  | 190      | BCY   | 1.000         | 1.000             | 1.000       | 1,000       | 1,000     | 1,000     | 1,000     |
| A - On-Post Hazardous Waste Landfill (Particulates)                  | LS        | 2                             | --       | 7.08      | /BCY  | 1        | BCY   | 1.000         | 1.000             | 1.000       | 10          | 10        | 10        | 10        |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)          | LS        | 3                             | --       | 4.72      | /BCY  | 1        | BCY   | 1.000         | 1.000             | 1.000       | 10          | 10        | 10        | 10        |
| U - On-Post Solid Waste Landfill                                     | LS        | 2                             | --       | 7.08      | /BCY  | 5,000    | BCY   | 1.000         | 1.000             | 1.000       | 40,000      | 40,000    | 38,000    | 38,000    |
| U - On-Post Solid Waste Landfill Closure and Post Closure Activities | LS        | 3                             | --       | 4.72      | /BCY  | 5,000    | BCY   | 1.000         | 1.000             | 1.000       | 27,000      | 27,000    | 24,000    | 24,000    |
| <b>Subtotal (A)</b>                                                  |           |                               |          |           |       |          |       |               |                   |             |             |           |           |           |
|                                                                      |           |                               |          |           |       |          |       |               |                   |             |             | 70,000    | 70,000    | 65,000    |
| <b>INDIRECT CAPITAL COSTS</b>                                        |           |                               |          |           |       |          |       |               |                   |             |             |           |           |           |
| <b>Cost CODE: LLSS</b>                                               |           |                               |          |           |       |          |       |               |                   |             |             |           |           |           |
| Mob/Demob                                                            | 3.3%      | B = 0.033 * (A)               |          |           |       |          |       |               |                   |             |             |           |           |           |
| Indirects, Overhead & Profit                                         | 39.0%     | C = 0.390 * (A+B)             |          |           |       |          |       |               |                   |             |             |           |           |           |
| Engineering Design                                                   | 3.0%      | D = 0.030 * (A+B+C)           |          |           |       |          |       |               |                   |             |             |           |           |           |
| Resident Engineering                                                 | 1.3%      | E = 0.013 * (A+B+C)           |          |           |       |          |       |               |                   |             |             |           |           |           |
| Contingency                                                          | 26.3%     | F = 0.263 * (A+B+C+D+E)       |          |           |       |          |       |               |                   |             |             |           |           |           |
|                                                                      |           |                               |          |           |       |          |       |               |                   |             |             | 62,000    | 62,000    | 58,000    |
| <b>Subtotal (G = B+C+D+E+F)</b>                                      |           |                               |          |           |       |          |       |               |                   |             |             |           |           |           |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                              |           |                               |          |           |       |          |       |               |                   |             |             |           |           |           |
| H - Thermal Description (Dry Soil)                                   | A         | 1                             | 2        | 34.85     | /BCY  | 19,000   | BCY   | 1.000         | 1.000             | 1.000       | 756,000     | 756,000   | 738,000   | 738,000   |
| A - Incineration                                                     | A         | 1                             | 2        | 72.34     | /BCY  | 140      | BCY   | 1.000         | 1.000             | 1.000       | 12,000      | 12,000    | 11,000    | 11,000    |
|                                                                      |           |                               |          |           |       |          |       |               |                   |             |             | 768,000   | 768,000   | 749,000   |
| <b>Subtotal (A1)</b>                                                 |           |                               |          |           |       |          |       |               |                   |             |             |           |           |           |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                            |           |                               |          |           |       |          |       |               |                   |             |             |           |           |           |
| <b>Cost CODE: C</b>                                                  |           |                               |          |           |       |          |       |               |                   |             |             |           |           |           |
| Mob/Demob                                                            | 2.0%      | B1 = 0.020 * (A1)             |          |           |       |          |       |               |                   |             |             |           |           |           |
| Contractor Markup                                                    | 10.0%     | C1 = 0.100 * (A1+B1)          |          |           |       |          |       |               |                   |             |             |           |           |           |
| Engineering Design                                                   | 9.0%      | D1 = 0.090 * (A1+B1+C1)       |          |           |       |          |       |               |                   |             |             |           |           |           |
| Resident Engineering                                                 | 3.0%      | E1 = 0.030 * (A1+B1+C1)       |          |           |       |          |       |               |                   |             |             |           |           |           |
| Contingency                                                          | 30.0%     | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |           |       |          |       |               |                   |             |             |           |           |           |
|                                                                      |           |                               |          |           |       |          |       |               |                   |             |             | 496,000   | 496,000   | 475,000   |
| <b>Subtotal (G1 = B1+C1+D1+E1+F1)</b>                                |           |                               |          |           |       |          |       |               |                   |             |             |           |           |           |
|                                                                      |           |                               |          |           |       |          |       |               |                   |             |             | 1,385,000 | 1,385,000 | 1,347,000 |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>                           |           |                               |          |           |       |          |       |               |                   |             |             |           |           |           |
| <b>HSPR-06B W01</b>                                                  |           |                               |          |           |       |          |       |               |                   |             |             |           |           |           |
| <b>SOILS DAA</b>                                                     |           |                               |          |           |       |          |       |               |                   |             |             |           |           |           |

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Table B5.17-4b RESIZED ALTERNATIVE - Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
Alternative 6b: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                                   | Cost Type | Start Year | End Year | 1992 (\$) | Units                         | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$)  | 1995 (\$)  | 1995 (\$) |
|-----------------------------------------------------------------------------|-----------|------------|----------|-----------|-------------------------------|----------|-------|---------------|----------------|--------------|--------------|------------|------------|-----------|
| DIRECT O&M COSTS (OPERATIONS)                                               |           |            |          |           |                               |          |       |               |                |              |              |            |            |           |
| H - Soil Excavation                                                         | LS        | 3          | --       | 3.91      | /BCY                          | 19,000   | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 102,000    | 82,000     |           |
| H - Transportation of Contaminated Soil to Thermal Desorption Facility      | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 19,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 23,000     | 21,000     |           |
| H - Load Treated Soil for Transport to Hazardous Waste Landfill             | LS        | 3          | --       | 1.55      | /BCY                          | 190      | BCY   | 1.000         | 1.000          | 1.000        |              | 300        | 300        |           |
| H - Transportation of Particulates to On-Post Hazardous Waste Landfill      | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 190      | BCY   | 1.000         | 1.000          | 1.000        |              | 200        | 200        |           |
| H - On-Post Hazardous Waste Landfill (Particulates)                         | LS        | 3          | --       | 3.93      | /BCY                          | 190      | BCY   | 1.000         | 1.000          | 1.000        |              | 1,000      | 1,000      |           |
| H - Load Nonhazardous Treated Soil from Stockpile for Backfill              | LS        | 3          | --       | 1.28      | /BCY                          | 19,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 28,000     | 25,000     |           |
| H - Transportation of Treated Soil to Backfill Excavation                   | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 19,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 19,000     | 17,000     |           |
| H - Backfill with Treated Soil                                              | LS        | 3          | --       | 1.72      | /BCY                          | 19,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 37,000     | 34,000     |           |
| HB - Soil Excavation                                                        | LS        | 3          | --       | 3.91      | /BCY                          | 700,000  | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 3,746,000  | 3,400,000  |           |
| HB - Transportation of Contaminated Soil to Consolidation Area              | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 700,000  | BCY   | 1.000         | 0.750          | 1.000        |              | 641,000    | 591,000    |           |
| HB - Grade Filling w/Consolidated Soil Prior to Capping                     | LS        | 3          | --       | 3.63      | /BCY                          | 700,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 2,900,000  | 2,630,000  |           |
| HB - Excavation of Borrow Material                                          | LS        | 3          | --       | 1.89      | /BCY                          | 700,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 1,510,000  | 1,369,000  |           |
| HB - Transportation of Borrow Material to Backfill Area                     | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 700,000  | BCY   | 1.000         | 1.500          | 1.000        |              | 1,030,000  | 935,000    |           |
| HB - Backfill with Borrow Material                                          | LS        | 3          | --       | 1.72      | /BCY                          | 700,000  | BCY   | 1.000         | 1.000          | 1.000        |              | 1,374,000  | 1,246,000  |           |
| HB - Installation of 6 Inches of Topsoil                                    | LS        | 3          | --       | 3.24      | /SY                           | 620,000  | SY    | 1.000         | 1.000          | 1.000        |              | 2,292,000  | 2,079,000  |           |
| HB - Revegetation of Disturbed Areas                                        | LS        | 3          | --       | 0.18      | /SY                           | 620,000  | SY    | 1.000         | 1.000          | 1.100        | Disturbance  | 140,000    | 127,000    |           |
| A - Excavation of Soil with Agent                                           | LS        | 3          | --       | 4.55      | /BCY                          | 140      | BCY   | 1.000         | 1.000          | 1.200        | Odor Control | 1,000      | 1,000      |           |
| A - Drilling and Agent Screening Prior to Excavation                        | LS        | 2          | --       | 4.89      | /SY                           | 43,000   | SY    | 1.000         | 1.000          | 1.000        |              | 240,000    | 229,000    |           |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility    | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 140      | BCY   | 1.000         | 1.000          | 1.000        |              | 200        | 200        |           |
| A - Load Treated Soil for Transport to Hazardous Waste Landfill             | LS        | 3          | --       | 1.55      | /BCY                          | 1        | BCY   | 1.000         | 1.000          | 1.000        |              | 2          | 2          |           |
| A - On-Post Hazardous Waste Landfill (Particulates)                         | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 1        | BCY   | 1.000         | 1.000          | 1.000        |              | 1          | 1          |           |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill              | LS        | 3          | --       | 3.93      | /BCY                          | 1        | BCY   | 1.000         | 1.000          | 1.000        |              | 4          | 4          |           |
| A - Transportation of Treated Soil to Backfill Excavation                   | LS        | 3          | --       | 1.28      | /BCY                          | 140      | BCY   | 1.000         | 1.000          | 1.000        |              | 200        | 200        |           |
| A - Backfill with Treated Soil                                              | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 140      | BCY   | 1.000         | 1.000          | 1.000        |              | 100        | 100        |           |
| U - UXO Clearance by Geophysics                                             | LS        | 3          | --       | 1.72      | /BCY                          | 140      | BCY   | 1.000         | 1.000          | 1.000        |              | 300        | 200        |           |
| U - Removal of Soil with UXO                                                | LS        | 2          | --       | 0.85      | /SY                           | 15,000   | SY    | 1.000         | 1.000          | 1.000        |              | 15,000     | 14,000     |           |
| U - Excavation of Debris from Surface Soil                                  | LS        | 3          | --       | 70.57     | /BCY                          | 49       | BCY   | 1.000         | 1.000          | 1.000        | Productivity | 4,000      | 4,000      |           |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill | LS        | 3          | --       | 3.91      | /BCY                          | 5,000    | BCY   | 1.000         | 1.000          | 1.300        | Productivity | 29,000     | 26,000     |           |
| U - On-Post Solid Waste Landfill                                            | LS        | 3          | --       | 0.71      | /BCY-MILE                     | 5,000    | BCY   | 1.000         | 1.500          | 1.300        |              | 8,000      | 7,000      |           |
| Subtotal (I)                                                                |           |            |          | 3.93      | /BCY                          | 5,000    | BCY   | 1.000         | 1.000          | 1.000        |              | 22,000     | 20,000     |           |
| Subtotal (I)                                                                |           |            |          |           |                               |          |       |               |                |              |              | 14,185,000 | 12,990,000 |           |
| INDIRECT O&M COSTS (OPERATIONS)                                             |           |            |          |           |                               |          |       |               |                |              |              |            |            |           |
| Mob/Demob                                                                   |           |            |          | 4.5%      | J = 0.045 * (I)               |          |       |               |                |              |              | 637,000    | 579,000    |           |
| Indirects, Overhead & Profit                                                |           |            |          | 39.0%     | K = 0.390 * (I+J)             |          |       |               |                |              |              | 5,773,000  | 5,241,000  |           |
| Engineering Design                                                          |           |            |          | 0.5%      | L = 0.005 * (I+J+K)           |          |       |               |                |              |              | 103,000    | 93,000     |           |
| Resident Engineering                                                        |           |            |          | 1.8%      | M = 0.018 * (I+J+K)           |          |       |               |                |              |              | 360,000    | 327,000    |           |
| Contingency                                                                 |           |            |          | 30.0%     | N = 0.300 * (I+J+K+L+M)       |          |       |               |                |              |              | 6,311,000  | 5,730,000  |           |
| Subtotal (O = J+K+L+M+N)                                                    |           |            |          |           |                               |          |       |               |                |              |              | 13,185,000 | 11,970,000 |           |
| DIRECT SUBCONTRACT O&M COSTS (OPERATIONS)                                   |           |            |          |           |                               |          |       |               |                |              |              |            |            |           |
| H - Thermal Desorption (Dry Soil)                                           | LS        | 3          | --       | 93.33     | /BCY                          | 19,000   | BCY   | 1.000         | 1.000          | 1.000        |              | 2,024,000  | 1,836,000  |           |
| A - Incineration                                                            | LS        | 3          | --       | 201.09    | /BCY                          | 140      | BCY   | 1.000         | 1.000          | 1.000        |              | 32,000     | 29,000     |           |
| U - Packaging and Transportation of HE Filled Uro to Army Off-Post Facility | LS        | 3          | --       | 59.50     | /BCY                          | 49       | BCY   | 1.000         | 1.000          | 1.000        |              | 3,000      | 3,000      |           |
| Subtotal (I1)                                                               |           |            |          |           |                               |          |       |               |                |              |              | 2,059,000  | 1,868,000  |           |
| INDIRECT SUBCONTRACT O&M COSTS (OPERATION)                                  |           |            |          |           |                               |          |       |               |                |              |              |            |            |           |
| Mob/Demob                                                                   |           |            |          | 0.0%      | J1 = 0.000 * (I1)             |          |       |               |                |              |              | 0          | 0          |           |
| Contractor Markup                                                           |           |            |          | 10.0%     | K1 = 0.100 * (I1+J1)          |          |       |               |                |              |              | 206,000    | 187,000    |           |
| Engineering Design                                                          |           |            |          | 0.0%      | L1 = 0.000 * (I1+J1+K1)       |          |       |               |                |              |              | 0          | 0          |           |
| Resident Engineering                                                        |           |            |          | 2.0%      | M1 = 0.020 * (I1+J1+K1)       |          |       |               |                |              |              | 45,000     | 41,000     |           |
| Contingency                                                                 |           |            |          | 40.0%     | N1 = 0.400 * (I1+J1+K1+L1+M1) |          |       |               |                |              |              | 924,000    | 838,000    |           |
| Subtotal (O1 = J1+K1+L1+M1+N1)                                              |           |            |          |           |                               |          |       |               |                |              |              | 1,175,000  | 1,066,000  |           |
| TOTAL O&M COSTS (OPERATIONS) [OO = I+O+I1+O1]                               |           |            |          |           |                               |          |       |               |                |              |              | 30,594,000 | 27,763,000 |           |

Table B5.17-6b RESIZED ALTERNATIVE - Cost Estimate - South Plants Medium Group - South Plants Balance of Area Subgroup  
Alternative 6b: Direct Thermal Desorption (Direct Heating) of Principal Threat Volume; Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$) | Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$)  | 1995 (\$) | PW Cost    |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|-----------|-----------|---------|----------|-------|---------------|----------------|--------------|-------------|-----------|------------|-----------|------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |           |           |         |          |       |               |                |              |             |           |            |           |            |
| 11 - On-Post Hazardous Waste Landfill Closure (Particulates)                                           | A         | 3          | 30       |           | 0.13      | /BCY-YR | 190      | BCY   | 1,000         | 1,000          | 1,000        |             | 30        | 1,000      |           | 400        |
| 11 - On-Post Hazardous Waste Landfill Closure (Particulates)                                           | A         | 3          | 30       |           | 0.00      | /SY     | 620,000  | SY    | 1,000         | 1,000          | 1,000        |             | 0         | 0          |           | 0          |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       |           | 0.13      | /BCY-YR | 1        | BCY   | 1,000         | 1,000          | 1,000        |             | 0         | 4          |           | 2          |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                                  | A         | 3          | 30       |           | 0.13      | /BCY-YR | 5,000    | BCY   | 1,000         | 1,000          | 1,000        |             | 1,000     | 21,000     |           | 11,000     |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |           |           |         |          |       |               |                |              |             |           |            |           |            |
|                                                                                                        |           |            |          |           |           |         |          |       |               |                |              |             | 1,000     | 22,000     |           | 11,000     |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |           |           |         |          |       |               |                |              |             |           |            |           |            |
| Indirects, Overhead & Profit                                                                           |           |            |          |           |           |         |          |       |               |                |              |             | 300       | 8,000      |           | 4,000      |
| Contingency                                                                                            |           |            |          |           |           |         |          |       |               |                |              |             | 300       | 8,000      |           | 5,000      |
| <b>Subtotal (S = O+P)</b>                                                                              |           |            |          |           |           |         |          |       |               |                |              |             |           |            |           |            |
|                                                                                                        |           |            |          |           |           |         |          |       |               |                |              |             | 1,000     | 17,000     |           | 9,000      |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |           |           |         |          |       |               |                |              |             |           |            |           |            |
|                                                                                                        |           |            |          |           |           |         |          |       |               |                |              |             | 1,000     | 39,000     |           | 20,000     |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |           |           |         |          |       |               |                |              |             |           |            |           |            |
|                                                                                                        |           |            |          |           |           |         |          |       |               |                |              |             |           | 32,000,000 |           | 29,100,000 |

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Table B5.18-6g  
RESIZED ALTERNATIVE - Cost Estimate - Buried Sediment/Ditches Medium Group - Buried Sediment Subgroup  
Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                     | Cost Type | Start Year | End Year | 1992 (\$) |       | Quantity | Units | Volume |        | Other  |             | 1993 (\$) | 1995 (\$) | PW Cost |
|-------------------------------|-----------|------------|----------|-----------|-------|----------|-------|--------|--------|--------|-------------|-----------|-----------|---------|
|                               |           |            |          | Unit Cost | Units |          |       | Factor | Factor | Factor | Description |           |           |         |
| DIRECT CAPITAL COSTS          |           |            |          |           |       |          |       |        |        |        |             |           |           |         |
| Subtotal (A)                  |           |            |          |           |       |          |       |        |        |        |             |           |           |         |
| 0                             |           |            |          |           |       |          |       |        |        |        |             |           |           |         |
| 0                             |           |            |          |           |       |          |       |        |        |        |             |           |           |         |
| INDIRECT CAPITAL COSTS        |           |            |          |           |       |          |       |        |        |        |             |           |           |         |
| Mob/Demob                     |           |            |          |           |       |          |       |        |        |        |             | 0         | 0         |         |
| Indirects, Overhead & Profit  |           |            |          |           |       |          |       |        |        |        |             | 0         | 0         |         |
| Engineering Design            |           |            |          |           |       |          |       |        |        |        |             | 0         | 0         |         |
| Resident Engineering          |           |            |          |           |       |          |       |        |        |        |             | 0         | 0         |         |
| Contingency                   |           |            |          |           |       |          |       |        |        |        |             | 0         | 0         |         |
| Subtotal (G =B+C+D+E+F)       |           |            |          |           |       |          |       |        |        |        |             |           |           |         |
| 0                             |           |            |          |           |       |          |       |        |        |        |             |           |           |         |
| 0                             |           |            |          |           |       |          |       |        |        |        |             |           |           |         |
| TOTAL CAPITAL COSTS (H = A+G) |           |            |          |           |       |          |       |        |        |        |             |           |           |         |
| 0                             |           |            |          |           |       |          |       |        |        |        |             |           |           |         |

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**Table B5.19-6g**  
**RESIZED ALTERNATIVE - Cost Estimate - Buried Sediment/Ditches Medium Group - Sand Creek Lateral Subgroup**  
**Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation**

[illegible]

| Cost Item                                                      | Cost Type | Start Year | End Year | 1992 (\$)                | Units     | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$) | 1995 (\$) | 1995 (\$) | PW Cost |
|----------------------------------------------------------------|-----------|------------|----------|--------------------------|-----------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|---------|
| DIRECT O&M COSTS (OPERATIONS)                                  |           |            |          |                          |           |          |       |               |                |              |             |           |           |           |         |
| HB - Soil Excavation                                           | LS        | 1          | --       | 3.91                     | /BCY      | 39,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 174,000   |           |           | 174,000 |
| HB - Transportation of Contaminated Soil to Consolidation Area | LS        | 1          | --       | 1.07                     | /BCY-MILE | 39,000   | BCY   | 1.000         | 1.500          | 1.000        |             | 71,000    |           |           | 71,000  |
| HB - Grade Filling w/Consolidated Soil Prior to Capping        | LS        | 1          | --       | 3.63                     | /BCY      | 39,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 162,000   |           |           | 162,000 |
| HB - Excavation of Borrow Material                             | LS        | 1          | --       | 1.89                     | /BCY      | 39,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 84,000    |           |           | 84,000  |
| HB - Transportation of Borrow Material to Backfill Area        | LS        | 1          | --       | 0.86                     | /BCY-MILE | 39,000   | BCY   | 1.000         | 1.500          | 1.000        |             | 57,000    |           |           | 57,000  |
| HB - Backfill with Borrow Material                             | LS        | 1          | --       | 1.72                     | /BCY      | 39,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 77,000    |           |           | 77,000  |
| HB - Installation of 6 Inches of Topsoil                       | LS        | 1          | --       | 3.24                     | /SY       | 44,000   | SY    | 1.000         | 1.000          | 1.000        |             | 163,000   |           |           | 163,000 |
| HB - Revegetation of Disturbed Areas                           | LS        | 1          | --       | 0.18                     | /SY       | 44,000   | SY    | 1.000         | 1.000          | 1.100        | Disturbance | 10,000    |           |           | 10,000  |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 798,000   |           |           | 798,000 |
| INDIRECT O&M COSTS (OPERATIONS)                                |           |            |          |                          |           |          |       |               |                |              |             |           |           |           |         |
| Mob/Demob                                                      |           |            |          | 3.9%                     |           |          |       |               |                |              |             |           |           |           | 31,000  |
| Indirects, Overhead & Profit                                   |           |            |          | 40.3%                    |           |          |       |               |                |              |             |           |           |           | 334,000 |
| Engineering Design                                             |           |            |          | 0.5%                     |           |          |       |               |                |              |             |           |           |           | 6,000   |
| Resident Engineering                                           |           |            |          | 1.5%                     |           |          |       |               |                |              |             |           |           |           | 17,000  |
| Contingency                                                    |           |            |          | 27.5%                    |           |          |       |               |                |              |             |           |           |           | 328,000 |
|                                                                |           |            |          | Subtotal (O = J+K+L+M+N) |           |          |       |               |                |              |             |           |           | 714,000   |         |
| DIRECT O&M COSTS (LONG-TERM ACTIVITIES)                        |           |            |          |                          |           |          |       |               |                |              |             |           |           |           |         |
| HB - No Action                                                 | A         | 1          | 30       | 0.00                     | /SY       | 44,000   | SY    | 1.000         | 1.000          | 1.000        |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             | 0         | 0         | 0         | 0       |
|                                                                |           |            |          |                          |           |          |       |               |                |              |             |           |           |           |         |

Table B5.22-6g RESIZED ALTERNATIVE - Cost Estimate - Undifferentiated Medium Group - Section 36 Balance of Area Subgroup  
Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                             | Cost Type | Start Year | End Year | 1992 (\$)  | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$) | 1995 (\$) | 1995 (\$) |
|-----------------------------------------------------------------------|-----------|------------|----------|------------|-------|----------|-------|---------------|----------------|--------------|-------------|-----------|-----------|-----------|
| <b>DIRECT CAPITAL COSTS</b>                                           |           |            |          |            |       |          |       |               |                |              |             |           |           |           |
| H - Excavation Dewatering, Section 36 Balance of Areas                | LS        | 1          | --       | 344,499.00 | /EA   | 1        | EA    | 1.000         | 1.000          | 1.000        |             | 383,000   |           | 383,000   |
| A - On-Post Hazardous Waste Landfill (Particulates)                   | LS        | 2          | --       | 7.08       | /BCY  | 3        | BCY   | 1.000         | 1.000          | 1.000        |             | 20        |           | 20        |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS        | 3          | --       | 4.72       | /BCY  | 3        | BCY   | 1.000         | 1.000          | 1.000        |             | 20        |           | 10        |
| U - On-Post Solid Waste Landfill                                      | LS        | 2          | --       | 7.08       | /BCY  | 70,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 598,000   |           | 539,000   |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS        | 3          | --       | 4.72       | /BCY  | 70,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 377,000   |           | 342,000   |
| <b>Subtotal (A)</b>                                                   |           |            |          |            |       |          |       |               |                |              |             | 1,336,000 |           | 1,274,000 |
| <b>INDIRECT CAPITAL COSTS</b>                                         |           |            |          |            |       |          |       |               |                |              |             |           |           |           |
| Mob/Demob                                                             |           |            |          |            |       |          |       |               |                |              |             | 80,000    |           | 57,000    |
| Indirects, Overhead & Profit                                          |           |            |          |            |       |          |       |               |                |              |             | 582,000   |           | 536,000   |
| Engineering Design                                                    |           |            |          |            |       |          |       |               |                |              |             | 88,000    |           | 84,000    |
| Resident Engineering                                                  |           |            |          |            |       |          |       |               |                |              |             | 34,000    |           | 33,000    |
| Contingency                                                           |           |            |          |            |       |          |       |               |                |              |             | 598,000   |           | 570,000   |
| <b>Subtotal (G = B+C+D+E+F)</b>                                       |           |            |          |            |       |          |       |               |                |              |             | 1,342,000 |           | 1,290,000 |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                               |           |            |          |            |       |          |       |               |                |              |             |           |           |           |
| A - Incineration                                                      | A         | 1          | 2        | 72.34      | /BCY  | 270      | BCY   | 1.000         | 1.000          | 1.000        |             | 22,000    |           | 22,000    |
| <b>Subtotal (A1)</b>                                                  |           |            |          |            |       |          |       |               |                |              |             | 22,000    |           | 22,000    |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                             |           |            |          |            |       |          |       |               |                |              |             |           |           |           |
| Mob/Demob                                                             |           |            |          |            |       |          |       |               |                |              |             | 400       |           | 400       |
| Contractor Markup                                                     |           |            |          |            |       |          |       |               |                |              |             | 2,000     |           | 2,000     |
| Engineering Design                                                    |           |            |          |            |       |          |       |               |                |              |             | 2,000     |           | 2,000     |
| Resident Engineering                                                  |           |            |          |            |       |          |       |               |                |              |             | 1,000     |           | 1,000     |
| Contingency                                                           |           |            |          |            |       |          |       |               |                |              |             | 8,000     |           | 8,000     |
| <b>Subtotal (G1 = B1+C1+D1+E1+F1)</b>                                 |           |            |          |            |       |          |       |               |                |              |             | 14,000    |           | 14,000    |
| <b>TOTAL CAPITAL COSTS (H = A+G+A1+G1)</b>                            |           |            |          |            |       |          |       |               |                |              |             | 2,715,000 |           | 2,588,000 |

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Table B5.22-6g RESIZED ALTERNATIVE - Cost Estimate - Undifferentiated Medium Group - Section 36 Balance of Area Subgroup  
Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                                   | Cost Type | Start Year | End Year | 1992 (\$)  | Units                         | Quantity | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$) | 1995 (\$)  | 1995 (\$)  | PW Cost   |
|-----------------------------------------------------------------------------|-----------|------------|----------|------------|-------------------------------|----------|---------------|----------------|--------------|-------------|-----------|------------|------------|-----------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                    |           |            |          |            |                               |          |               |                |              |             |           |            |            |           |
| H - Excavation Dewatering, Section 36 Balance of Areas                      | A         | 1          | 3        | 169,385.00 | /EA-YR                        | 1        | 1,000         | 1,000          | 1,000        | EA          | 580,000   | 580,000    | 580,000    | 553,000   |
| HB - Soil Excavation                                                        | LS        | 3          | --       | 3.91       | /BCY                          | 390,000  | 1,000         | 1,000          | 1,000        | BCY         | 1,740,000 | 1,740,000  | 1,740,000  | 1,578,000 |
| HB - Transportation of Contaminated Soil to Consolidation Area              | LS        | 3          | --       | 1.07       | /BCY-MILE                     | 390,000  | 1,000         | 0.500          | 1,000        | BCY         | 238,000   | 238,000    | 238,000    | 216,000   |
| HB - Grade Filling w/Consolidated Soil Prior to Capping                     | LS        | 3          | --       | 3.63       | /BCY                          | 390,000  | 1,000         | 1,000          | 1,000        | BCY         | 1,816,000 | 1,816,000  | 1,816,000  | 1,485,000 |
| HB - Excavation of Borrow Material                                          | LS        | 3          | --       | 1.89       | /BCY                          | 390,000  | 1,000         | 1,000          | 1,000        | BCY         | 841,000   | 841,000    | 841,000    | 783,000   |
| HB - Transportation of Borrow Material to Backfill Area                     | LS        | 3          | --       | 0.86       | /BCY-MILE                     | 390,000  | 1,000         | 1,500          | 1,000        | BCY         | 574,000   | 574,000    | 574,000    | 521,000   |
| HB - Backfill with Borrow Material                                          | LS        | 3          | --       | 1.72       | /BCY                          | 390,000  | 1,000         | 1,000          | 1,000        | BCY         | 785,000   | 785,000    | 785,000    | 684,000   |
| HB - Installation of 6 Inches of Topsoil                                    | LS        | 3          | --       | 3.24       | /SY                           | 640,000  | 1,000         | 1,000          | 1,000        | SY          | 2,366,000 | 2,366,000  | 2,366,000  | 2,146,000 |
| HB - Revegetation of Disturbed Areas                                        | LS        | 3          | --       | 0.18       | /SY                           | 640,000  | 1,000         | 1,000          | 1,000        | SY          | 145,000   | 145,000    | 145,000    | 131,000   |
| A - Drilling and Agent Screening Prior to Excavation                        | LS        | 3          | --       | 4.89       | /SY                           | 89,000   | 1,000         | 1,000          | 1,000        | SY          | 497,000   | 497,000    | 497,000    | 450,000   |
| A - Excavation of Soil with Agent                                           | LS        | 3          | --       | 4.55       | /BCY                          | 270      | 1,000         | 1,000          | 1,000        | BCY         | 1,000     | 1,000      | 1,000      | 1,000     |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility    | LS        | 3          | --       | 1.07       | /BCY-MILE                     | 270      | 1,000         | 1,000          | 1,000        | BCY         | 300       | 300        | 300        | 300       |
| A - Load Treated Soil for Transport to Hazardous Landfill                   | LS        | 3          | --       | 1.55       | /BCY                          | 3        | 1,000         | 1,000          | 1,000        | BCY         | 10        | 10         | 10         | 5         |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill      | LS        | 3          | --       | 1.07       | /BCY-MILE                     | 3        | 1,000         | 1,000          | 1,000        | BCY         | 4         | 4          | 4          | 3         |
| A - On-Post Hazardous Waste Landfill (Particulates)                         | LS        | 3          | --       | 3.93       | /BCY                          | 3        | 1,000         | 1,000          | 1,000        | BCY         | 10        | 10         | 10         | 10        |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill              | LS        | 3          | --       | 1.28       | /BCY                          | 270      | 1,000         | 1,000          | 1,000        | BCY         | 400       | 400        | 400        | 400       |
| A - Transportation of Treated Soil to Backfill Excavation                   | LS        | 3          | --       | 0.86       | /BCY-MILE                     | 270      | 1,000         | 1,000          | 1,000        | BCY         | 300       | 300        | 300        | 200       |
| A - Backfill with Treated Soil                                              | LS        | 3          | --       | 1.72       | /BCY                          | 270      | 1,000         | 1,000          | 1,000        | BCY         | 1,000     | 1,000      | 1,000      | 500       |
| U - UXO Clearance by Geophysics                                             | LS        | 2          | --       | 0.85       | /SY                           | 210,000  | 1,000         | 1,000          | 1,000        | SY          | 204,000   | 204,000    | 204,000    | 194,000   |
| U - Removal of Soil with UXO                                                | LS        | 3          | --       | 70.57      | /BCY                          | 140      | 1,000         | 1,000          | 1,000        | BCY         | 11,000    | 11,000     | 11,000     | 10,000    |
| U - Excavation of Debris from Surface Soil                                  | LS        | 3          | --       | 3.91       | /BCY                          | 70,000   | 1,000         | 1,000          | 1,300        | BCY         | 408,000   | 408,000    | 408,000    | 388,000   |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill | LS        | 3          | --       | 0.71       | /BCY-MILE                     | 70,000   | 1,000         | 1,500          | 1,300        | BCY         | 111,000   | 111,000    | 111,000    | 100,000   |
| U - On-Post Solid Waste Landfill                                            | LS        | 3          | --       | 3.93       | /BCY                          | 70,000   | 1,000         | 1,000          | 1,000        | BCY         | 314,000   | 314,000    | 314,000    | 285,000   |
| <b>Subtotal (I)</b>                                                         |           |            |          |            |                               |          |               |                |              |             |           | 10,411,000 | 9,479,000  |           |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                  |           |            |          |            |                               |          |               |                |              |             |           |            |            |           |
| Mob/Demob                                                                   |           |            |          | 5.1%       | J = 0.051 * (I)               |          |               |                |              |             | 534,000   | 534,000    | 486,000    |           |
| Indirects, Overhead & Profit                                                |           |            |          | 38.0%      | K = 0.380 * (I+J)             |          |               |                |              |             | 4,288,000 | 4,288,000  | 3,896,000  |           |
| Engineering Design                                                          |           |            |          | 1.5%       | L = 0.015 * (I+J+K)           |          |               |                |              |             | 228,000   | 228,000    | 208,000    |           |
| Resident Engineering                                                        |           |            |          | 2.0%       | M = 0.020 * (I+J+K)           |          |               |                |              |             | 304,000   | 304,000    | 277,000    |           |
| Contingency                                                                 |           |            |          | 31.3%      | N = 0.313 * (I+J+K+L+M)       |          |               |                |              |             | 4,920,000 | 4,920,000  | 4,480,000  |           |
| <b>Subtotal (O = J+K+L+M+N)</b>                                             |           |            |          |            |                               |          |               |                |              |             |           | 10,254,000 | 9,336,000  |           |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                        |           |            |          |            |                               |          |               |                |              |             |           |            |            |           |
| A - Incineration                                                            | LS        | 3          | --       | 201.09     | /BCY                          | 270      | 1,000         | 1,000          | 1,000        | BCY         | 62,000    | 62,000     | 56,000     |           |
| U - Packaging and Transportation of Agent UXO to Army Off-Post UXO Facility | LS        | 3          | --       | 2,200.00   | /BCY                          | 140      | 1,000         | 1,000          | 1,000        | BCY         | 351,000   | 351,000    | 319,000    |           |
| <b>Subtotal (I1)</b>                                                        |           |            |          |            |                               |          |               |                |              |             |           | 413,000    | 375,000    |           |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                      |           |            |          |            |                               |          |               |                |              |             |           |            |            |           |
| Mob/Demob                                                                   |           |            |          | 0.0%       | J1 = 0.000 * (I1)             |          |               |                |              |             | 0         | 0          | 0          |           |
| Contractor Markup                                                           |           |            |          | 10.0%      | K1 = 0.100 * (I1+J1)          |          |               |                |              |             | 41,000    | 41,000     | 38,000     |           |
| Engineering Design                                                          |           |            |          | 0.0%       | L1 = 0.000 * (I1+J1+K1)       |          |               |                |              |             | 0         | 0          | 0          |           |
| Resident Engineering                                                        |           |            |          | 2.0%       | M1 = 0.020 * (I1+J1+K1)       |          |               |                |              |             | 9,000     | 9,000      | 8,000      |           |
| Contingency                                                                 |           |            |          | 40.0%      | N1 = 0.400 * (I1+J1+K1+L1+M1) |          |               |                |              |             | 186,000   | 186,000    | 168,000    |           |
| <b>Subtotal (O1 = J1+K1+L1+M1+N1)</b>                                       |           |            |          |            |                               |          |               |                |              |             |           | 236,000    | 214,000    |           |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+I1+O1)</b>                    |           |            |          |            |                               |          |               |                |              |             |           | 21,314,000 | 19,404,000 |           |

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Table B5.22-6g RESIZED ALTERNATIVE - Cost Estimate - Undifferentiated Medium Group - Section 36 Balance of Area Subgroup  
Alternative 6g: Caps/Covers (Clay/Soil Cap) with Consolidation

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| HB - No Action                                                                                         | A         | 3          | 30       | 0.00                   | /SY     | 640,000  | SY    | 1.000         | 1.000          | 1.000        |             | 0                        | 0                       | 0                    |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       | 0.13                   | /BCY-YR | 70,000   | BCY   | 1.000         | 1.000          | 1.000        |             | 10,000                   | 281,000                 | 147,000              |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                                  | A         | 3          | 30       | 0.13                   | /BCY-YR | 3        | BCY   | 1.000         | 1.000          | 1.000        |             | 0                        | 10                      | 10                   |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             | 10,000                   | 281,000                 | 147,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| COST CODE: LLSL                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Indirects, Overhead & Profit 39.0% Q = 0.390 * (P)                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| Contingency 30.0% R = 0.300 * (P+Q)                                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (S = Q+R)</b>                                                                              |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             | 4,000                    | 113,000                 | 57,000               |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             | 4,000                    | 121,000                 | 61,000               |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (I = P+S)</b>                                            |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             | 8,000                    | 235,000                 | 119,000              |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             | 19,000                   | 525,000                 | 268,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = I+O+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          | 24,600,000              | 22,300,000           |

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Table B5.23-3 RESIZED ALTERNATIVE - Cost Estimate - Undifferentiated Medium Group - Burial Trenches Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                             | Cost Type | Start Year                    | End Year | 1992 (\$) | Units | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1995 (\$)   | 1995 (\$)  | 1995 (\$) |
|-----------------------------------------------------------------------|-----------|-------------------------------|----------|-----------|-------|----------|-------|---------------|----------------|--------------|-------------|-------------|------------|-----------|
|                                                                       |           |                               |          | Unit Cost |       |          |       |               |                |              |             | Annual Cost | Total Cost | PW Cost   |
| <b>DIRECT CAPITAL COSTS</b>                                           |           |                               |          |           |       |          |       |               |                |              |             |             |            |           |
| HB - On-Post Hazardous Waste Landfill                                 | LS        | 2                             | --       | 7.08      | /BCY  | 31,000   | BCY   | 1.000         | 1.000          | 1.000        |             |             |            |           |
| HB - On-Post Hazardous Waste Landfill Closure                         | LS        | 3                             | --       | 4.72      | /BCY  | 31,000   | BCY   | 1.000         | 1.000          | 1.000        |             |             |            |           |
| A - On-Post Hazardous Waste Landfill (Particulates)                   | LS        | 2                             | --       | 7.08      | /BCY  | 1        | BCY   | 1.000         | 1.000          | 1.000        |             |             |            |           |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)           | LS        | 3                             | --       | 4.72      | /BCY  | 1        | BCY   | 1.000         | 1.000          | 1.000        |             |             |            |           |
| U - On-Post Solid Waste Landfill                                      | LS        | 2                             | --       | 7.08      | /BCY  | 57,000   | BCY   | 1.000         | 1.000          | 1.000        |             |             |            |           |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities | LS        | 3                             | --       | 4.72      | /BCY  | 57,000   | BCY   | 1.000         | 1.000          | 1.000        |             |             |            |           |
| Subtotal (A)                                                          |           |                               |          |           |       |          |       |               |                |              |             | 1,185,000   | 1,107,000  |           |
| <b>INDIRECT CAPITAL COSTS</b>                                         |           |                               |          |           |       |          |       |               |                |              |             |             |            |           |
| Indirects, Overhead & Profit                                          | 3.3%      | COST CODE: LLSS               |          |           |       |          |       |               |                |              |             |             |            |           |
| Engineering Design                                                    | 38.0%     | B = 0.033 * (A)               |          |           |       |          |       |               |                |              |             |             |            |           |
| Resident Engineering                                                  | 3.0%      | C = 0.380 * (A+B)             |          |           |       |          |       |               |                |              |             |             |            |           |
| Contingency                                                           | 1.3%      | D = 0.030 * (A+B+C)           |          |           |       |          |       |               |                |              |             |             |            |           |
|                                                                       | 28.3%     | E = 0.013 * (A+B+C)           |          |           |       |          |       |               |                |              |             |             |            |           |
|                                                                       |           | F = 0.283 * (A+B+C+D+E)       |          |           |       |          |       |               |                |              |             |             |            |           |
| Subtotal (G = B+C+D+E+F)                                              |           |                               |          |           |       |          |       |               |                |              |             | 1,053,000   | 984,000    |           |
| <b>DIRECT SUBCONTRACT CAPITAL COSTS</b>                               |           |                               |          |           |       |          |       |               |                |              |             |             |            |           |
| A - Incineration                                                      | A         | 1                             | 2        | 72.34     | /BCY  | 12       | BCY   | 1.000         | 1.000          | 1.000        |             |             | 1,000      | 1,000     |
| Subtotal (A1)                                                         |           |                               |          |           |       |          |       |               |                |              |             | 1,000       | 1,000      |           |
| <b>INDIRECT SUBCONTRACT CAPITAL COSTS</b>                             |           |                               |          |           |       |          |       |               |                |              |             |             |            |           |
| Indirects, Overhead & Profit                                          | 2.0%      | COST CODE: C                  |          |           |       |          |       |               |                |              |             |             |            |           |
| Engineering Design                                                    | 10.0%     | B1 = 0.020 * (A1)             |          |           |       |          |       |               |                |              |             |             |            |           |
| Resident Engineering                                                  | 9.0%      | C1 = 0.100 * (A1+B1)          |          |           |       |          |       |               |                |              |             |             |            |           |
| Contingency                                                           | 3.0%      | D1 = 0.080 * (A1+B1+C1)       |          |           |       |          |       |               |                |              |             |             |            |           |
|                                                                       | 30.0%     | E1 = 0.030 * (A1+B1+C1)       |          |           |       |          |       |               |                |              |             |             |            |           |
|                                                                       |           | F1 = 0.300 * (A1+B1+C1+D1+E1) |          |           |       |          |       |               |                |              |             |             |            |           |
| Subtotal (G1 = B1+C1+D1+E1+F1)                                        |           |                               |          |           |       |          |       |               |                |              |             | 1,000       | 1,000      |           |
| TOTAL CAPITAL COSTS (H = A+G+A1+G1)                                   |           |                               |          |           |       |          |       |               |                |              |             | 2,240,000   | 2,093,000  |           |

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Table B5.23-3 RESIZED ALTERNATIVE - Cost Estimate - Undifferentiated Medium Group - Burial Trenches Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                                    | Cost Type | Start Year | End Year | Unit Cost | Units                         | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description  | 1995 (\$) | 1995 (\$) | 1995 (\$) |
|------------------------------------------------------------------------------|-----------|------------|----------|-----------|-------------------------------|----------|-------|---------------|----------------|--------------|--------------|-----------|-----------|-----------|
| <b>DIRECT O&amp;M COSTS (OPERATIONS)</b>                                     |           |            |          |           |                               |          |       |               |                |              |              |           |           |           |
| HB - Soil Excavation                                                         | LS        | 3          | --       | 3.91      | /BCY                          | 31,000   | BCY   | 1,000         | 1,000          | 1,300        | Productivity | 180,000   |           | 183,000   |
| HB - Transportation of Contaminated Soil to On-Post Hazardous Waste Landfill | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 31,000   | BCY   | 1,000         | 2,500          | 1,300        | Productivity | 123,000   |           | 112,000   |
| HB - On-Post Hazardous Waste Landfill                                        | LS        | 3          | --       | 3.93      | /BCY                          | 31,000   | BCY   | 1,000         | 1,000          | 1,000        |              | 139,000   |           | 128,000   |
| HB - Excavation of Borrow Material                                           | LS        | 3          | --       | 1.89      | /BCY                          | 31,000   | BCY   | 1,000         | 1,000          | 1,000        |              | 67,000    |           | 61,000    |
| HB - Transportation of Borrow Material to Backfill Area                      | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 31,000   | BCY   | 1,000         | 1,500          | 1,000        |              | 46,000    |           | 41,000    |
| HB - Backfill with Borrow Material                                           | LS        | 3          | --       | 1.72      | /BCY                          | 31,000   | BCY   | 1,000         | 1,000          | 1,000        |              | 61,000    |           | 55,000    |
| HB - Installation of 6 Inches of Topsoil                                     | LS        | 3          | --       | 3.24      | /SY                           | 43,000   | SY    | 1,000         | 1,000          | 1,000        |              | 159,000   |           | 144,000   |
| HB - Revegetation of Disturbed Areas                                         | LS        | 3          | --       | 0.18      | /SY                           | 43,000   | SY    | 1,000         | 1,000          | 1,000        |              | 10,000    |           | 9,000     |
| HB - Drilling and Agent Screening Prior to Excavation                        | LS        | 3          | --       | 4.89      | /SY                           | 7,100    | SY    | 1,000         | 1,000          | 1,000        |              | 40,000    |           | 36,000    |
| A - Excavation of Soil with Agent                                            | LS        | 3          | --       | 4.55      | /BCY                          | 12       | BCY   | 1,000         | 1,000          | 1,000        |              | 100       |           | 100       |
| A - Transportation of Contaminated Soil to On-Post Incineration Facility     | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 12       | BCY   | 1,000         | 3,500          | 1,000        |              | 50        |           | 50        |
| A - Load Treated Soil for Transport to Hazardous Landfill                    | LS        | 3          | --       | 1.55      | /BCY                          | 1        | BCY   | 1,000         | 1,000          | 1,000        |              | 2         |           | 2         |
| A - Transportation of Particulates to On-Post Hazardous Waste Landfill       | LS        | 3          | --       | 1.07      | /BCY-MILE                     | 1        | BCY   | 1,000         | 1,000          | 1,000        |              | 1         |           | 1         |
| A - Load Nonhazardous Treated Soil from Stockpile for Backfill               | LS        | 3          | --       | 1.28      | /BCY                          | 1        | BCY   | 1,000         | 1,000          | 1,000        |              | 1         |           | 1         |
| A - On-Post Hazardous Waste Landfill (Particulates)                          | LS        | 3          | --       | 3.93      | /BCY                          | 12       | BCY   | 1,000         | 1,000          | 1,000        |              | 100       |           | 50        |
| A - Transportation of Treated Soil to Backfill Excavation                    | LS        | 3          | --       | 0.86      | /BCY-MILE                     | 12       | BCY   | 1,000         | 3,500          | 1,000        |              | 40        |           | 40        |
| A - Backfill with Treated Soil                                               | LS        | 3          | --       | 1.72      | /BCY                          | 12       | BCY   | 1,000         | 1,000          | 1,000        |              | 20        |           | 20        |
| U - UXO Clearance by Geophysics                                              | LS        | 2          | --       | 0.85      | /SY                           | 170,000  | SY    | 1,000         | 1,000          | 1,000        |              | 185,000   |           | 157,000   |
| U - Removal of Soil with UXO                                                 | LS        | 3          | --       | 70.57     | /BCY                          | 550      | BCY   | 1,000         | 1,000          | 1,000        |              | 44,000    |           | 40,000    |
| U - Excavation of Debris from Surface Soil                                   | LS        | 3          | --       | 3.91      | /BCY                          | 57,000   | BCY   | 1,000         | 1,000          | 1,300        | Productivity | 331,000   |           | 300,000   |
| U - Transportation of Nonhaz. Soil/Debris to On-Post Nonhaz. Waste Landfill  | LS        | 3          | --       | 0.71      | /BCY-MILE                     | 57,000   | BCY   | 1,000         | 2,500          | 1,300        | Productivity | 150,000   |           | 136,000   |
| U - On-Post Solid Waste Landfill                                             | LS        | 3          | --       | 3.93      | /BCY                          | 57,000   | BCY   | 1,000         | 1,000          | 1,000        |              | 256,000   |           | 232,000   |
| U - Installation of 6 Inches of Topsoil                                      | LS        | 3          | --       | 3.24      | /SY                           | 110,000  | SY    | 1,000         | 1,000          | 1,000        |              | 407,000   |           | 369,000   |
| U - Revegetation of Disturbed Areas                                          | LS        | 3          | --       | 0.18      | /SY                           | 110,000  | SY    | 1,000         | 1,000          | 1,100        | Disturbance  | 25,000    |           | 23,000    |
| <b>Subtotal (I)</b>                                                          |           |            |          |           |                               |          |       |               |                |              |              |           | 2,201,000 | 2,004,000 |
| <b>INDIRECT O&amp;M COSTS (OPERATIONS)</b>                                   |           |            |          |           |                               |          |       |               |                |              |              |           |           |           |
| Mob/Demob                                                                    |           |            |          | 5.1%      | J = 0.051 * (I)               |          |       |               |                |              |              | 113,000   |           | 103,000   |
| Indirects Overhead & Profit                                                  |           |            |          | 40.3%     | K = 0.403 * (I+J)             |          |       |               |                |              |              | 931,000   |           | 848,000   |
| Engineering Design                                                           |           |            |          | 1.5%      | L = 0.015 * (I+J+K)           |          |       |               |                |              |              | 44,000    |           | 40,000    |
| Resident Engineering                                                         |           |            |          | 2.0%      | M = 0.020 * (I+J+K)           |          |       |               |                |              |              | 65,000    |           | 59,000    |
| Contingency                                                                  |           |            |          | 31.3%     | N = 0.313 * (I+J+K+L+M)       |          |       |               |                |              |              | 1,050,000 |           | 956,000   |
| <b>Subtotal (O) = J+K+L+M+N</b>                                              |           |            |          |           |                               |          |       |               |                |              |              |           | 2,207,000 | 2,009,000 |
| <b>DIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                         |           |            |          |           |                               |          |       |               |                |              |              |           |           |           |
| A - Incineration                                                             | LS        | 3          | --       | 201.09    | /BCY                          | 12       | BCY   | 1,000         | 1,000          | 1,000        |              | 3,000     |           | 2,000     |
| U - Packaging and Transportation of HE Filled UXO to Army Off-Post Facility  | LS        | 3          | --       | 59.50     | /BCY                          | 550      | BCY   | 1,000         | 1,000          | 1,000        |              | 37,000    |           | 34,000    |
| <b>Subtotal (II)</b>                                                         |           |            |          |           |                               |          |       |               |                |              |              |           | 40,000    | 36,000    |
| <b>INDIRECT SUBCONTRACT O&amp;M COSTS (OPERATIONS)</b>                       |           |            |          |           |                               |          |       |               |                |              |              |           |           |           |
| Mob/Demob                                                                    |           |            |          | 0.0%      | J1 = 0.000 * (II)             |          |       |               |                |              |              | 0         |           | 0         |
| Contractor Markup                                                            |           |            |          | 10.0%     | K1 = 0.100 * (II+J1)          |          |       |               |                |              |              | 4,000     |           | 4,000     |
| Engineering Design                                                           |           |            |          | 0.0%      | L1 = 0.000 * (II+J1+K1)       |          |       |               |                |              |              | 0         |           | 0         |
| Resident Engineering                                                         |           |            |          | 2.0%      | M1 = 0.020 * (II+J1+K1)       |          |       |               |                |              |              | 1,000     |           | 1,000     |
| Contingency                                                                  |           |            |          | 40.0%     | N1 = 0.400 * (II+J1+K1+L1+M1) |          |       |               |                |              |              | 18,000    |           | 16,000    |
| <b>Subtotal (O1) = J1+K1+L1+M1+N1</b>                                        |           |            |          |           |                               |          |       |               |                |              |              |           | 23,000    | 21,000    |
| <b>TOTAL O&amp;M COSTS (OPERATIONS) (OO = I+O+II+O1)</b>                     |           |            |          |           |                               |          |       |               |                |              |              |           | 4,471,000 | 4,070,000 |

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Table B5.23-3 RESIZED ALTERNATIVE - Cost Estimate - Undifferentiated Medium Group - Burial Trenches Subgroup  
Alternative 3: Landfill (On-Post Landfill)

| Cost Item                                                                                              | Cost Type | Start Year | End Year | 1992 (\$)<br>Unit Cost | Units   | Quantity | Units | Volume Factor | Mileage Factor | Other Factor | Description | 1993 (\$)<br>Annual Cost | 1995 (\$)<br>Total Cost | 1995 (\$)<br>PW Cost |
|--------------------------------------------------------------------------------------------------------|-----------|------------|----------|------------------------|---------|----------|-------|---------------|----------------|--------------|-------------|--------------------------|-------------------------|----------------------|
| <b>DIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| HB - On-Post Hazardous Waste Landfill Closure                                                          | A         | 3          | 30       | 0.13                   | /BCY-YR | 31,000   | BCY   | 1,000         | 1,000          | 1,000        |             | 5,000                    | 128,000                 | 66,000               |
| A - On-Post Hazardous Waste Landfill Closure (Particulates)                                            | A         | 3          | 30       | 0.13                   | /BCY-YR | 1        | BCY   | 1,000         | 1,000          | 1,000        |             | 0                        | 4                       | 2                    |
| U - On-Post Solid Waste Landfill, Closure and Post Closure Activities                                  | A         | 3          | 30       | 0.13                   | /BCY-YR | 57,000   | BCY   | 1,000         | 1,000          | 1,000        |             | 8,000                    | 237,000                 | 120,000              |
| <b>Subtotal (P)</b>                                                                                    |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          | 13,000                  | 388,000              |
| <b>INDIRECT O&amp;M COSTS (LONG-TERM ACTIVITIES)</b>                                                   |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>Cost Code: LLSL</b>                                                                                 |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>Indirects, Overhead &amp; Profit</b>                                                                |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>Contingency</b>                                                                                     |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>Q = 0.390 * (P)</b>                                                                                 |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>R = 0.300 * (P+Q)</b>                                                                               |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
| <b>Subtotal (S = Q+R)</b>                                                                              |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          | 11,000                  | 299,000              |
| <b>TOTAL O&amp;M COSTS (LONG-TERM ACTIVITIES) (T = P+S)</b>                                            |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          | 24,000                  | 687,000              |
| <b>TOTAL CAPITAL COSTS AND TOTAL O&amp;M COSTS (OPERATIONS &amp; LONG-TERM ACTIVITIES) (U = H+O+T)</b> |           |            |          |                        |         |          |       |               |                |              |             |                          |                         |                      |
|                                                                                                        |           |            |          |                        |         |          |       |               |                |              |             |                          | 7,370,000               | 6,500,000            |

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