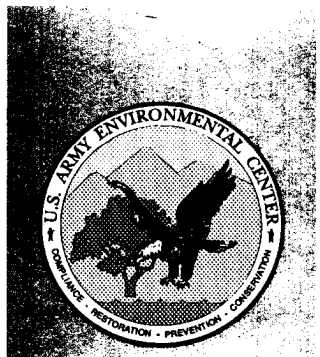
6783 1



U.S. Army Environmental Center

Delivery Order No. 0001
Environmental Services
Program Support
Contract Number
DACA31-94-D-0064

U.S. ARMY ENVIRONMENTAL CENTER

WOODBRIDGE RESEARCH FACILITY
REMEDIAL INVESTIGATION/FEASIBILITY STUDY

HEALTH AND SAFETY PLAN

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FINAL DOCUMENT

SEPTEMBER 1995

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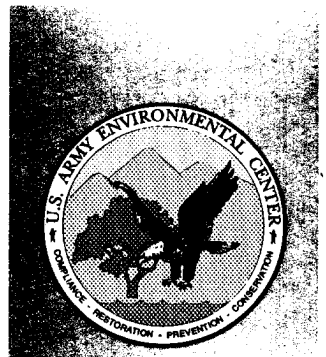
AEC Form 45, 1 Feb 93 replaces THAMA Form 45 which is obsolete.



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HEALTH AND SAFETY ADDENDUM
WOODBRIDGE RESEARCH FACILITY RI/FS
CONTRACT NUMBER DACA31-94-D-0064

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HEALTH AND SAFETY PLAN ADDENDUM

WOODBRIDGE ARMY RESEARCH LABORATORY RI/FS

CONTRACT NUMBER DACA31-94-D-0064

Prepared By:

ICF KAISER ENGINEERS, INC.

September 15, 1995

This Addendum modifies the existing Health and Safety Plan for the Woodbridge Research Facility prepared by the Earth Technology Corporation under Contract Number DAAA15-91-D-0009, Delivery Order 0001, dated November, 1994; and the initial Addendum to that Plan, dated December, 1994; prepared by the Earth Technology under Delivery Order DA0014.

This Addendum has been prepared to incorporate the current scope of work, and additional information about site contaminants identified during the Preliminary, and Phase I Supplemental Site Investigations. Material in the original Plan, and the initial Addendum, not replaced or modified by this Addendum will remain in effect, with the exception of Earth Technology Corporation standard procedures and policies, which are superseded in all cases by ICF Kaiser Engineers, Inc. policies and procedures.

Approved:

Gerald J. Joy, CIH, CSP
Director, Industrial Hygiene

FINAL

REPLACE HASP SECTION 3 WITH THE FOLLOWING

FINAL

3.0 SCOPE OF WORK

The Scope of Work for the Woodbridge Army Research Laboratory RI/FS includes the following hazardous waste-related operations:

3.1 Site Reconnaissance

3.2 Field Investigation

- 3.2.1 Install 29 shallow (35'bgs) groundwater monitoring wells
- 3.2.2 Install 2 deep (75'bgs) groundwater monitoring wells
- 3.2.2 Complete 18 soil borings to 25' bgs or water table
- 3.2.3 Excavate 12 test pits to 6' bgs or water table
- 3.2.4 Convert 10 borings to piezometers

3.3 Sampling

- 3.3.1 Sample 45 groundwater wells twice at 2 month interval
- 3.3.2 Collect 62 surface water and 12 surface water runoff samples
- 3.3.3 Collect 50 sediment samples associated with surface water samples
- 3.3.4 Collect 3 subsurface soil samples from 35 monitoring wells, 20 borings, and 2 samples from 12 test pits
- 3.3.5 Collect 65 surface soil samples
- 3.3.6 Analyze 120 biota tissue samples

3.4 Ecological Assessment

- 3.4.1 Site walkover
- 3.4.2 Bioassessment sampling at approximately 25 locations
- 3.4.3 Measure water quality parameters at the 25 sampling locations

3.5 Hydrologic Assessment

- 3.5.1 Install 10 staff gauges
- 3.5.2 Determine groundwater elevations at 60 locations during groundwater sampling

3.6 Survey

- 3.6.1 Survey all monitoring well, soil boring and piezometer locations.

REPLACE HASP SECTION 4 WITH THE FOLLOWING

FINAL

MEDICAL SURVEILLANCE

The requirements set forth in 29 CFR 1910.120(f), shall be met for all employees performing or supervising hazardous waste operations. Medical exams shall be conducted as soon as possible upon notification by an employee that he/she has developed signs or symptoms indicating possible health hazards or overexposure to hazardous substances. Subcontractor personnel shall provide documentation of current status of participation in a medical surveillance program as required by 29 CFR 1910.120(f). Subcontractors unable to provide such documentation shall have successfully completed a medical examination as described in the above referenced OSHA standard prior to beginning work in a contaminated zone.

Specific protocols for medical examinations are designed by an occupational physician. Common components include:

a. medical history and physical examination

b. dipstick urinalysis, vision screen and vital signs

c. spirometry

d. audiometry

e. blood chemistry (complete blood count, liver function, kidney function, lipid metabolism, carbohydrate metabolism)

f. resting EKG (with approval)

g. chest radiograph (P/A).

No project-specific medical examinations, or biological monitoring is required for this project.

TRAINING

All ICF Kaiser staff working onsite have completed the OSHA mandatory 40-hours hazardous waste operations training and are trained annually in accordance with 29 CFR 1910.120. ICF Kaiser staff are also trained and receive annual training in CPR and first-aid (every 3 years), Hazard Communication, and Bloodborne Pathogens.

Bloodborne Pathogens

ICF Kaiser personnel trained in CPR and first-aid have the potential for exposure to bloodborne pathogens therefore they are trained annually in accordance with 29 CFR 1910.1030. Exposure to bloodborne pathogens is prevented through the use of universal precautions, engineering and work practice controls, and personal protective equipment. Each ICF Kaiser work area shall be equipped with an industrial first-aid kit supplemented by a bloodborne pathogen exposure control kit. Personnel will follow appropriate decontamination and disposal procedures in the event of

a potential exposure to bodily fluids potentially infected with bloodborne pathogens. All incidents must be immediately reported to the SSO and corporate health and safety director.

Hazard Communication

ICF Kaiser trains employees in accordance with the Hazard Communication Standard (29 CFR 1910.1200) in the law, material safety data sheets (MSDSs) and labeling requirements. As part of the hazard communication standard, ICF Kaiser is required to provide MSDSs of chemicals brought to the WRF and have them readily accessible to ICF Kaiser personnel as well as to WRF, and USAEC representatives, and subcontractors.

Table 4-1 below lists the training and compliance status of field personnel working on this project. Training documentation for all personnel can be found in Appendix I of this document.

TABLE 4-1
HEALTH AND SAFETY COMPLIANCE STATUS

NAME	MEDICAL CURRENT	FIT TEST CURRENT	CERTIFICATION LEVEL A B C D	TRAINING CURRENT 40HR	8HR	CPR	BBP
Jack Choynowski	✓	✓	B	✓	✓	✓	✓
Margaret Ehlers	✓	✓	B	✓	✓		✓
Mike Elias	✓	✓	B	✓	✓		✓
Marilyn Garcia	✓	✓	B	✓	✓	✓	✓
Carol Henry	✓	✓	B	✓	✓	✓	✓
Joe Neubauer	✓	✓	B	✓	✓	✓	✓
Debbie Romano	✓	✓	B	✓	✓	✓	✓
Larry Thebeau	✓	✓	B	✓	✓	✓	✓
Mark Thomas	✓	✓	B	✓	N/A	✓	✓
Patricia Thompson	✓	✓	B	✓	✓	✓	✓
Tammy Williams	✓	✓	B	✓	✓	✓	✓
Diane Wisbeck	✓	✓	B	✓	✓	✓	✓

✓ Indicates compliance
N/A Not applicable; recently completed 40-hour training

ADD THE FOLLOWING TO HASP SECTION 5

FINAL

HAZARD ANALYSIS

A hazard analysis and recommended control measures for each task are presented below.

TASK HAZARD ANALYSES

TASK	HAZARD	CONTROL
Hollow-stem auger, mud rotary drilling, and Soil Sampling	Physical hazards: - Heavy equipment	Establish work zones Site coordination/control hardhats, steel-toed boots
	- Overhead hazard	Appropriate placement of rig
	- Noise	Hearing protective devices
	- Heat/stress	Personnel monitoring and adequate hydration
	- Uneven terrain	Appropriate placement of rig; use outriggers
		Monitoring of breathing zone; personal protective equipment
	Biological hazards - Copperhead Snakes - Poison - Spiders, ticks	Personal protective equipment (coverall), personnel awareness of animal behavior, insect repellant

TASK	HAZARD	CONTROL
Groundwater Well Installation	Physical hazards: - Heavy equipment	Establish work zones Site coordination/control hardhats, steel-toed boots (vests)
	- Overhead hazard	Appropriate placement of rig
	- Noise	Hearing protective devices
	- Heat/stress	Personnel monitoring and adequate hydration
	- Uneven terrain	Appropriate placement of rig; use outriggers
		Monitoring of breathing zone; personal protective equipment
	Biological hazards: - Copperhead Snakes	Personal protective equipment (coverall), personnel awareness of animal behavior, insect repellant
	- Poison	
	- Spiders, ticks	
Ecological Assessment	Physical: - Rough terrain	Steel toed boots
	- Heat stress	Personnel monitoring, adequate hydration
	Biological - Copperhead Snakes	PPE coverall & gloves - personnel awareness of animal behavior, insect repellant
	- Spiders, ticks, etc.	
	- Poison Ivy/Oak	
Hydrologic Assessment	Physical: - Rough terrain	Steel toed boots
	- Heat stress	Personnel monitoring, adequate hydration
	Biological - Copperhead Snakes	PPE coverall & gloves - personnel awareness of animal behavior, insect repellant
	- Spiders, ticks, etc.	
	- Poison Ivy/Oak	

TASK	HAZARD	CONTROL
Survey	Physical: - Rough terrain	Steel toed boots
	- Heat stress	Personnel monitoring, adequate hydration
	Biological - Copperhead Snakes	PPE coverall & gloves - personnel awareness of animal behavior, insect repellant
	- Spiders, ticks, etc.	
	- Poison Ivy/Oak	

Chemical Hazards

The following table summarizes chemicals identified during the Site Investigation, or suspected to be present based on reported past use.

CHEMICALS OF CONCERN AT THE WOODBRIDGE RESEARCH FACILITY

CHEMICAL CAS NUMBER	EXPOSURE LIMIT	IDLH LEVEL	ROUTES OF EXPOSURE	SYMPTOMS OF ACUTE EXPOSURE	IONIZATION POTENTIAL (ev)
Asbestos 1332-21-4	PEL = 0.1 f/cc	N.D.	Inhalation, ingestion	Minimal, asbestosis/cancer on long term exposure	NA
Polychlorinated biphenyl (PCB)	PEL = 0.5-1mg/m3 REL 10-hr TWA = 1 ug/m3	5 mg/m3	Inhalation, absorption, ingestion, contact	Irritates eyes, chloracne, liver damage.	NE
Chlorobenzene 108-90-7	PEL = 75 ppm	1000 ppm	Inhalation, ingestion, contact	Eye, nose, & throat irritation; CNS depression, liver, kidney, & lung injury	9.07 ev
Acetone 67-64-1	PEL = 1,000 ppm	2,500 ppm	Inhalation, ingestion, contact	Eye, nose & throat irritation, headache, CNS depression.	9.69 ev
Bis Ethylhexyl phthalate 117-81-7	PEL = 5 mg/m3 STEL = 10 mg/m3	NE	Inhalation, ingestion	Respiratory and skin irritation, nausea.	NE
Di Octyl phthalate 117-84-0	NE	NE	Inhalation, ingestion, contact	Severe eye irritation, headache, nausea.	NE

CHEMICAL CAS NUMBER	EXPOSURE LIMIT	IDLH LEVEL	ROUTES OF EXPOSURE	SYMPTOMS OF ACUTE EXPOSURE	IONIZATION POTENTIAL (ev)
Wood Creosote 8021-39-4	PEL = NE, use coal tar pitch volatiles	NE	Inhalation, absorption, skin and eye contact	Skin, eye, respiratory irritation, skin rash and burns, visual effects/sensitivity to light.	NE
Beryllium 7440-41-7	PEL = .002 mg/m3 Ceil = .005 mg/m3	10 mg/m3 Carcin ogen	Inhalation	Respiratory symptoms, weakness, fainting, weight loss (carcinogen).	NA
Cadmium (dust) 7440-43-9	PEL = .005 mg/m3	9 mg/m3	Inhalation	Pulmonary edema, dyspnea, cough, chills, nausea	NA
Cobalt 7440-48-4	PEL = 0.05 mg/m3	20 mg/m3	Inhalation, ingestion and skin and eye contact	Cough, decrease in pulmonary function; weight loss; dermatitis; diffuse nodular fibrosis and respiratory hypersensitivity.	NA
Lead 7439-92-1	PEL = 0.05 mg/m3	N.A.	Inhalation, Ingestion, Contact	Lassitude, insomnia, pallor, eye grounds, anorexia, low weight, malnutrition, constipation, abdominal pain, colic, hypotension, anemia, gingival lead line, tremors, paralysis of the wrist.	NA
Mercury as Hg vapor 7439-97-6	PEL = 0.05 mg/m3 Ceil = 0.1 mg/m3 Skin	10 mg/m3	Inhalation, absorption, contact	Cough, dyspnea, bronchial pneumonia, tremor, insomnia, irritability, indecision, headache, fatigue, weakness, stomatitis, salvation, GI, anorexia, low-weight, proteinuria, irritated eyes-skin.	NA

Permissible Exposure Limit, OSHA.
Immediately Dangerous to Life and Health Level, NIOSH Publication # 94-116, June 1994.
Skin - Skin notation, absorption through intact skin can result in appreciable dose.
NA - Not applicable.
NE - Not established.

DISTRIBUTION OF CONTAMINANTS IDENTIFIED IN OU 1
DURING THE PRELIMINARY AND PHASE 1 SUPPLEMENTAL SITE INVESTIGATION

AREE	Toluene	PCBs	Chloro-benzene	Acetone	Bis-2-Ethylhexyl Phthalate	Di-n-Octyl Phthalate	Wood Creosote	Total Petroleum Hydrocarbons	Beryllium	Cadmium	Cobalt	Lead	Mercury	Pesticides
1		X												
2		X												
3												X		
4		X						X						
5		X						X						X
6A		X												
6B								X						
7									X		X			
38										X			X	

Pesticides are not further identified; based on the period of use, organo-chlorine pesticides (DDT, DDE) would be expected.

DISTRIBUTION OF CONTAMINANTS IDENTIFIED IN OU 2
DURING THE PRELIMINARY AND PHASE 1 SUPPLEMENTAL SITE INVESTIGATION

AREE	Toluene	PCBs	Chloro-benzene	Acetone	Bis-2-Ethylhexyl Phthalate	Di-n-Octyl Phthalate	Wood Creosote	Total Petroleum Hydrocarbons	Beryllium	Cadmium	Cobalt	Lead	Mercury	Pesticides
11		X	X	X				X						
17														
22		X						X						
8								X						
13								X						
14					X	X		X						
18	X													
19														
20														
23								X						
24								X						
29		X?												
37							X							

Medium Sampled[1]	Number of Samples	Sample IDs	Chemical Analyses[2]	Physical Testing	
Surface Soil	5	RIBK1-RIBK5	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, TPH, PCTs, PAHs (surface soil and groundwater).	NA	5 background surfac
Subsurface Soil	9	MW-52, 53, 54 (3 samples/boring)		1 sample/boring will be analyzed TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	3 soil borings will be completed as monito 35 feet below ground on the northwest side Inner Perimeter Road thereafter until total d for deep well boring. table; and one sampl
Groundwater	8[3]	Shallow wells: MW-52, 53, 54 Deep well: MW-63		Temp, pH, redox, D.O., cond. salinity	
					Downgradient Lo
Subsurface soil	9	MW-75, 76, and PZ-13 (3 samples/boring)	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, TPH, PCTs.	1 sample/boring will be analyzed TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	Two monitoring wells samples will be collec table for well borings. table; and one sample the facility hydrogeolo
Piezometers	1	PZ-13	NA	NA	
Groundwater	4[3]	MW-75, 76	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, TPH, PCTs and PAHs.	Temp, pH, redox, D.O., cond. salinity	

[1] Forty-five surface water and sediment samples will be collected site wide. These samples will be analyzed for TCL VOCs, SVOCs, pesticides/PCB

[2] Upon collection, groundwater samples shall be preserved as follows: VOCs pH < 2 with HCl; TAL metals pH < 2 with NHO_3; CN^- pH> 12 with Na

[3] Total number of samples includes two rounds of groundwater samples collected a minimum of 2 months apart.

WRF RI/FS Groundwater, Surface And Subsurface Sampling Program

Physical Testing	Rationale
	Background
NA	5 background surface soil samples will be collected from 0 to 6-inches bgs.
sample/boring will be nalyzed TOC, Atterberg imits, USCS, Grain size listribution,and percent noisture.	3 soil borings will be drilled and completed as monitoring wells to access site background subsurface soil characteristics and groundwater quality. completed as monitoring wells. Two soil borings/monitoring wells, MW-53 and MW-81, will be drilled along the northern boundary of WRF. The pr 35 feet below ground surface and 75 feet below ground surface, respectively. Deep well boring MW-81 will not split-spooned sampled. 1 boring/r on the northwest side of WRF and completed to approximately 35 feet below ground surface. An upgradient background monitoring well (MW-54) Inner Perimeter Road to assess background subsurface soil and groundwater conditions in this area. Split-spoon samples will be collected from 0 thereafter until total depth is reached. Total depth will be the water table for soil borings and 7 feet below the water table for shallow well borings a for deep well boring. 3 samples will be selected and sent to the laboratory as follows: one sample from the 0 to 2 ft below ground surface (bgs); o table; and one sample from each boring will be selected based on obvious soil staining or elevated PID reading.
emp, pH, redox, D.O., cond. salinity	
	Downgradient Locations From Former Dump Areas
1 sample/boring will be analyzed TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	Two monitoring wells (MW-75, and MW-76) will be installed in downgradient locations from the former dump areas to evaluate groundwater quality samples will be collected from 0-2 ft bgs, 5-7 ft bgs and every 5 ft thereafter until total depth is reached. Total depth will be the water table for soil table for well borings. 3 samples will be selected and sent to the laboratory as follows: one sample from the 0 to 2 ft below ground surface (bgs); o table; and one sample from each boring will be selected based on obvious soil staining or elevated PID reading. One soil boring will be converted the facility hydrogeologic model.
NA	
emp, pH, redox, D.O., cond. salinity	

will be analyzed for TCL VOCs, SVOCs, pesticides/PCBs, TAL metals, PCTs, PAHs and TPH. Sediment samples will also be tested for TOC and Grain size distribution.

Cl; TAL metals pH < 2 with NHO_3; CN^- pH> 12 with NaOH.

n of 2 months apart.

e Sampling Program

Rationale
ected from 0 to 6-inches bgs.
monitoring wells to access site background subsurface soil characteristics and groundwater quality. The background borings will be s/monitoring wells, MW-53 and MW-81, will be drilled along the northern boundary of WRF. The proposed total depths of these wells are w ground surface, respectively. Deep well boring MW-81 will not split-spooned sampled. 1 boring/monitoring well, MW-52, will be drilled approximately 35 feet below ground surface. An upgradient background monitoring well (MW-54) will be installed on the south side of surface soil and groundwater conditions in this area. Split-spoon samples will be collected from 0-2 ft bgs, 5-7 ft bgs and every 5 ft pth will be the water table for soil borings and 7 feet below the water table for shallow well borings and 10 feet below the confining unit d and sent to the laboratory as follows: one sample from the 0 to 2 ft below ground surface (bgs); one sample at the top of the water selected based on obvious soil staining or elevated PID reading.
mp Areas
be installed in downgradient locations from the former dump areas to evaluate groundwater quality prior to off-site flow. Split-spoon bgs and every 5 ft thereafter until total depth is reached. Total depth will be the water table for soil borings and 7 feet below the water d and sent to the laboratory as follows: one sample from the 0 to 2 ft below ground surface (bgs); one sample at the top of the water selected based on obvious soil staining or elevated PID reading. One soil boring will be converted to a piezometer (PZ-13), for use in

and TPH. Sediment samples will also be tested for TOC and Grain size distribution.

Medium Sampled[1]	Number of Samples	Sample IDs	Chemical Analyses[2]	Physical Testing	
Surface Soil	4	RISS1-4	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, PCTs and PAHs (groundwater only).	NA	4 soil samples will collected from th
Test Pits	4	TP1 and TP2 (2 samples/test pit)		NA	Two test pits (TP1 and TP2) will be extent of PCB contamination. Two
Subsurface Soil	12	MW-77,78,79,80. (3 samples/ boring)		1 sample/boring will be analyzed for TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	4 soil borings will be drilled and sa total depth is reached. Total depth sample from the 0 to 2 ft below gro reading.
Groundwater	20[3]	New Wells: MW-77,78,79,80. Existing Wells: MW-7,8,9,10,11,12		Temp, pH, redox, D.O., cond. salinity	Four downgradient soil borings con contamination and are located to fu
Surface Soil	5	RISS5-9	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, PCTs and PAHs.	NA	5 soil samples will collected from th

[1] Forty-five surface water and sediment samples will be collected site wide. These samples will be analyzed for TCL VOCs, SVOCs, pesticides/PC temperature, pH, redox, dissolved oxygen, conductivity, and salinity.

[2] Upon collection, groundwater samples shall be preserved as follows: VOCs pH < 2 with HCl; TAL metals pH < 2 with NHO_3; CN^- pH> 12 with

[3] Total number of samples includes two rounds of groundwater samples collected a minimum of 2 months apart.

Table 3-1 (Continued)
WRF RI/FS Groundwater, Surface And Subsurface Sampling Program

Physical Testing	Rationale
	AREE 1
NA	4 soil samples will collected from the 0 to 6-inch depth interval for site characterization.
NA	Two test pits (TP1 and TP2) will be excavated downgradient from the two trenches (Trenches 20 and 21) previously excavated and sampled during th extent of PCB contamination. Two soil samples will be collected from each test pit. Each sample will be selected based on obvious soil staining or P
1 sample/boring will be analyzed for TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	4 soil borings will be drilled and samples collected to further characterize subsurface soil contamination. Split-spoon samples will be collected from 0- total depth is reached. Total depth will be the water table for soil borings and 7 feet below the water table for well borings. 3 samples will be selecte sample from the 0 to 2 ft below ground surface (bgs); one sample at the top of the water table; and one sample from each boring will be selected bas reading.
Temp, pH, redox, D.O., cond. salinity	Four downgradient soil borings completed as monitoring wells will be drilled (MW-78, MW-79, and MW-80). The proposed locations are closer than th contamination and are located to further characterize and evaluate subsurface soil and groundwater contamination in AREE 1. Existing wells (MW- 7
	AREE 2 & 5
NA	5 soil samples will collected from the 0 to 6-inch depth interval for site characterization.

iese samples will be analyzed for TCL VOCs, SVOCs, pesticides/PCBs, TAL metals, PCTs, PAHs and TPH. Sediment samples will also be tested for TOC and Grain size distribution a

H < 2 with HCl; TAL metals pH < 2 with NHO_3; CN^- pH> 12 with NaOH.

ed a minimum of 2 months apart.

e Sampling Program

Rationale
al for site characterization.
from the two trenches (Trenches 20 and 21) previously excavated and sampled during the 1993 USAEC SI to determine the downgradient cted from each test pit. Each sample will be selected based on obvious soil staining or PID hit.
characterize subsurface soil contamination. Split-spoon samples will be collected from 0-2 ft bgs, 5-7 ft bgs and every 5 ft thereafter until r soil borings and 7 feet below the water table for well borings. 3 samples will be selected and sent to the laboratory as follows: one mple at the top of the water table; and one sample from each boring will be selected based on obvious soil staining or elevated PID
s will be drilled (MW-78, MW-79, and MW-80). The proposed locations are closer than the existing wells to the known area of PCB aluate subsurface soil and groundwater contamination in AREE 1. Existing wells (MW- 7 through MW- 12) will be sampled for the RI/FS.
al for site characterization.

Hs and TPH. Sediment samples will also be tested for TOC and Grain size distribution and surface water samples will measured for

Medium Sampled[1]	Number of Samples	Sample IDs	Chemical Analyses[2]	Physical Testing	
					AR
Test Pits	4	TP3 and TP4 (2 samples/test pit)	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, PCTs, and TPH.	NA	One test pit (TP3) will be excavated excavated in AREE 5 to characteri
Subsurface Soil	30	MW-68, 69, 70, 71, 72, 73, 74, 81, RISB6, and PZ-12.		1 sample/boring will be analyzed for TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	Seven shallow soil boring/monitorin and pesticide contamination in the additional monitoring well (MW-69) area. Proposed soil boring/monitori placement of existing well MW-1. T to existing monitoring wells MW-2 a MW-82 will be located adjacent to M installed adjacent to prior sample 0 ft bgs, 5-7 ft bgs and every 5 ft ther and sent to the laboratory as follows obvious soil staining or elevated PID sediment sample location to investig boring (RISB5) will be installed adja piezometer (PZ-12).
Piezometers	1	PZ-12.	NA	NA	
Groundwater	30[3]	New Shallow Wells: MW-68, 69, 70, 71, 72, 73, 74, 81. Deep wells:MW-82,83 Existing Wells: MW-1, 2, 3, 4, 5	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, PCTs, PAHs and TPH.	Temp, pH, redox, D.O., cond. salinity	
Surface Soil	3	RISS10-12	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, PCTs, PAHs (surface soil only) and TPH.	NA	3 soil samples will be collected from
Test Pit	2	TP13 and TP14. (2 samples/test pit).		NA	

[1] Forty-five surface water and sediment samples will be collected site wide. These samples will be analyzed for TCL VOCs, SVOCs, pesticides/PCB for temperature, pH, redox, dissolved oxygen, conductivity, and salinity.

[2] Upon collection, groundwater samples shall be preserved as follows: VOCs pH < 2 with HCl; TAL metals pH < 2 with NHO_3; CN^- pH> 12 with N

[3] Total number of samples includes two rounds of groundwater samples collected a minimum of 2 months apart.

Table 3-1 (Continued)
WRF RI/FS Groundwater, Surface And Subsurface Sampling Program

Physical Testing	Rationale
	AREE 2 & 5 (Continued)
	One test pit (TP3) will be excavated in AREE 2 to delineate the extent of PCB contamination remaining on the site after the 1984 remedial action performed excavated in AREE 5 to characterize the site of a former disposal pit where metal debris is partially buried. Two soil samples will be collected from each te
nple/boring will be zed for TOC, berg limits, USCS, size distribution,and nt moisture.	Seven shallow soil boring/monitoring wells (one upgradient and 6 downgradient) located to encompass AREEs 2 and 5, will be drilled to identify potential s and pesticide contamination in the soil. These borings will be completed as monitoring wells (MW-68 and MW-70 through MW-74, and MW-81) to investiga additional monitoring well (MW-69) will be installed at the former sediment sample location 02SE02 (SI sample location) to investigate potential subsurface area. Proposed soil boring/monitoring well MW-71 will address the PCB contamination found at 05DP0101, and soil boring/monitoring well MW-68 will serv placement of existing well MW-1. The top of the screen of existing well MW-1 is below the water table, thereby rendering it unable to provide monitoring da
NA	to existing monitoring wells MW-2 and MW-3 and completed such that the screens are placed to intercept light phase compounds, if present. In addition, 2 MW-82 will be located adjacent to MW-2 (forming a well cluster with MW-81) to evaluate if PCBs have migrated downward in an area where PCBs have be installed adjacent to prior sample 05DP0101 where PCBs were detected. Deep well MW-83 will form a well cluster with shallow monitoring well MW-71. Sp
, pH, redox, D.O., salinity	ft bgs, 5-7 ft bgs and every 5 ft thereafter until total depth is reached. Total depth will be the water table for soil borings and 7 feet below the water table fo and sent to the laboratory as follows: one sample from the 0 to 2 ft below ground surface (bgs); one sample at the top of the water table; and one sample fr obvious soil staining or elevated PID reading. These borings will be completed as monitoring wells (MW-70 through MW-74). An additional monitoring we sediment sample location to investigate potential subsurface soil and groundwater contamination in this area. Existing monitoring wells (MW-1 through MW boring (RISB5) will be installed adjacent to the SI sample location where PCBs were detected in AREE2. One soil boring will be installed by prior sediment piezometer (PZ-12).
	AREE 3
	3 soil samples will be collected from the 0 to 6 inch depth interval and 2 test pits will be excavated in the disposal area at AREE 3.for site characterization.
NA	

amples will be analyzed for TCL VOCs, SVOCs, pesticides/PCBs, TAL metals, PCTs, PAHs and TPH. Sediment samples will also be tested for TOC and Grain size distribution and su

with HCl; TAL metals pH < 2 with NHO_3; CN^- pH> 12 with NaOH.

inimum of 2 months apart.

face Sampling Program

	Rationale
e the extent of PCB contamination remaining on the site after the 1984 remedial action performed by Weston. One test pit (TP4) will be disposal pit where metal debris is partially buried. Two soil samples will be collected from each test pit.	
t and 6 downgradient) located to encompass AREEs 2 and 5, will be drilled to identify potential source areas and the extent of PCB, TPH, l be completed as monitoring wells (MW-68 and MW-70 through MW-74, and MW-81) to investigate potential groundwater contamination. An former sediment sample location 02SE02 (SI sample location) to investigate potential subsurface soil and groundwater contamination in this dress the PCB contamination found at 05DP0101, and soil boring/monitoring well MW-68 will serve as an upgradient well due to the screen f existing well MW-1 is below the water table, thereby rendering it unable to provide monitoring data for TPH. MW-81 will be located adjacent ed such that the screens are placed to intercept light phase compounds, if present. In addition, 2 deep monitoring wells will be installed. luster with MW-81) to evaluate if PCBs have migrated downward in an area where PCBs have been detected in the past. MW-83 will be were detected. Deep well MW-83 will form a well cluster with shallow monitoring well MW-71. Split-spoon samples will be collected from 0-2 is reached. Total depth will be the water table for soil borings and 7 feet below the water table for well borings. 3 samples will be selected 0 to 2 ft below ground surface (bgs); one sample at the top of the water table; and one sample from each boring will be selected based on ngs will be completed as monitoring wells (MW-70 through MW-74). An additional monitoring well (MW-69) will be installed at the former e soil and groundwater contamination in this area. Existing monitoring wells (MW-1 through MW- 5) will be resampled for the RI. One soil ocation where PCBs were detected in AREE2. One soil boring will be installed by prior sediment sample location 02SE01 and converted to	
nterval and 2 test pits will be excavated in the disposal area at AREE 3.for site characterization.	

AHs and TPH. Sediment samples will also be tested for TOC and Grain size distribution and surface water samples will measured

Medium Sampled[1]	Number of Samples	Sample IDs	Chemical Analyses[2]	Physical Testing	
Surface Soil	4	RISS13-16	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, PCTs, PAHs (surface soil and groundwater only), TPH.	NA	Four soil samples will
Test Pits	16	TP5-12 (2 samples/test pit)		NA	10 geophysical anom evaluate the potential PID hit.
Subsurface Soil	9	MW-64, 66, 67. (3 samples/boring)		1 sample/boring will be analyzed for TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	5 monitoring wells (M extent of subsurface depth is reached. To one sample from the elevated PID reading.
Groundwater	6[3]	MW-64, 66, 67.		Temp, pH, redox, D.O., cond. salinity	
Surface Soil	7	RISS17-23	TCL VOCs, SVOCs, pesticides/PCBs, TAL metals and PAHs (surface soil and groundwater only).	NA	7 soil samples will co boring/monitoring we contamination in dow Total depth will be th the 0 to 2 ft below gr reading.
Test Pits	6	TP15, 16, and 17		NA	
Subsurface Soil	3	MW-65 (3 samples/boring)		1 sample/boring will be analyzed for TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	
Groundwater	2[3]	MW-65		Temp, pH, redox, D.O., cond. salinity	

[1]Forty-five surface water and sediment samples will be collected site wide. These samples will be analyzed for TCL VOCs, SVOCs, pesticides/PCB

[2] Upon collection, groundwater samples shall be preserved as follows: VOCs pH < 2 with HCl; TAL metals pH < 2 with NHO_3; CN^- pH> 12 with

[3] Total number of samples includes two rounds of groundwater samples collected a minimum of 2 months apart.

Table 3-1 (Continued)
WRF RI/FS Groundwater, Surface And Subsurface Sampling Program

mical yses[2]	Physical Testing	Rationale
		AREE 4
;s,	NA	Four soil samples will collected from the 0 to 6-inch depth interval for site characterization.
:s/PCBs, ganics, AHs soil and ater H.	NA	10 geophysical anomalies previously identified west of AREE 4 will be investigated. Test pits (TP5 through TP12) will be excavat evaluate the potential for subsurface soil contamination. 2 subsurface soil samples will be collected from each test pit. Each sa PID hit.
	1 sample/boring will be analyzed for TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	5 monitoring wells (MW-64 through MW-68) will be installed around the previously trenched area, one upgradient and four downg extent of subsurface soil and groundwater contamination associated with this AREE. Split-spoon samples will be collected from depth is reached. Total depth will be the water table for soil borings and 7 feet below the water table for well borings. 3 sample one sample from the 0 to 2 ft below ground surface (bgs); one sample at the top of the water table; and one sample from each b elevated PID reading.
	Temp, pH, redox, D.O., cond. salinity	
		AREE 6A
s,	NA	7 soil samples will collected from the 0 to 6-inch depth interval for site characterization. In addition, 3 test pits will be excavated t boring/monitoring well (MW-65) will be installed downgradient of AREE 6A to evaluate downgradient groundwater quality and the contamination in downgradient areas associated with this AREE. Split-spoon samples will be collected from 0-2 ft bgs, 5-7 ft bgs Total depth will be the water table for soil borings and 7 feet below the water table for well borings. 3 samples will be selected a the 0 to 2 ft below ground surface (bgs); one sample at the top of the water table; and one sample from each boring will be select reading.
/PCBs, s and face ter	NA	
	1 sample/boring will be analyzed for TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	
	Temp, pH, redox, D.O., cond. salinity	

e samples will be analyzed for TCL VOCs, SVOCs, pesticides/PCBs, TAL metals, PCTs, PAHs and TPH. Sediment samples will also be tested for TOC and Grain size distributio

l < 2 with HCl; TAL metals pH < 2 with NHO_3; CN^- pH> 12 with NaOH.

d a minimum of 2 months apart.

nued)
ubsurface Sampling Program

Rationale
the 0 to 6-inch depth interval for site characterization.
identified west of AREE 4 will be investigated. Test pits (TP5 through TP12) will be excavated at the previously identified geophysical anomalies to soil contamination. 2 subsurface soil samples will be collected from each test pit. Each sample will be selected based on obvious soil staining or
MW-68) will be installed around the previously trenched area, one upgradient and four downgradient. These wells are designed to evaluate the water contamination associated with this AREE. Split-spoon samples will be collected from 0-2 ft bgs, 5-7 ft bgs and every 5 ft thereafter until total e the water table for soil borings and 7 feet below the water table for well borings. 3 samples will be selected and sent to the laboratory as follows: ground surface (bgs); one sample at the top of the water table; and one sample from each boring will be selected based on obvious soil staining or
0 to 6-inch depth interval for site characterization. In addition, 3 test pits will be excavated to characterize the old landfill. One soil e installed downgradient of AREE 6A to evaluate downgradient groundwater quality and the extent of subsurface soil and groundwater associated with this AREE. Split-spoon samples will be collected from 0-2 ft bgs, 5-7 ft bgs and every 5 ft thereafter until total depth is reached. soil borings and 7 feet below the water table for well borings. 3 samples will be selected and sent to the laboratory as follows: one sample from gs); one sample at the top of the water table; and one sample from each boring will be selected based on obvious soil staining or elevated PID

CTs, PAHs and TPH. Sediment samples will also be tested for TOC and Grain size distribution.

Ta
WRF RI/FS Groundwater,

Medium Sampled[1]	Number of Samples	Sample IDs	Chemical Analyses[2]	Physical Testing	
Surface Soil	2	RISS24, RISS25	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, PAHs, (surface soil and groundwater only) and TPH.	NA	2 soil samples will co
Test Pits	3	TP18, 19, 20.		NA	Two test pits (TP18 a will be excavated ea pit. A soil boring/mo
Subsurface Soil	3	MW-60		1 sample/boring will be analyzed for TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	boring/monitoring we this area. Split-spoo feet below the water top of the water table
Groundwater	2[3]	MW-60		Temp, pH, redox, D.O., cond. salinity	
Subsurface Soil	3	MW-59 (3 samples/boring)	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, TPH, PAHs (GW only).	1 sample/boring will be analyzed for TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	Soil boring/monitorin monitoring well MW-5 contamination downg collected from 0-2 ft b borings. 3 samples w
Groundwater	2[3]	MW-59		Temp, pH, redox, D.O., cond. salinity	sample from each bo
					Downgradient L
Subsurface Soil	3	MW-61 (3 samples/boring)	TCL VOCs, SVOCs, pesticides/PCBs, TAL metals, TPH.	1 sample/boring will be analyzed for TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	One soilboring/monito the northeast portion upgradient sources.

[1]Forty-five surface water and sediment samples will be collected site wide. These samples will be analyzed for TCL VOCs, SVOCs, pesticides/PCB temperature, pH, redox, dissolved oxygen, conductivity, and salinity.

[2]Upon collection, groundwater samples shall be preserved as follows: VOCs pH < 2 with HCl; TAL metals pH < 2 with NHO_3; CN^- pH> 12 with Na

[3]Total number of samples includes two rounds of groundwater samples collected a minimum of 2 months apart.

Table 3-1 (Continued)
WRF RI/FS Groundwater, Surface And Subsurface Sampling Program

	Physical Testing	Rationale
		AREE 6B
	NA	2 soil samples will collected from the 0 to 6-inch depth interval for site characterization. Two test pits (TP18 and TP19) will be excavated to investigate and characterize metal debris found in an area west of Deephole Point Roac will be excavated east of Deephole Point Road to investigate a suspected disposal area where TPH was detected during the 1993 SI. Two pit. A soil boring/monitoring well (MW-60) will be installed upgradient of this AREE (which is also upgradient of AREE 7) to evaluate ground boring/monitoring well, MW-75, (also discussed below in AREE 7) will be installed downgradient from AREEs 6B, and 7 to evaluate groundv this area. Split-spoon samples will be collected from 0-2 ft bgs, 5-7 ft bgs and every 5 ft thereafter until total depth is reached. Total depth feet below the water table for well borings. 3 samples will be selected and sent to the laboratory as follows: one sample from the 0 to 2 ft b top of the water table; and one sample from each boring will be selected based on obvious soil staining or elevated PID reading.
	NA	
	1 sample/boring will be analyzed for TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	
	Temp, pH, redox, D.O., cond. salinity	
		AREE 7
	1 sample/boring will be analyzed for TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	Soil boring/monitoring well (MW-59) will be installed in AREE 7. Subsurface soil and groundwater data collected from MW-59 will be evalua monitoring well MW-59, monitoring well MW-75 (to be installed downgradient of AREEs 6B and 7) will be used to evaluate groundwater qua contamination downgradient of this AREE (MW-75 will also be used to evaluate groundwater quality downgradient of AREE 6B, as previousl collected from 0-2 ft bgs, 5-7 ft bgs and every 5 ft thereafter until total depth is reached. Total depth will be the water table for soil borings borings. 3 samples will be selected and sent to the laboratory as follows: one sample from the 0 to 2 ft below ground surface (bgs); one sa sample from each boring will be selected based on obvious soil staining or elevated PID reading.
	Temp, pH, redox, D.O., cond. salinity	
		Downgradient Location From Facility Compound
	1 sample/boring will be analyzed for TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	One soilboring/monitoring well (MW-61) will be installed in a downgradient location at the corner of the Bayview Road and Charlie Road. Th the northeast portion of the compound. This monitoring well will be installed to determine whether groundwater or subsurface soils have bee upgradient sources.

nples will be analyzed for TCL VOCs, SVOCs, pesticides/PCBs, TAL metals, PCTs, PAHs and TPH. Sediment samples will also be tested for TOC and Grain size distribution and su

vith HCl; TAL metals pH < 2 with NHO_3; CN^- pH> 12 with NaOH.

nimum of 2 months apart.

ampling Program

Rationale
depth interval for site characterization. o investigate and characterize metal debris found in an area west of Deephole Point Road in this AREE. An additional test pit (TP20) investigate a suspected disposal area where TPH was detected during the 1993 SI. Two soil samples will be collected from each test installed upgradient of this AREE (which is also upgradient of AREE 7) to evaluate groundwater quality. Downgradient soil elow in AREE 7) will be installed downgradient from AREEs 6B, and 7 to evaluate groundwater quality and subsurface soil conditions in om 0-2 ft bgs, 5-7 ft bgs and every 5 ft thereafter until total depth is reached. Total depth will be the water table for soil borings and 7 ples will be selected and sent to the laboratory as follows: one sample from the 0 to 2 ft below ground surface (bgs); one sample at the boring will be selected based on obvious soil staining or elevated PID reading.
d in AREE 7. Subsurface soil and groundwater data collected from MW-59 will be evaluated to characterize the site. In addition to be installed downgradient of AREEs 6B and 7) will be used to evaluate groundwater quality and the extent of groundwater will also be used to evaluate groundwater quality downgradient of AREE 6B, as previously discussed). Split-spoon samples will be thereafter until total depth is reached. Total depth will be the water table for soil borings and 7 feet below the water table for well e laboratory as follows: one sample from the 0 to 2 ft below ground surface (bgs); one sample at the top of the water table; and one n obvious soil staining or elevated PID reading.
ound
alled in a downgradient location at the corner of the Bayview Road and Charlie Road. This area receives surface water runoff from ring well will be installed to determine whether groundwater or subsurface soils have been impacted by run off or other potential

d TPH. Sediment samples will also be tested for TOC and Grain size distribution and surface water samples will measured for

Medium Sampled[1]	Number of Samples	Sample IDs	Chemical Analyses[2]	Physical Testing	
					Downgradient Location
Groundwater	2[3]	MW-61	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, TPH, PAHs	Temp, pH, redox, D.O., cond. salinity	(See Above)
					AREEs In The Vicinity of Building 202
Test Pits	NA	TP21 and TP22	NA	NA	Four shallow soil boring the extent of subsurface and is also downgradie during the removal acti samples collected from detected in this area. M wells MW-37, MW-38, a Drum Storage Area (AR model. In addition, 2 so and to characterize and contamination in the sa encountered and the lo be verified by excavatin be drilled to intercept th
Subsurface Soil	27	MW-55, 56, 57, 58, and RISB1-RISB5 (3 samples/boring)	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, PCTs, PAHs (groundwater only), TPH.	1 sample/boring will be analyzed for TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	
Groundwater	12[3]	New shallow wells: MW-55, 56, 57, 58. Deep well: MW-62 Existing well: MW-39		Temp, pH, redox, D.O., cond. salinity	

[1]Forty-five surface water and sediment samples will be collected site wide. These samples will be analyzed for TCL VOCs, SVOCs, pesticides/PCBs, temperature, pH, redox, dissolved oxygen, conductivity, and salinity.

[2]Upon collection, groundwater samples shall be preserved as follows: VOCs pH < 2 with HCl; TAL metals pH < 2 with NHO_3; CN^- pH> 12 with NaOH

[3]Total number of samples includes two rounds of groundwater samples collected a minimum of 2 months apart.

Physical Testing	Rationale
	Downgradient Location From Facility Compound (Continued)
emp, pH, redox, D.O., cond. alinity	(See Above)
	AREEs In The Vicinity of Building 202 (AREEs 11, 17, 22, 23(b), 24(a), 24(c), And 24(d))
NA	Four shallow soil boring/monitoring wells (MW-55 - MW-58) and a deep monitoring well (MW-62) will be installed in downgradient locations from the the extent of subsurface soil and groundwater contamination. MW-55 is located in an area where stressed vegetation has been observed in an area and is also downgradient from the former Oil/Water Separator. As previously discussed, a sand lens, which is believed to trend northwest from the during the removal action. Shallow monitoring well MW-56 and deep monitoring well MW-62 will be installed in a downgradient location to intercept samples collected from wells MW-56 and MW-62 will be analyzed to evaluate whether upper and lower groundwater zones are contaminated from th detected in this area. Monitoring wells MW-57 and MW-58 are located adjacent to Ditch 22 to evaluate groundwater quality prior to potential discha wells MW-37, MW-38, and MW-39, which were installed as part of a Phase II Site Characterization, will be sampled for this RI to investigate groundw Drum Storage Area (AREE 12) and AREEs 11 and 23. Water level measurements will be collected from all existing wells in this area to extend the d model. In addition, 2 soil borings (RISB1 and RISB2) will be drilled in the paved area west of the oil/water separator to evaluate the extent of subsurf and to characterize and delineate the extent of contamination in AREE 17. AREE 17 is also being sampled in the Phase II SSI. Soil borings will be contamination in the sand lens which was encountered during the PCB removal action. One soil boring (RISB3) will be drilled adjacent to the excav encountered and the location has been verified. The suspected trend of the sand lens is toward the northwest toward monitoring wells MW-56 and be verified by excavating small test pits (TP21 and TP22) perpendicular to the suspected trend. Once the location has been confirmed, 2 additional be drilled to intercept the sand lens to characterize subsurface lithologic properties and evaluate the extent of contamination in the lens.
ample/boring will be alyzed for TOC, Atterberg its, USCS, Grain size tribution,and percent isture.	
np, pH, redox, D.O., cond. lnity	

be analyzed for TCL VOCs, SVOCs, pesticides/PCBs, TAL metals, PCTs, PAHs and TPH. Sediment samples will also be tested for TOC and Grain size distribution and surface wat

TAL metals pH < 2 with NHO_3; CN^- pH> 12 with NaOH.

2 months apart.

Rationale
id (Continued)
(b), 24(a), 24(c), And 24(d))
5 - MW-58) and a deep monitoring well (MW-62) will be installed in downgradient locations from the suspected source areas to evaluate ontamination. MW-55 is located in an area where stressed vegetation has been observed in an area which receives surface water runoff ater Separator. As previously discussed, a sand lens, which is believed to trend northwest from the Oil/Water Separator was encountered well MW-56 and deep monitoring well MW-62 will be installed in a downgradient location to intercept the sand lens. Groundwater 2 will be analyzed to evaluate whether upper and lower groundwater zones are contaminated from the migration of PCBs and TPH and MW-58 are located adjacent to Ditch 22 to evaluate groundwater quality prior to potential discharge to Ditch 22. Existing monitoring nstalled as part of a Phase II Site Characterization, will be sampled for this RI to investigate groundwater quality downgradient of the id 23. Water level measurements will be collected from all existing wells in this area to extend the data base for the hydrogeologic SB2) will be drilled in the paved area west of the oil/water separator to evaluate the extent of subsurface soil contamination in this area ontamination in AREE 17. AREE 17 is also being sampled in the Phase II SSI. Soil borings will be drilled to evaluate the extent of ntered during the PCB removal action. One soil boring (RISB3) will be drilled adjacent to the excavated ditch where the sand lens was The suspected trend of the sand lens is toward the northwest toward monitoring wells MW-56 and MW-62. The trend and location will nd TP22) perpendicular to the suspected trend. Once the location has been confirmed, 2 additional soil borings (RISB4 and RISB5) will ze subsurface lithologic properties and evaluate the extent of contamination in the lens.

nd TPH. Sediment samples will also be tested for TOC and Grain size distribution and surface water samples will measured for

Medium Sampled[1]	Number of Samples	Sample IDs	Chemical Analyses[2]	Physical Testing	
Groundwater	4[3]	Existing wells: MW-33 and MW-34	TCL VOCs, SVOCs, pesticides/PCBs, TAL metals, PAHs, and TPH.	Temp, pH, redox, D.O., cond. salinity	Existing monitoring w
Groundwater	4[3]	Existing wells: MW-37 and MW-38	TCL VOCs, SVOCs, pesticides/PCBs, TAL metals, PAHs, and TPH.	Temp, pH, redox, D.O., cond. salinity	Existing monitoring w
Groundwater	2[3]	Existing well; MW-35	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, TPH, PAHs	NA	Existing monitoring w
Subsurface Soil	3	RISB13 (3 samples/boring)	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, TPH.	1 sample/boring will be analyzed TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	One soil boring will be of the prior excavation

[1]Forty-five surface water and sediment samples will be collected site wide. These samples will be analyzed for TCL VOCs, SVOCs, pesticides/PCBs, temperature, pH, redox, dissolved oxygen, conductivity, and salinity.

[2]Upon collection, groundwater samples shall be preserved as follows: VOCs pH < 2 with HCl; TAL metals pH < 2 with NHO_3; CN^- pH> 12 with NaC

[3]Total number of samples includes two rounds of groundwater samples collected a minimum of 2 months apart.

Table 3-1 (Continued)
WRF RI/FS Groundwater, Surface And Subsurface Sampling Program

Physical Testing	Rationale
	AREE 8
Temp, pH, redox, D.O., cond. salinity	Existing monitoring wells MW-33 and MW-34 will be sampled during the RI to evaluate groundwater quality downgradient of AREE 8.
	AREE 12
Temp, pH, redox, D.O., cond. salinity	Existing monitoring wells MW-37 and MW-38 will be sampled during the RI to evaluate groundwater quality downgradient of AREE 12.
	AREE 14
NA	Existing monitoring well MW-35 will be sampled to investigate groundwater quality downgradient of AREE 14.
	AREE 23A
1 sample/boring will be analyzed TOC, Atterberg imits, USCS, Grain size distribution,and percent noisture.	One soil boring will be installed at the prior location of an UST adjacent to Building 101. Drilling will proceed through the soil fill and the soil cutti of the prior excavation is reached. A split-spoon sample will be collected from the bottom of the boring.

vill be analyzed for TCL VOCs, SVOCs, pesticides/PCBs, TAL metals, PCTs, PAHs and TPH. Sediment samples will also be tested for TOC and Grain size distribution and surface v

l; TAL metals pH < 2 with NHO_3; CN^- pH> 12 with NaOH.

of 2 months apart.

)

irface Sampling Program

Rationale
'-34 will be sampled during the RI to evaluate groundwater quality downgradient of AREE 8.
-38 will be sampled during the RI to evaluate groundwater quality downgradient of AREE 12.
npled to investigate groundwater quality downgradient of AREE 14.
r location of an UST adjacent to Building 101. Drilling will proceed through the soil fill and the soil cuttings will be monitored until the bottom spoon sample will be collected from the bottom of the boring.

PAHs and TPH. Sediment samples will also be tested for TOC and Grain size distribution and surface water samples will measured for

Medium Sampled[1]	Number of Samples	Sample ID	Chemical Analyses[2]	Physical Testing	
Subsurface Soil	6	RISB4, PZ-5 (3 samples/boring)	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, TPH.	1 sample/boring will be analyzed TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	Two soil borings will be in groundwater elevation dat soil borings and 7 feet bel sample at the top of the w
Piezometers	1	PZ-5	NA	NA	
					Facility- Wide Characteriza
Surface Soil	25	RISS26-RISS50	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, TPH, PCTs (optional), PAHs.	NA	Twenty-five surface soil sa laboratory will be instructe
					Site H
Subsurface Soil	8	PZ-3, 4, 6, 7, 8, 9, 10, 11	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics Samples collected from PZ-3 will also be analyzed for TPH.	1 sample/boring will be analyzed TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	8 soil borings will be install samples will be collected fr will be selected and sent to be selected based on obvi piezometers to use for the f
Piezometers	8	PZ-3, 4, 6, 7, 8, 9, 10, 11		NA	

[1] Forty-five surface water and sediment samples will be collected site wide. These samples will be analyzed for TCL VOCs, SVOCs, pesticides/PCB

[2] Upon collection, groundwater samples shall be preserved as follows: VOCs pH < 2 with HCl; TAL metals pH < 2 with NHO_3; CN^- pH> 12 with Na

Table 3-1 (Continued)
WRF RI/FS Groundwater, Surface And Subsurface Sampling Program

[2]	Physical Testing	Rationale
		AREE 24 e, f
	1 sample/boring will be analyzed TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	Two soil borings will be installed downgradient from the USTs to examine subsurface soil conditions in this area (RISB4). One of these soil borings groundwater elevation data (PZ-5). Split-spoon samples will be collected from 0-2 ft bgs, 5-7 ft bgs and every 5 ft thereafter until total depth is rea soil borings and 7 feet below the water table for well borings. 3 samples will be selected and sent to the laboratory as follows: one sample from th sample at the top of the water table; and one sample from each boring will be selected based on obvious soil staining or elevated PID reading.
	NA	
		Facility- Wide Characterization Which Includes AREEs 25, 26, 27, and 35
	NA	Twenty-five surface soil samples will be collected from 0 to 6-inches bgs throughout these areas to identify potential sources of contamination. If PC laboratory will be instructed to analyze for PCTS.
		Site Hydrogeologic Evaluation
	1 sample/boring will be analyzed TOC, Atterberg limits, USCS, Grain size distribution,and percent moisture.	8 soil borings will be installed to further characterize the soil at WRF. These borings will be converted to piezometers to develop the hydrogeologic samples will be collected from 0-2 ft bgs, 5-7 ft bgs and every 5 ft thereafter until total depth is reached. Total depth will be 7 feet below the water will be selected and sent to the laboratory as follows: one sample from the 0 to 2 ft below ground surface (bgs); one sample at the top of the water be selected based on obvious soil staining or elevated PID reading. In addition, water level measurements will be collected from newly-installed an piezometers to use for the facility hydrogeologic model.
	NA	

nples will be analyzed for TCL VOCs, SVOCs, pesticides/PCBs, TAL metals, PCTs, PAHs and TPH. Sediment samples will also be tested for TOC and Grain size distribution.

vith HCl; TAL metals pH < 2 with NHO_3; CN^- pH> 12 with NaOH.

Continued)
And Subsurface Sampling Program

Rationale
24 e, f
ngradient from the USTs to examine subsurface soil conditions in this area (RISB4). One of these soil borings will be completed as a piezometer for Split-spoon samples will be collected from 0-2 ft bgs, 5-7 ft bgs and every 5 ft thereafter until total depth is reached. Total depth will be the water table for ter table for well borings. 3 samples will be selected and sent to the laboratory as follows: one sample from the 0 to 2 ft below ground surface (bgs); one and one sample from each boring will be selected based on obvious soil staining or elevated PID reading.
Includes AREEs 25, 26, 27, and 35
be collected from 0 to 6-inches bgs throughout these areas to identify potential sources of contamination. If PCBs are detected in a soil sample then the e for PCTS.
gic Evaluation
er characterize the soil at WRF. These borings will be converted to piezometers to develop the hydrogeologic characteristics of the site. Split-spoon gs, 5-7 ft bgs and every 5 ft thereafter until total depth is reached. Total depth will be 7 feet below the water table for piezometer borings. 3 samples atory as follows: one sample from the 0 to 2 ft below ground surface (bgs); one sample at the top of the water table; and one sample from each boring will ining or elevated PID reading. In addition, water level measurements will be collected from newly-installed and existing monitoring wells, and rogeologic model.

tals, PCTs, PAHs and TPH. Sediment samples will also be tested for TOC and Grain size distribution.

Medium Sampled[1]	Number of Samples	Sample ID	Chemical Analyses[2]	Physical Testing	
					Bac
Surface Water	5	RIBKSW1 - RIBKSW5	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, TPH, PCTs, PAHs.	Temp, pH, redox, D.O., cond. salinity	5 background surface water and
Sediment	5	RIBKSED1 - RIBKSED5		All samples will be analyzed for TOC and Grain size distribution.	
					Marum
Surface Water	8	RISW1, 2, 5, 6, 13, 19, 20, 21.	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, TPH, PCTs	Temp, pH, redox, D.O., cond. salinity	Ten surface water and ten sedim are 1, 2, 3, 4, 5, 6a, and 6b. Ot
Sediment	8	RISED1, 2, 5, 6, 13, 19, 20, 21.		TOC & Grain size distribution	

Medium Sampled	Number of Samples		Chemical Analyses	Physical Testing	
					Drainage Creek Between t
Surface Water	3	RISW10, 11, 12	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, TPH, PCTs, PAHs.	Temp, pH, redox, D.O., cond. salinity	Three surface water and three se 3, 4, 5, and 6a.
Sediment	3	RISED10, 11, 12		All samples will be analyzed for TOC and Grain size distribution.	
					The
Surface Water	3	RISW7, 8, 9.	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, TPH, PCTs	Temp, pH, redox, D.O., cond. salinity	Three surface water and three se
Sediment	3	RISED7, 8, 9.		TOC & Grain size distribution	

[1] Forty-five surface water and sediment samples will be collected site wide. These samples will be analyzed for TCL VOCs, SVOCs, pesticides/PCBs,

[2] Upon collection, groundwater samples shall be preserved as follows: VOCs pH < 2 with HCl; TAL metals pH < 2 with HNO_3; CN^- pH> 12 with NaO

WRF RI/FS Sediment and Surface Water Sampling Program

Physical Testing	Rationale
Background	
Temp, pH, redox, D.O., cond. salinity All samples will be analyzed for TOC and Grain size distribution.	5 background surface water and sediment samples will be collected from Raccoon Creek on Mason Neck National Wildlife Refuge.
Marumsco Creek	
Temp, pH, redox, D.O., cond. salinity TOC & Grain size distribution	Ten surface water and ten sediment samples will be collected in Marumsco Creek to address the potential for contamination from WRF. The AREES are 1, 2, 3, 4, 5, 6a, and 6b. Other sites in the Marumsco Creek watershed include a pistol range and a sewage sludge injection field.

Physical Testing	Rationale
Drainage Creek Between the Pond and Marumsco Creek	
Temp, pH, redox, D.O., cond. salinity All samples will be analyzed for TOC and Grain size distribution.	Three surface water and three sediment samples will be collected from the creek that drains the area below the pond and leads to Marumsco Creek 3, 4, 5, and 6a.
The Pond	
Temp, pH, redox, D.O., cond. salinity TOC & Grain size distribution	Three surface water and three sediment samples will be collected from the pond.

samples will be analyzed for TCL VOCs, SVOCs, pesticides/PCBs, TAL metals, PCTs, PAHs and TPH. Sediment samples will also be tested for TOC and Grain size distribution.

2 with HCl; TAL metals pH < 2 with HNO_3; CN^- pH> 12 with NaOH.

ogram

Rationale
:ted from Raccoon Creek on Mason Neck National Wildlife Refuge.
Marumsco Creek to address the potential for contamination from WRF. The AREES in the Marumsco Creek watershed watershed include a pistol range and a sewage sludge injection field.

Rationale
l from the creek that drains the area below the pond and leads to Marumsco Creek. This creek runs between AREES 2, .from the pond.

H. Sediment samples will also be tested for TOC and Grain size distribution.

Medium Sampled[1]	Number of Samples		Chemical Analyses[2]	Physical Testing	
					Western W
Surface Water	17	RISW25 - RISW38, 40, 41, 42.	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, TPH, PCTs, PAHs.	Temp, pH, redox, D.O., cond. salinity	Three surface water and three sedi that drains the western portion of W
Sediment	17	RISED25 - RISED38, 40, 41, 42.		All samples will be analyzed for TOC and Grain size distribution.	
					Occoqu
Surface Water	8	RISW3, 14, 15, 16, 17, 18, 24, 39.	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, TPH, PCTs, PAHs.	Temp, pH, redox, D.O., cond. salinity	Eight surface water and eight sedi Bay locations from AREEs 1, 6B, a
Sediment	8	RISED3, 14, 15, 16, 17, 18, 24, 39.		All samples will be analyzed for TOC and Grain size distribution.	
					Southern Drai
Surface Water	3	RISW4, 22, 23.	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, TPH, PCTs, PAHs.	Temp, pH, redox, D.O., cond. salinity	Three surface water and sediment
Sediment	3	RISED4, 22, 23.		All samples will be analyzed for TOC and Grain size distribution.	
					Northern W
Surface Water	3	RISW43, 44, 45	TCL VOCs, SVOCs, pesticides/PCBs, TAL inorganics, TPH, PCTs	Temp, pH, redox, D.O., cond. salinity	Three surface water and three sedi ditch itself and one sediment/surfac ditch.
Sediment	3	RISED43, 44, 45		TOC & Grain size distribution	

[1] Forty-five surface water and sediment samples will be collected site wide. These samples will be analyzed for TCL VOCs, SVOCs, pesticides/PCBs, TA

[2] Upon collection, groundwater samples shall be preserved as follows: VOCs pH < 2 with HCl; TAL metals pH < 2 with HNO_3; CN^- pH> 12 with NaOH.

WRF RI/FS Sediment and Surface Water Sampling Program

Physical Testing	Rationale
Western WRF Creek	
Temp, pH, redox, D.O., cond. salinity All samples will be analyzed for TOC and Grain size distribution.	Three surface water and three sediment samples will be collected from the creek that runs through the western portion of WRF. This creek exi that drains the western portion of WRF. A field test facility and sewage sludge injection site are within the drainage of this creek.
Occoquan Bay	
Temp, pH, redox, D.O., cond. salinity All samples will be analyzed for TOC and Grain size distribution.	Eight surface water and eight sediment samples will be collected from Occoquan Bay. The proposed surface water and sediment sample loca Bay locations from AREEs 1, 6B, and 7.
Southern Drainage Creeks	
Temp, pH, redox, D.O., cond. salinity All samples will be analyzed for TOC and Grain size distribution.	Three surface water and sediment samples will be collected from the ditches which drain the southern portion of the facility east of AREE 1.
Northern WRF Creek	
Temp, pH, redox, D.O., cond. salinity TOC & Grain size distribution	Three surface water and three sediment samples will be collected from the ditch that drains the northern portion of WRF. Two sediment/surface ditch itself and one sediment/surface water sample will be collected from Belmont Bay near the mouth of the creek. A field test area and an eth ditch.

se samples will be analyzed for TCL VOCs, SVOCs, pesticides/PCBs, TAL metals, PCTs, PAHs and TPH. Sediment samples will also be tested for TOC and Grain size distribution.

< 2 with HCl; TAL metals pH < 2 with HNO_3; CN^- pH> 12 with NaOH.

Rationale
ıe creek that runs through the western portion of WRF. This creek exists within an extensive wetland complex ludge injection site are within the drainage of this creek.
coquan Bay. The proposed surface water and sediment sample locations are upgradient and downgradient
hes which drain the southern portion of the facility east of AREE 1.
e ditch that drains the northern portion of WRF. Two sediment/surface water samples will be collected from the Belmont Bay near the mouth of the creek. A field test area and an ethylene glycol filled hose area drain to this

liment samples will also be tested for TOC and Grain size distribution.

REPLACE HASP SECTION 6, TABLE 6-2 WITH THE FOLLOWING

ACTION LEVELS

The following instrument-based action levels (consistent readings in the breathing zone for 1 minute) are to be used at all times:

ORGANIC VAPORS - PID or FID (FID Recommended)

Level D Background levels to 5 ppm above background

Level C 5 - 25 ppm above background unless Drager tubes identify Benzene

Level B >25 ppm above background levels

(Only the SSO has the authority to downgrade the level of protection).

OXYGEN METER*

Level D or C ≥19.5% and ≤23%

Level B <19.5% or >23.5%

*Oxygen content is determined first, and is the fundamental criteria for respiratory protection. Deficient or enriched oxygen content is not anticipated during this scope of work. For oxygen deficient atmospheres, Level B protection must include an escape SCBA as part of the respirator. Oxygen enriched atmospheres do not pose health hazards for short exposures, but do increase the likelihood and severity of fires and other oxidation reactions.

In addition to the PID/FID, a Drager pump and indicator tubes will also be used to identify known contaminants in the work area. For this scope of work, Benzene Drager tubes (Drager tube Benzene 2/a) will be used when the PID/FID Level C action level is exceeded.

Personal air sampling will be conducted for chemicals in accordance with the OSHA standards. Personal protective measures will be used during sampling periods to minimize exposure to workers. Sampling results will be made available to personnel and information will be used to determine whether the time weighted average values are being exceeded.

REPLACE SECTION 11, EXCEPT TABLE 11-1 WITH THE FOLLOWING

EMERGENCY ACTION PLAN/EMERGENCY RESPONSE PLAN

General

In order to reduce the impact of an accident related to environmental activities at the WRF , an Emergency Action Plan is necessary. This plan consists of an emergency response system designed to reduce the impact of an accident by rapid containment. The procedure will depend on the exact location of work. Accordingly, this Emergency Action Plan is designed to make optimum use of all available resources for speedy containment of the incident, so that the threat to people, the environment, and site property is minimized. The following sections provide a description of the responsibilities, emergency actions, contacts, and procedures necessary for an effective emergency response system.

Responsibilities

As a result of the potential hazards at the site, and conditions under which operations are conducted, the possibility of an emergency situation developing is real, although not likely. Should an emergency develop while environmental personnel are onsite, lines of authority have been established for supervising the situation. The Site Emergency Coordinator for this project are the SSOs.

The Emergency Coordinator shall implement the contingency plan whenever conditions at the site warrant such action. The coordinator will be responsible for assuring the evacuation, emergency treatment, emergency transport of site personnel as necessary, and notification of the appropriate emergency response units and management staff.

All project personnel will be instructed in the functions of the Emergency Response Plan. Because an incident can occur anywhere at any time, each individual may become the first observer of an incident and as such has definite responsibilities. These incidents include hazardous material spills, fires and explosions, personnel injuries, and transportation accidents. Any individual who discovers any of these situations becomes the first-responder. The Emergency Coordinator should be notified as soon as possible.

Emergency Procedures

In the event of a fire or explosion, or potential fire/explosion, immediately notify the local fire or emergency authority by radio or by phone at 911. Second, call the ARL emergency telephone number (301-394-1117) and report the incident and/or emergency.

First Aid and Emergency Equipment

During onsite investigation activities at the WRF , a variety of first aid and emergency equipment will be maintained in the support zone. All environmental personnel will have access to this equipment in the event an injury or an exposure occurs. The various types of first aid equipment that will be available include:

- Fire Extinguisher
- First Aid Kit
- Instant Coldpacks
- Scissors
- Sterile Eye Wash
- Bloodborne Pathogen Kit

Personnel Injury

Emergency first aid will be applied onsite as deemed necessary, followed by decontamination and transport of the individual to the nearest medical facility, if needed. The SSO will supply medical information to the appropriate medical personnel. An ambulance/rescue squad shall be contacted for transport as necessary in an emergency.

General First Aid

Generic first aid procedures are included in this section. Typical responses may include:

Skin Contact: Use copious amounts of soap and water. Wash/rinse affected area thoroughly, then provide appropriate medical attention. An eyewash system will be provided onsite at the support zone as appropriate. Eyes should be rinsed for 15 minutes upon chemical contamination.

Inhalation: Move the victim to fresh air immediately. If necessary, restore breathing. Decontaminate and transport to hospital if required.

Ingestion: Decontaminate and transport the victim to emergency medical facility immediately.

Fire/Explosion

In the event of fire or explosion, or potential fire/explosion, WRF security should be immediately notified either by radio or by phone at 911.

Spread of Contamination

In the event of the spread of contaminants beyond the work area, WRF security should be immediately notified.

Adverse Weather Conditions

In the event of adverse weather conditions, the SSO will assess if work can continue without

sacrificing the health and safety of any field workers. Items to be considered prior to assessing if work should continue include:

- Potential for heat stress and heat-related injuries,
- Limited visibility,
- Potential for electrical storms,
- Potential for flash floods, and
- Potential for high winds resulting in contaminant transport.

ADD THE FOLLOWING TO HASP TABLE 11-1

TABLE 11-2
WRF AND ICF KAISER EMERGENCY CONTACTS

NAME	TITLE	TELEPHONE
Jeff Waugh	USAEC Project Officer	(410) 671-1610
Patricia Thompson	ICF KE Project Manager	(410) 612-6371
Jack Choynowski	Health and Safety Officer	(410) 612-6370
Patricia Thompson	Field Team Leader	(410) 612-6371
William Houser	USAEC Industrial Hygiene	(410) 671-4811
Gerald Joy, CIH, CSP	ICF KE Director Industrial Hygiene	(412) 497-2056
Todd Waltemyer	WRF Facility Manager	(703) 490-2511
Robert Craig	ARL Environmental Officer	(301) 394-4511

An accident report form must be completed and submitted to the office health and safety officer.

REPLACE HASP APPENDIX A WITH THE FOLLOWING

FINAL

INITIAL LEVEL OF PROTECTION

PCBs, the contaminant of primary concern, are semi-volatile, and in the concentrations identified in the Preliminary Site Investigation, and Phase I Site Supplemental Site Investigation, should not present a substantial inhalation hazard. Inhalation of PCBs bound to dust can contribute to overall dose, but maintenance of airborne dust levels below 2.5 mg/M^3, and use of organic vapor/HEPA combination respirator cartridges will control this route of exposure.

PCBs can be absorbed through intact skin in amounts large enough to contribute to overall dose. This route of entry is not likely to be significant at this site, but localized skin irritation could occur in sensitive individuals from skin contact with contaminated soils. Direct skin contact with contaminated soils shall be avoided, and field team members shall field wash when leaving the contaminated zone, and whenever skin exposure occurs.

Materials brought onto the site may also present hazards, examples are preservative chemicals for water samples, bentonite and grout mixes, and fuels. These materials will be used in accordance with their MSDS information.

All site activities will be initiated in a modified Level D. The components of this modification are as follows:

Dry Operations (without exposure to potentially contaminated groundwater or other hazardous liquids)

- Hardhat (within 25 feet, or length of longest drill stem component, from the rig)
- Safety glasses with side-shield
- Steel toe shoes (polymeric material or leather with disposable cover)
- Disposable permeable coverall (Kleenguard or equivalent)
- Gloves (for protection against physical hazards)

Wet Operations (where exposure to potentially contaminated groundwater or other hazardous liquids could occur)

- Hardhat (within 25 feet, or length of longest drill stem component, from the rig)
- Safety glasses with side-shield with a faceshield, or goggles
- Steel toe shoes (polymeric material or leather with disposable cover)
- Disposable coated coverall (CPF II or equivalent; when sampling installed monitoring wells, a full length apron of PVC, CPF II or other liquid proof material can be used in lieu of coveralls)
- Gloves (nitrile, neoprene, PVC, or latex)

Level C will consist of the above Level D equipment with the addition of an air purifying respirator with organic vapor/HEPA combination cartridges.

Level B will consist of the above Level D equipment with the addition of a pressure demand airline respirator, or pressure demand SCBA. An escape SCBA is required when using an airline respirator in oxygen deficient atmospheres.

Level A will not be used on this project.

APPENDIX D, REPLACE ETC FORMS WITH ICF KAISER FORMS

FINAL

ADD THE FOLLOWING AS APPENDIX I

FINAL

APPENDIX I
ICF KAISER PERSONNEL
DOCUMENTATION OF TRAINING

HAZMAT

CERTIFICATE OF COMPLETION

This is to certify that

JOHN P. CHOYNOWSKI

has successfully completed

HAZARDOUS MATERIALS SITE WORKER COURSE (40-HOUR)

at

HAZMAT [illegible] COLUMBIA, MARYLAND

RECEIVED MAY 04 1993 Health & Safety

January 11 - 15, 1993
C93-0026

Chief Operating Officer

Chief Executive Officer

ICF KAISER ENGINEERS, INC.

This is to Certify That

Jack Choynowski

Has Completed 8 Hours of OSHA Hazardous Materials Site Worker Annual Recertification Training as Required under 29 CFR 1910.120

Instructor [signature]

Date April 5, 7, 1995

This certifies that

Jack Chovnowski

has completed the requirements for

STANDARD FIRST AID

sponsored by

CENTRAL MARYLAND CHAPTER
I.C.F. Kaiser Engineers

Date completed

04/06/95

I910182179108

RESPIRATOR TRAINING COMPLETION FORM

FIT TEST PROTOCOL USED:

X Standard

___ Other (Specify) _____

BUSINESS UNIT 11547

FIT TEST CONDUCTED BY: Larry TheBeau

Initial only the appropriate blocks

LOCATION MDOC

DATE 3/3/95

NAME (please print) Jack Chaynowski SIG. Jack Chaynowski SS # 053-44-1316		SCBA Model: Size: S M L	AIRLINE PRESSURE DEMAND Size: S M L Brand:	PAPR Model: Size: S M L	AIR PURIFYING FULL FACE Size: S (M) L Brand:	AIR PURIFYING HALF MASK Size: S M L Brand:	OTHER
1.	I understand why respiratory protection is needed and where and when it should be used.				✓ JPC		
2.	I know how to use this respirator properly.				✓ JPC		
3.	I know how to clean and inspect this respirator.				✓ JPC		
4.	I understand the limitations and restrictions of the respirators I will be using.				✓ JPC		
5.	I wore this respiratory equipment in normal air and checked the facepiece fit.				✓ JPC		
6.	I wore this respiratory equipment in a test atmosphere generated by smoke or other means.				✓ JPC		
7.	I understand that a good gas-tight face seal cannot be achieved with obstruction such as facial hair or glasses (with fullface mask).				✓ JPC		

HAZMAT TRAINING ▲ INFORMATION ▲ SERVICES INC.

CERTIFICATE OF COMPLETION

This is to certify that

MICHAEL ELIAS

has successfully completed

HAZARDOUS MATERIALS SITE WORKER COURSE (40-HOUR)

at

HAZMAT T.I.S.I.; COLUMBIA, MARYLAND

Eva C Stern

Manager, Training Services Department

Richard Clifford

Chief Executive Officer

October 14 - 18, 1991
C91-2563

HAZMAT
TRAINING ▲ INFORMATION ▲ SERVICES ▲ INC
An Employee Owned Company

CERTIFICATE OF COMPLETION

This is to certify that

MICHAEL C. ELIAS

has successfully completed

OSHA HAZ-MAT SITE WORKER (Annual Recertification)

at

HAZMAT T.I.S.I; COLUMBIA, MARYLAND

Chief Operating Officer

Chief Executive Officer

January 5, 1995
REF-9501A

EMR

Medical Management Solutions Through Information Technology

January 18, 1995

PII Redacted

Ms. Samantha Brooks
[redacted]

Type of Exam: Annual Engineer/Field Personnel ICF VA01A
Exam: 01/11/95.132155 Employee: Michael Elias - [redacted]

The individual identified above has completed a medical surveillance examination. Review of the data from this examination resulted in the following conclusions:

MEDICAL AND SAFETY RESTRICTIONS / RECOMMENDATIONS

- None

CLEARANCE FOR WORK WITH HAZARDOUS MATERIALS

- In compliance with 29 CFR 1910.120 (f), medical clearance is issued for individual to work with hazardous materials.

CLEARANCE FOR WORK WITH ASBESTOS

- This individual has been examined in compliance with 29 CFR 1926.58. This examination has not disclosed the presence of any medical condition that would constitute an increased risk of material health impairment from exposure to asbestos, tremolite,anthophylite, or actinolite.

USE OF RESPIRATORY EQUIPMENT

- In compliance with 29 CFR 1910.134, medical clearance is issued for unrestricted use of respiratory protective equipment. This regulation stipulates:
  - » Contact lenses shall not be worn when using respiratory protective equipment.
  - » Facial hair shall not be interposed between the face and the sealing surface of the respirator.

EXPOSURE TO TEMPERATURE EXTREMES

- Exposures to temperature extremes are acceptable providing that reasonable precautions are taken.

PUBLIC LAW 100-690

- Not a requirement of this examination.

DEPARTMENT OF TRANSPORTATION CERTIFICATION

- Not requested

The employee has been informed of the results of this medical examination and also advised of any specific health implications of employment to the extent required by existing law.

Elayne F. Theriault, M.D.

Elayne F. Theriault, M.D.
Medical Director

EMR

Occupational Management Systems Through Information Technology

October 11, 1994

PII Redacted

Ms. Samantha Brooks
[redacted]

Type of Exam: Annual Engineer/Field Personnel ICF VA01A
Exam: 09/29/94.119168 Employee: Marilyn Garcia - [redacted]

The individual identified above has completed a medical surveillance examination. Review of the data from this examination resulted in the following conclusions:

MEDICAL AND SAFETY RESTRICTIONS / RECOMMENDATIONS

- None

CLEARANCE FOR WORK WITH HAZARDOUS MATERIALS

- In compliance with 29 CFR 1910.120 (f), medical clearance is issued for individual to work with hazardous materials.

CLEARANCE FOR WORK WITH ASBESTOS

- This individual has been examined in compliance with 29 CFR 1926.58. This examination has not disclosed the presence of any medical condition that would constitute an increased risk of material health impairment from exposure to asbestos, tremolite,anthophylite, or actinolite.

USE OF RESPIRATORY EQUIPMENT

- In compliance with 29 CFR 1910.134, medical clearance is issued for unrestricted use of respiratory protective equipment. This regulation stipulates:
  - » Contact lenses shall not be worn when using respiratory protective equipment.
  - » Facial hair shall not be interposed between the face and the sealing surface of the respirator.

EXPOSURE TO TEMPERATURE EXTREMES

- Exposures to temperature extremes are acceptable providing that reasonable precautions are taken.

PUBLIC LAW 100-690

- Not a requirement of this examination.

DEPARTMENT OF TRANSPORTATION CERTIFICATION

- Not requested

The employee has been informed of the results of this medical examination and also advised of any specific health implications of employment to the extent required by existing law.

Elayne F. Theriault, M.D.

Elayne F. Theriault, M.D.
Medical Director

4350 Chamblee Dunwoody Rd • Suite 200 • Atlanta, Georgia 30341 • (404) 455-0918 • (800) 729-3674 • Fax (404) 457-1400

HAZMAT
TRAINING ▲ INFORMATION ▲ SERVICES ▲ INC
An Employee Owned Company

LETTER OF SATISFACTORY COMPLETION

HAZMAT Training, Information and Services, Inc. (Hazmat TISI) hereby certifies that Marilyn Garcia satisfactorily completed a 40-hour course of instruction titled "The Hazardous Materials Site Worker" on October 8, 1993.

The course addressed the training needs of employees working hazardous material sites where there is significant threat of exposure to hazardous substances, health hazards, or safety hazards.

Hazmat TISI certifies that the course satisfies the initial off-site training requirements for employees specified by the Department of Labor, Occupational Safety and Health Administration, as found in 29 CFR 1910.120(e) Final Rule dated March 6, 1989.

Hazmat TISI provides this certificate based on this individual's demonstration of practical skills and the successful completion of a written examination.

Hazmat TISI recommends that this letter be made a part of the employee's personnel file.

The Department of Labor requires that this individual undergo annual refresher training and recertification.

Edward E. Hartin
Vice President of Operations
Hazmat TISI

TRAINING & CONSULTATION IN HAZARDOUS MATERIALS CONTROL
9017 Red Branch Road ▲ Columbia Maryland 21045
Balt. 410-964-0940 ▲ Wash. 301-621-5349
1-800-777-8474 ▲ FAX 410-964-2331

ICF KAISER ENGINEERS, INC.

This is to Certify That

Marilyn Garcia

Has Completed 8 Hours of OSHA Hazardous Materials Site Worker Annual Recertification Training as Required under 29 CFR 1910.120

Instructor [signature]

Date April 5, 7, 1995

1910102179108

RESPIRATOR TRAINING COMPLETION FORM

FIT TEST PROTOCOL USED:
✓ Standard
___ Other (Specify) _____

BUSINESS UNIT 11547
FIT TEST CONDUCTED BY: Larry Thebeau
Initial only the appropriate blocks

LOCATION MD06
DATE 3/3/95

NAME (please print) Marilyn Garcia SIG. Marilyn Garcia SS # 214-96-3930	SCBA Model: Size: S M L	AIRLINE PRESSURE DEMAND Size: S M L Brand:	PAPR Model: Size: S M L	AIR PURIFYING FULL FACE Size: S (M) L Brand:	AIR PURIFYING HALF MASK Size: S M L Brand:	OTHER
1. I understand why respiratory protection is needed and where and when it should be used.				MG		
2. I know how to use this respirator properly.				MG		
3. I know how to clean and inspect this respirator.				MG		
4. I understand the limitations and restrictions of the respirators I will be using.				MG		
5. I wore this respiratory equipment in normal air and checked the facepiece fit.				MG		
6. I wore this respiratory equipment in a test atmosphere generated by smoke or other means.				MG		
7. I understand that a good gas-tight face seal cannot be achieved with obstruction such as facial hair or glasses (with fullface mask).				MG		

Form No. S&H21-001

HAZMAT
TRAINING ▲ INFORMATION ▲ SERVICES ▲ INC
An Employee Owned Company

LETTER OF SATISFACTORY COMPLETION

HAZMAT Training, Information and Services, Inc. (Hazmat TISI) hereby certifies that Carol Henry satisfactorily completed a 40-hour course of instruction titled "The Hazardous Materials Site Worker" on September 17, 1993.

The course addressed the training needs of employees working hazardous material sites where there is significant threat of exposure to hazardous substances, health hazards, or safety hazards.

Hazmat TISI certifies that the course satisfies the initial off-site training requirements for employees specified by the Department of Labor, Occupational Safety and Health Administration, as found in 29 CFR 1910.120(e) Final Rule dated March 6, 1989.

Hazmat TISI provides this certificate based on this individual's demonstration of practical skills and the successful completion of a written examination.

Hazmat TISI recommends that this letter be made a part of the employee's personnel file.

The Department of Labor requires that this individual undergo annual refresher training and recertification.

Edward E. Hartin
Vice President of Operations
Hazmat TISI

TRAINING & CONSULTATION IN HAZARDOUS MATERIALS CONTROL
9017 Red Branch Road ▲ Columbia Maryland 21045
Balt. 410-964-0940 ▲ Wash. 301-621-5349
1-800-777-8474 ▲ FAX 410-964-2331

ICF KAISER ENGINEERS, INC.

This is to Certify That

Carol Henry

Has Completed 8 Hours of OSHA Hazardous Materials Site Worker Annual Recertification Training as Required under 29 CFR 1910.120

Instructor [signature]

Date April 5,7,1995

I910182179108

RESPIRATOR TRAINING COMPLETION FORM

FIT TEST PROTOCOL USED:

✓ Standard

___ Other (Specify) _____

BUSINESS UNIT 11547

FIT TEST CONDUCTED BY: Larry Thabeau

LOCATION MD06

DATE 3/3/95

Initial only the appropriate blocks

NAME (please print) Carol Henry SIG. Carol Henry SS # 467-15-9741		SCBA Model: Size: S M L	AIRLINE PRESSURE DEMAND Size: S M L Brand:	PAPR Model: Size: S M L	AIR PURIFYING FULL FACE Size: (S) M L Brand:	AIR PURIFYING HALF MASK Size: S M L Brand:	OTHER
1.	I understand why respiratory protection is needed and where and when it should be used.				CAH		
2.	I know how to use this respirator properly.				CAH		
3.	I know how to clean and inspect this respirator.				CAH		
4.	I understand the limitations and restrictions of the respirators I will be using.				CAH		
5.	I wore this respiratory equipment in normal air and checked the facepiece fit.				CAH		
6.	I wore this respiratory equipment in a test atmosphere generated by smoke or other means.				CAH		
7.	I understand that a good gas-tight face seal cannot be achieved with obstruction such as facial hair or glasses (with fullface mask).				CAH		

EMR
Medical Management Solutions Through Information Technology

September 12, 1994

PII Redacted

Mr. Richard Neubauer
[redacted]

Type of Exam: Annual Engineer/Field Personnel ICF VA01A
Exam: 08/29/94.114832 Employee: Richard Neubauer - [redacted]

The individual identified above has completed a medical surveillance examination. Review of the data from this examination resulted in the following conclusions:

MEDICAL AND SAFETY RESTRICTIONS / RECOMMENDATIONS

- None

CLEARANCE FOR WORK WITH HAZARDOUS MATERIALS

- In compliance with 29 CFR 1910.120 (f), medical clearance is issued for individual to work with hazardous materials.

CLEARANCE FOR WORK WITH ASBESTOS

- This individual has been examined in compliance with 29 CFR 1926.58. This examination has not disclosed the presence of any medical condition that would constitute an increased risk of material health impairment from exposure to asbestos, tremolite,anthophylite, or actinolite.

USE OF RESPIRATORY EQUIPMENT

- In compliance with 29 CFR 1910.134, medical clearance is issued for unrestricted use of respiratory protective equipment. This regulation stipulates:
  - » Contact lenses shall not be worn when using respiratory protective equipment.
  - » Facial hair shall not be interposed between the face and the sealing surface of the respirator.

EXPOSURE TO TEMPERATURE EXTREMES

- Exposures to temperature extremes are acceptable providing that reasonable precautions are taken.

PUBLIC LAW 100-690

- Not a requirement of this examination.

DEPARTMENT OF TRANSPORTATION CERTIFICATION

- Not requested

The employee has been informed of the results of this medical examination and also advised of any specific health implications of employment to the extent required by existing law.

Elayne F. Theriault, M.D.

Elayne F. Theriault, M.D.
Medical Director

4360 Chamblee Dunwoody Rd. • Suite 202 • Atlanta, Georgia 30341 • (404) 455-0818 • (800) 229-3674 • fax (404) 457-1429

HAZMAT TRAINING ▲ INFORMATION ▲ SERVICES INC.

CERTIFICATE OF COMPLETION

This is to certify that

JOSEPH NEUBAUER

has successfully completed

HAZARDOUS MATERIALS SITE WORKER COURSE (40 HOURS)

at

HAZMAT T.I.S.I.; COLUMBIA, MARYLAND

Eva C Stern

Manager, Training Services Department

Richard Clayfield

Chief Executive Officer

November 11 - 15, 1991
C91-2748

ICF KAISER ENGINEERS, INC.

This is to Certify That

Joe Neubauer

Has Completed 8 Hours of OSHA Hazardous Materials Site Worker Annual Recertification Training as Required under 29 CFR 1910.120

Instructor [signature]

Date April 5,7,1995

I910182179108

RESPIRATOR TRAINING COMPLETION FORM

FIT TEST PROTOCOL USED:

X Standard

___ Other (Specify) _____

BUSINESS UNIT 11547

FIT TEST CONDUCTED BY: LARRY THEBEAU

Initial only the appropriate blocks

LOCATION MD06

DATE 6 MARCH 95

NAME R. JOSEPH NEUBAUER (please print) SIG. R. JOSEPH NEUBAUER SS # 212 92 8983	SCBA Model: Size: S M L	AIRLINE PRESSURE DEMAND Size: S M L Brand:	PAPR Model: Size: S M L	AIR PURIFYING FULL FACE Size: S M L Brand: MSA	AIR PURIFYING HALF MASK Size: S M L Brand:	OTHER
1. I understand why respiratory protection is needed and where and when it should be used.				RJN		
2. I know how to use this respirator properly.				RJN		
3. I know how to clean and inspect this respirator.				RJN		
4. I understand the limitations and restrictions of the respirators I will be using.				RJN		
5. I wore this respiratory equipment in normal air and checked the facepiece fit.				RJN		
6. I wore this respiratory equipment in a test atmosphere generated by smoke or other means.				RJN		
7. I understand that a good gas-tight face seal cannot be achieved with obstruction such as facial hair or glasses (with fullface mask).				RJN		

Form No. S&H21-001

EMR
Medical Management Solutions Through Information Technology

MEDICAL CLEARANCE

PII Redacted

ATTN: Ms. Deborah Romano
[redacted]

April 24, 1995

RE: Employee: Deborah Romano
[redacted]

Exam No: 143363
Exam Date: 04/19/95

Ms. Romano has completed a(n) Annual Engineer/Field Personnel Examination for ICF VA01A with the following results and clearances:

YES	NO	
[X]	[ ]	To work with HAZARDOUS MATERIALS in accordance with 29 CFR 1910.120.
[X]	[ ]	To use RESPIRATORY PROTECTIVE EQUIPMENT in accordance with 29 CFR 1910.134.
[X]	[ ]	To work with ASBESTOS in accordance with 29 CFR 1926.1101.

Work-related limitations and additional recommendations:

NONE.

By separate letter, Ms. Romano has been informed of the medical findings of this examination and their specific health implications.

Elayne F. Theriault, MD

Elayne F. Theriault, M.D.
Medical Director

4360 Chamblee Dunwoody Rd. • Suite 202 • Atlanta, Georgia 30341 • (404) 455-0818 • (800) 229-3674 • fax (404) 457-1429

ICF KAISER ENGINEERS, INC.

This is to Certify That

Debbie Romano

Has Completed 8 Hours of OSHA Hazardous Materials Site Worker Annual Recertification Training as Required under 29 CFR 1910.120

Instructor [signature]

Date April 5, 7, 1995

EMR
Medical Management Solutions Through Information Technology

August 9, 1994

PII Redacted

Ms. Margaret Schweighauser
[redacted]

Type of Exam: Annual Engineer/Field Personnel ICF VA01A
Exam: 07/26/94.109879 Employee: Margaret Schweighauser - [redacted]

The individual identified above has completed a medical surveillance examination. Review of the data from this examination resulted in the following conclusions:

MEDICAL AND SAFETY RESTRICTIONS / RECOMMENDATIONS

- None

CLEARANCE FOR WORK WITH HAZARDOUS MATERIALS

- In compliance with 29 CFR 1910.120 (f), medical clearance is issued for individual to work with hazardous materials.

CLEARANCE FOR WORK WITH ASBESTOS

- This individual has been examined in compliance with 29 CFR 1926.58. This examination has not disclosed the presence of any medical conditio that would constitute an increased risk of material health impairment from exposure to asbestos, tremolite,anthophylite, or actinolite.

USE OF RESPIRATORY EQUIPMENT

- In compliance with 29 CFR 1910.134, medical clearance is issued for unrestricted use of respiratory protective equipment. This regulation stipulates:
  - » Contact lenses shall not be worn when using respiratory protective equipment.
  - » Facial hair shall not be interposed between the face and the sealing surface of the respirator.

EXPOSURE TO TEMPERATURE EXTREMES

- Exposures to temperature extremes are acceptable providing that reasonable precautions are taken.

PUBLIC LAW 100-690

- Not a requirement of this examination.

DEPARTMENT OF TRANSPORTATION CERTIFICATION

- Not requested

The employee has been informed of the results of this medical examination and also advised of any specific health implications of employment to the extent required by existing law.

Elayne F. Theriault, M.D.

Elayne F. Theriault, M.D.
Medical Director

I910102179108

RESPIRATOR TRAINING COMPLETION FORM

FIT TEST PROTOCOL USED:

✓ Standard

___ Other (Specify) _____

BUSINESS UNIT 11547

FIT TEST CONDUCTED BY: Larry Thibeau

Initial only the appropriate blocks

LOCATION MD06

DATE 03/03/95

NAME Deborah Romano (please print) SIG. Deborah Romano SS # 133-62-7187	SCBA Model: Size: S M L	AIRLINE PRESSURE DEMAND Size: S M L Brand:	PAPR Model: Size: S M L	AIR PURIFYING FULL FACE Size: (S) M L Brand:	AIR PURIFYING HALF MASK Size: S M L Brand:	OTHER
1. I understand why respiratory protection is needed and where and when it should be used.				DJR		
2. I know how to use this respirator properly.				DR		
3. I know how to clean and inspect this respirator.				DR		
4. I understand the limitations and restrictions of the respirators I will be using.				DR		
5. I wore this respiratory equipment in normal air and checked the facepiece fit.				DR		
6. I wore this respiratory equipment in a test atmosphere generated by smoke or other means.				DR		
7. I understand that a good gas-tight face seal cannot be achieved with obstruction such as facial hair or glasses (with fullface mask).				DR		

Form No. S&I121-001

ecology and environment, inc.

This certifies that

LARRY THEBEAN

has completed the

5-DAY HAZARDOUS WASTE SITE
INVESTIGATION TRAINING COURSE

Presented by the
NATIONAL PROJECT MANAGEMENT OFFICE
of the
FIELD INVESTIGATIONS OF UNCONTROLLED HAZARDOUS WASTE SITES PROJECT

Roger J. Gray
Roger J. Gray
National Project Manager

Robert J. King
Robert J. King
Assistant National Project Manager
for Training and Safety

April 1982
Date

ICF KAISER ENGINEERS, INC.

This is to Certify That

Larry Thebeau

Has Completed 8 Hours of OSHA Hazardous Materials Site Worker Annual Recertification Training as Required under 29 CFR 1910.120

Instructor Larry C. Thebeau **Date** April 5, 7, 1995

I910102179108

RESPIRATOR TRAINING COMPLETION FORM

FIT TEST PROTOCOL USED:
✓ Standard
___ Other (Specify) _____

BUSINESS UNIT 11547
FIT TEST CONDUCTED BY: Kim Mason
Initial only the appropriate blocks

LOCATION MD06
DATE 3/3/95

NAME (please print) Larry C. Thebeau SIG. Larry C. Thebeau SS # 468-82-5448	SCBA Model: Size: S M L	AIRLINE PRESSURE DEMAND Size: S M L Brand:	PAPR Model: Size: S M L	AIR PURIFYING FULL FACE Size: S M L Brand:	AIR PURIFYING HALF MASK Size: S M L Brand:	OTHER
1. I understand why respiratory protection is needed and where and when it should be used.				LCT		
2. I know how to use this respirator properly.				LCT		
3. I know how to clean and inspect this respirator.				LCT		
4. I understand the limitations and restrictions of the respirators I will be using.				LCT		
5. I wore this respiratory equipment in normal air and checked the facepiece fit.				LCT		
6. I wore this respiratory equipment in a test atmosphere generated by smoke or other means.				LCT		
7. I understand that a good gas-tight face seal cannot be achieved with obstruction such as facial hair or glasses (with fullface mask).				LCT		

EMR
Medical Management Solutions Through Information Technology

MEDICAL CLEARANCE

ATTN: Mr. Mark Thomas [redacted]

March 14, 1995

PII Redacted

RE: Employee: Mark Thomas [redacted]

Exam No: 138206
Exam Date: 03/06/95

Mr. Thomas has completed a(n) Baseline Engineer/Field Personnel Examination for ICF VA01A with the following results and clearances:

YES	NO	
[X]	[ ]	To work with HAZARDOUS MATERIAL in accordance with 29 CFR 1910.120.
[X]	[ ]	To use RESPIRATORY EQUIPMENT in accordance with 29 CFR 1910.134.
[X]	[ ]	To work with ASBESTOS in accordance with 29 CFR 1926.58.

Work-related limitations and additional recommendations:

NONE.

By separate letter, Mr. Thomas has been informed of the medical findings of this examination and their specific health implications.

Elayne F. Theriault, MD

Elayne F. Theriault, M.D.
Medical Director

4360 Chamblee Dunwoody Rd. • Suite 202 • Atlanta, Georgia 30341 • (404) 455-0818 • (800) 229-3674 • fax (404) 457-1429

HAZMAT
TRAINING ▲ INFORMATION ▲ SERVICES ▲ INC
An Employee Owned Company

LETTER OF SATISFACTORY COMPLETION

HAZMAT Training, Information and Services, Inc. (Hazmat TISI) hereby certifies that Mark A. Thomas satisfactorily completed a 40-hour course of instruction titled "The Hazardous Materials Site Worker" on February 27 - March 3, 1995.

The course addressed the training needs of employees working hazardous material sites where there is significant threat of exposure to hazardous substances, health hazards, or safety hazards.

Hazmat TISI certifies that the course satisfies the initial off-site training requirements for employees specified by the Department of Labor, Occupational Safety and Health Administration, as found in 29 CFR 1910.120(e) Final Rule dated March 6, 1989.

Hazmat TISI provides this certificate based on this individual's demonstration of practical skills and the successful completion of a written examination.

Hazmat TISI recommends that this letter be made a part of the employee's personnel file.

The Department of Labor requires that this individual undergo annual refresher training and recertification.

Edmund M. Conaway
President
Hazmat TISI

TRAINING & CONSULTATION IN HAZARDOUS MATERIALS CONTROL
9017 Red Branch Road ▲ Columbia Maryland 21045
410-964-0940 ▲ 1-800-777-8474 ▲ FAX 410-964-2331

I910102179108

RESPIRATOR TRAINING COMPLETION FORM

FIT TEST PROTOCOL USED:
X Standard
___ Other (Specify) _____

BUSINESS UNIT 11547
FIT TEST CONDUCTED BY: Larry Thebeau
Initial only the appropriate blocks

LOCATION MD 06
DATE M-T 3~~6~~/30/95

NAME (please print) Mark A. Thomas SIG. Mark A. Thomas SS # 220-06-1379		SCBA Model: Size: S M L	AIRLINE PRESSURE DEMAND Size: S M L Brand:	PAPR Model: Size: S M L	AIR PURIFYING FULL FACE Size: (S) M L Brand: MSA	AIR PURIFYING HALF MASK Size: S M L Brand:	OTHER
1.	I understand why respiratory protection is needed and where and when it should be used.				MT		
2.	I know how to use this respirator properly.				MT		
3.	I know how to clean and inspect this respirator.				MT		
4.	I understand the limitations and restrictions of the respirators I will be using.				MT		
5.	I wore this respiratory equipment in normal air and checked the facepiece fit.				MT		
6.	I wore this respiratory equipment in a test atmosphere generated by smoke or other means.				MT		
7.	I understand that a good gas-tight face seal cannot be achieved with obstruction such as facial hair or glasses (with fullface mask).				MT		

EMR
Medical Management Solutions Through Information Technology

AMENDED CLEARANCE

ATTN: Ms. Patricia Thompson [redacted]

March 23, 1995

PII Redacted

RE: Employee: Patricia J Thompson [redacted]

Exam No: 134520
Exam Date: 11/30/94

Ms. Thompson has completed the requirements of a baseline exam. Examination for ICF MD06 with the following results and clearances:

YES	NO	
[X]	[ ]	To work with HAZARDOUS MATERIALS in accordance with 29 CFR 1910.120.
[X]	[ ]	To use RESPIRATORY PROTECTIVE EQUIPMENT in accordance with 29 CFR 1910.134.
[X]	[ ]	To work with ASBESTOS in accordance with 29 CFR 1926.1101.

Work-related limitations and additional recommendations:

- NOTE: Asbestos clearance is issued based on the B-READ performed on this individual's chest x-ray taken on 01/30/94.
- NOTE: The history portion of Orange Book 1 has been reviewed and filed with this individual's medical records.

Elayne F. Theriault, MD
Elayne F. Theriault, M.D.
Medical Director

4360 Chamblee Dunwoody Rd. • Suite 202 • Atlanta, Georgia 30341 • (404) 455-0818 • (800) 229-3674 • fax (404) 457-1429

The Professional Development Program for
Hazardous Waste Remediation and
Emergency Response Workers

Proudly Presents This

Certificate to

Patricia Jean Thompson

for completing the initial 40-hours training in
Hazardous Waste Operations and Emergency Response
at Oak Ridge, Tennessee on June 4 - 8, 1990
to satisfy OSHA rules, 29 CFR Part 1910.120

Certificate Number: 0690445
SSAN: 560-96-1418

Dr. James F. Betsehart, Director

Daniel J. Steller, Trainer

Waste Management Training Center
Roane State Community College
728 Emory Valley Road
Oak Ridge TN 37830
Phone 615-481-3493

ICF KAISER ENGINEERS, INC.

This is to Certify That

Trish Thompson

Has Completed 8 Hours of OSHA Hazardous Materials Site Worker Annual Recertification Training as Required under 29 CFR 1910.120

Instructor [signature]

Date April 5, 7, 1995

I910182179108

RESPIRATOR TRAINING COMPLETION FORM

FIT TEST PROTOCOL USED:

X Standard

___ Other (Specify) _____

BUSINESS UNIT 11547

FIT TEST CONDUCTED BY: Larry Thebeau

Initial only the appropriate blocks

LOCATION MPOL

DATE 3/31/95

NAME Patricia J. Thompson (please print) SIG. Patricia Thompson SS # 560-96-1418	SCBA Model: Size: S M L	AIRLINE PRESSURE DEMAND Size: S M L Brand:	PAPR Model: Size: S M L	AIR PURIFYING FULL FACE Size: (S) M L Brand: MSA	AIR PURIFYING HALF MASK Size: S M L Brand:	OTHER
1. I understand why respiratory protection is needed and where and when it should be used.				PT		
2. I know how to use this respirator properly.				PT		
3. I know how to clean and inspect this respirator.				PT		
4. I understand the limitations and restrictions of the respirators I will be using.				PT		
5. I wore this respiratory equipment in normal air and checked the facepiece fit.				PT		
6. I wore this respiratory equipment in a test atmosphere generated by smoke or other means.				PT		
7. I understand that a good gas-tight face seal cannot be achieved with obstruction such as facial hair or glasses (with fullface mask).				PT		

Form No. CAUTI-001

EMR
Medical Management Solutions Through Information Technology

August 4, 1994

PII Redacted

Ms. Tammy Williams
[redacted]

Type of Exam: Annual Engineer/Field Personnel ICF VA01A
Exam: 07/21/94.109880 Employee: Tammy Williams - [redacted]

The individual identified above has completed a medical surveillance examination. Review of the data from this examination resulted in the following conclusions:

MEDICAL AND SAFETY RESTRICTIONS / RECOMMENDATIONS

- None

CLEARANCE FOR WORK WITH HAZARDOUS MATERIALS

- In compliance with 29 CFR 1910.120 (f), medical clearance is issued for individual to work with hazardous materials.

CLEARANCE FOR WORK WITH ASBESTOS

- This individual has been examined in compliance with 29 CFR 1926.58. This examination has not disclosed the presence of any medical condition that would constitute an increased risk of material health impairment from exposure to asbestos, tremolite,anthophylite, or actinolite.

USE OF RESPIRATORY EQUIPMENT

- In compliance with 29 CFR 1910.134, medical clearance is issued for unrestricted use of respiratory protective equipment. This regulation stipulates:
  - » Contact lenses shall not be worn when using respiratory protective equipment.
  - » Facial hair shall not be interposed between the face and the sealing surface of the respirator.

EXPOSURE TO TEMPERATURE EXTREMES

- Exposures to temperature extremes are acceptable providing that reasonable precautions are taken.

PUBLIC LAW 100-690

- Not a requirement of this examination.

DEPARTMENT OF TRANSPORTATION CERTIFICATION

- Not requested

The employee has been informed of the results of this medical examination and also advised of any specific health implications of employment to the extent required by existing law.

Elayne F. Theriault, M.D.

Elayne F. Theriault, M.D.
Medical Director

4360 Chamblee Dunwoody Rd. • Suite 202 • Atlanta, Georgia 30341 • (404) 455-0818 • (800) 229-3674 • fax (404) 457-1429

HAZMAT

TRAINING ▲ INFORMATION ▲ SERVICES ▲ INC

An Employee Owned Company

CERTIFICATE OF COMPLETION

This is to certify that

TAMMY D. WILLIAMS

has successfully completed

HAZARDOUS MATERIALS SITE WORKER COURSE (40-HOUR)

at

HAZMAT T.I.S.I.; COLUMBIA, MARYLAND

Chief Operating Officer

Chief Executive Officer

July 19 - 23, 1993
40S-9307B

ICF KAISER ENGINEERS, INC.

This is to Certify That

Tammy Williams

Has Completed 8 Hours of OSHA Hazardous Materials Site Worker Annual Recertification Training as Required under 29 CFR 1910.120

Instructor Tammy C. Robson **Date** April 5, 7, 1995

I910102179108

RESPIRATOR TRAINING COMPLETION FORM

FIT TEST PROTOCOL USED:

✓ Standard

___ Other (Specify) _____

BUSINESS UNIT 11547

FIT TEST CONDUCTED BY: Larry Thebeau

Initial only the appropriate blocks

LOCATION MD06

DATE 3Mar95

NAME (please print) Tammy Williams SIG. Tammy Williams SS # 417-94-5386		SCBA Model: Size: S M L	AIRLINE PRESSURE DEMAND Size: S M L Brand:	PAPR Model: Size: S M L	AIR PURIFYING FULL FACE Size: S (M) L Brand:	AIR PURIFYING HALF MASK Size: S M L Brand:	OTHER
1.	I understand why respiratory protection is needed and where and when it should be used.				JW		
2.	I know how to use this respirator properly.				JW		
3.	I know how to clean and inspect this respirator.				JW		
4.	I understand the limitations and restrictions of the respirators I will be using.				JW		
5.	I wore this respiratory equipment in normal air and checked the facepiece fit.				JW		
6.	I wore this respiratory equipment in a test atmosphere generated by smoke or other means.				JW		
7.	I understand that a good gas-tight face seal cannot be achieved with obstruction such as facial hair or glasses (with fullface mask).				JW		

EMR

Waste Management Solutions Through Information Technology

August 4, 1994

PII Redacted

Ms. Diane Harbertson
[redacted]

Type of Exam: Annual Engineer/Field Personnel ICF VA01A
Exam: 07/20/94.108891 Employee: Diane Harbertson - [redacted]

The individual identified above has completed a medical surveillance examination. Review of the data from this examination resulted in the following conclusions:

MEDICAL AND SAFETY RESTRICTIONS / RECOMMENDATIONS

- None

CLEARANCE FOR WORK WITH HAZARDOUS MATERIALS

- In compliance with 29 CFR 1910.120 (f), medical clearance is issued for individual to work with hazardous materials.

CLEARANCE FOR WORK WITH ASBESTOS

- This individual has been examined in compliance with 29 CFR 1926.58. This examination has not disclosed the presence of any medical condition that would constitute an increased risk of material health impairment from exposure to asbestos, tremolite,anthophylite, or actinolite.

USE OF RESPIRATORY EQUIPMENT

- In compliance with 29 CFR 1910.134, medical clearance is issued for unrestricted use of respiratory protective equipment. This regulation stipulates:
  - » Contact lenses shall not be worn when using respiratory protective equipment.
  - » Facial hair shall not be interposed between the face and the sealing surface of the respirator.

EXPOSURE TO TEMPERATURE EXTREMES

- Exposures to temperature extremes are acceptable providing that reasonable precautions are taken.

PUBLIC LAW 100-690

- Not a requirement of this examination.

DEPARTMENT OF TRANSPORTATION CERTIFICATION

- Not requested

The employee has been informed of the results of this medical examination and also advised of any specific health implications of employment to the extent required by existing law.

Elayne F. Theriault, M.D.

Elayne F. Theriault, M.D.
Medical Director

4300 Chamblee Dunwoody Rd • Suite 202 • Atlanta, Georgia 30341 • (404) 458-0918 • 800) 229-3674 • fax (404) 457-1429

HAZMAT
TRAINING ▲ INFORMATION ▲ SERVICES ▲ INC

CERTIFICATE OF COMPLETION

This is to certify that

DIANE HARBERTSON

has successfully completed

HAZARDOUS MATERIALS SITE WORKER COURSE (40-HOUR)

at

HAZMAT T.I.S.I.; COLUMBIA, MARYLAND

Eva C Stern

Manager, Training Services Department

Richard Clifford

Chief Executive Officer

June 29 - July 3, 1992
C92-1457

HAZMAT

TRAINING ▲ INFORMATION ▲ SERVICES ▲ INC

An Employee Owned Company

CERTIFICATE OF COMPLETION

This is to certify that

PATRICIA J. THOMPSON

has successfully completed

OSHA HAZ-MAT SITE WORKER (Annual Recertification)

at

HAZMAT T.I.S.I; COLUMBIA, MARYLAND

Chief Operating Officer

Chief Executive Officer

June 5, 1995
REF-9506A

ICF KAISER ENGINEERS, INC.

This is to Certify That

Diane Wisbeck

Has Completed 8 Hours of OSHA Hazardous Materials Site Worker Annual Recertification Training as Required under 29 CFR 1910.120

Instructor [signature]

Date April 5, 7, 1995