

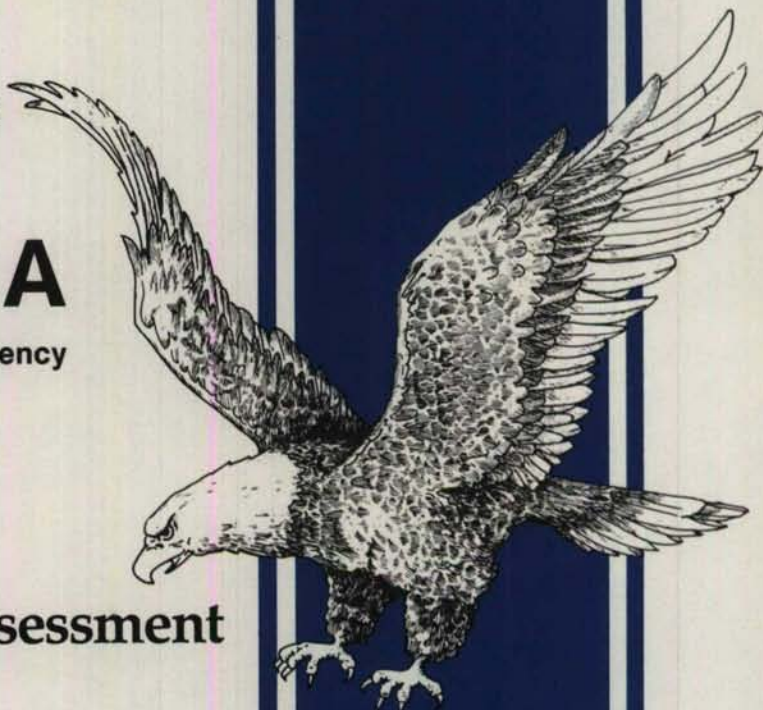


3905

Report No. CETHA-BC-CR-89352

# USATHAMA

U.S. Army Toxic and Hazardous Materials Agency



## Task Order 2 Enhanced Preliminary Assessment

FORT DES MOINES  
DES MOINES, IOWA

Contract Number DAAA15-88-D-0007

December 1989

**DISTRIBUTION STATEMENT A**  
Approved for Public Release  
Distribution Unlimited

Prepared for

U.S. Army Toxic and Hazardous Materials Agency  
Aberdeen Proving Ground, Maryland 21010-5401

Prepared by



Roy F. Weston, Inc.  
West Chester,  
Pennsylvania 19380

20071024044

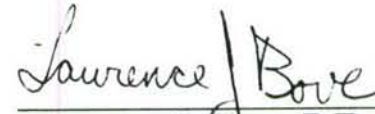


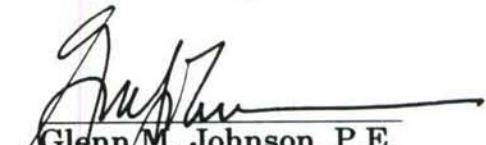
Report No. CETHA-BC-CR-89352

USATHAMA Task Order 2  
ENHANCED PRELIMINARY ASSESSMENT  
FORT DES MOINES  
DES MOINES, IOWA

Contract No. DAAA15-88-D-0007

  
Joel Karmazyn  
Project Engineer

  
Lawrence J. Bove, P.E.  
Project Manager

  
Glenn M. Johnson, P.E.  
Program Manager

December 1989

Prepared By:  
Roy F. Weston, Inc.  
Weston Way  
West Chester, Pennsylvania 19380

1082M2-1

# REPORT DOCUMENTATION PAGE

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                                                    |                                                                                                                               |                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1a. REPORT SECURITY CLASSIFICATION<br><b>Unclassified</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                                    | 1b. RESTRICTIVE MARKINGS                                                                                                      |                                                                                         |
| 2a. SECURITY CLASSIFICATION AUTHORITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                                    | 3. DISTRIBUTION / AVAILABILITY OF REPORT<br><br>Distribution Unlimited                                                        |                                                                                         |
| 2b. DECLASSIFICATION / DOWNGRADING SCHEDULE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                                    |                                                                                                                               |                                                                                         |
| 4. PERFORMING ORGANIZATION REPORT NUMBER(S)<br><br>2281-09-02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                                    | 5. MONITORING ORGANIZATION REPORT NUMBER(S)<br><br>CETHA-BC-CR-89352                                                          |                                                                                         |
| 6a. NAME OF PERFORMING ORGANIZATION<br><br>Roy F. Weston, Inc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       | 6b. OFFICE SYMBOL<br>(If applicable)               |                                                                                                                               | 7a. NAME OF MONITORING ORGANIZATION<br><br>U.S. Army Toxic & Hazardous Materials Agency |
| 6c. ADDRESS (City, State, and ZIP Code)<br><br>1 Weston Way<br>West Chester, Pennsylvania 19380                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                                                    | 7b. ADDRESS (City, State, and ZIP Code)<br><br>Attn: CETHA-BC-B<br>Aberdeen Proving Ground (Edgewood Maryland 21010-5401 area |                                                                                         |
| 8a. NAME OF FUNDING / SPONSORING ORGANIZATION<br><br>USATHAMA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       | 8b. OFFICE SYMBOL<br>(If applicable)<br>CETHA-BC-B |                                                                                                                               | 9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER<br><br>DAAA15-88-D-0010 Task No. 3      |
| 8c. ADDRESS (City, State, and ZIP Code)<br><br>ATTN: CETHA-BC-B<br>Aberdeen Proving Ground (Edgewood Area) Maryland 21010-5401                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                                    | 10. SOURCE OF FUNDING NUMBERS                                                                                                 |                                                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                                                    | PROGRAM ELEMENT NO.                                                                                                           | PROJECT NO.                                                                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                                                    | TASK NO.                                                                                                                      | WORK UNIT ACCESSION NO.                                                                 |
| 11. TITLE (Include Security Classification)<br><br>Enhanced Preliminary Assessment Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                                    |                                                                                                                               |                                                                                         |
| 12. PERSONAL AUTHOR(S)<br><br>Joel Karmazyn, Lawrence Bove, Glenn Johnson                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                                    |                                                                                                                               |                                                                                         |
| 13a. TYPE OF REPORT<br><br>Final                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       | 13b. TIME COVERED<br>FROM TO                       |                                                                                                                               | 14. DATE OF REPORT (Year, Month, Day)<br>1989 December                                  |
| 15. PAGE COUNT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                                    |                                                                                                                               |                                                                                         |
| 16. SUPPLEMENTARY NOTATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                                    |                                                                                                                               |                                                                                         |
| 17. COSATI CODES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                                    | 18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)                                             |                                                                                         |
| FIELD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | GROUP | SUB-GROUP                                          |                                                                                                                               |                                                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                                                    | Fort Des Moines, Base Closure Program, Environmentally Significant Operations, Human/Environmental Receptors, Sampling        |                                                                                         |
| 19. ABSTRACT (Continue on reverse if necessary and identify by block number)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                                    |                                                                                                                               |                                                                                         |
| <p>An Enhanced Preliminary Assessment was conducted at the Fort Des Moines (FDM) site in Des Moines, Iowa which is planned for inclusion in the Base Closure Program. The facility is located on approximately 86 acres of land south of the city of Des Moines, Iowa. The scope of this assessment included 56 acres of the facility which is scheduled for assessing. FDM is an inactive subinstallation of Fort McCoy, providing support and shelter for the U.S. Army Reserve.</p> <p>A site visit was performed on 10 October 1989. During the survey, no conditions were observed that represent an imminent threat to human health. However, long-term threats to human health are possible as a result of leaking pole transformers and potential pesticide dispersal from a pesticide contaminated building. Seven environmentally significant</p> |       |                                                    |                                                                                                                               |                                                                                         |
| 20. DISTRIBUTION / AVAILABILITY OF ABSTRACT<br><input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |                                                    | 21. ABSTRACT SECURITY CLASSIFICATION<br>Unclassified                                                                          |                                                                                         |
| 22a. NAME OF RESPONSIBLE INDIVIDUAL<br><br>Rusty Fendick                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |                                                    | 22b. TELEPHONE (Include Area Code)<br>(301) 671-3461/3261                                                                     | 22c. OFFICE SYMBOL<br>BC-B                                                              |

operations (ESO's) were identified:

- o Uncontrolled chemical storage
- o Underground storage tanks
- o A pesticide contaminated building.
- o Possible asbestos-containing materials inside and outside of buildings.
- o Firing ranges.
- o Electrical transformers.
- o Possible polychlorinated biphenyls containing material on a roadway.

Recommendations are made for groundwater well installation and sampling at the ESO locations and possible off-site receptors. The recommendations for well installation and sampling are based on information gathered concerning past spills, material storage and handling and documented contaminants.



## DISCLAIMER

This Enhanced Preliminary Assessment report is based primarily on the environmental conditions observed at Fort Des Moines, Des Moines, Iowa, during the period 10 October through 13 October 1989. Past site conditions and management practices were evaluated, based on readily available records and the recollections of people interviewed. Every effort was made, within the scope of the task, to interview all identified site personnel, especially those personnel with a historical perspective of site operations.

No environmental sampling was conducted as part of the assessment. The findings and recommendations for further action are based on WESTON's experience and technical judgment, as well as current regulatory agency requirements. Future regulations as well as any modifications to current statutes may affect the compliance status of this site.

WESTON does not warrant or guarantee that the property is suitable for any particular purpose or certify any areas of the property as "clean." A more thorough investigation, including intrusive sampling and analysis for specific hazardous materials, is recommended prior to reporting this property as excess.

## TABLE OF CONTENTS

| <u>Section</u> | <u>Title</u>                             | <u>Page</u> |
|----------------|------------------------------------------|-------------|
|                | DISCLAIMER                               | iii         |
|                | EXECUTIVE SUMMARY                        | ES-1        |
| 1              | INTRODUCTION                             | 1-1         |
| 1.1            | Background                               | 1-1         |
| 1.2            | Objectives                               | 1-1         |
| 1.3            | Procedures                               | 1-2         |
| 1.4            | Report Format                            | 1-2         |
| 2              | PROPERTY CHARACTERIZATION                | 2-1         |
| 2.1            | General Property Description and History | 2-1         |
| 2.1.1          | Generation and Disposal of Wastes        | 2-12        |
| 2.2            | Permitting status                        | 2-13        |
| 2.3            | General Environmental Information        | 2-13        |
| 2.3.1          | Demographics and Land Use                | 2-13        |
| 2.3.2          | Climate                                  | 2-15        |
| 2.3.3          | Surface Water and Physiography           | 2-15        |
| 2.3.4          | Soils and Geological Information         | 2-15        |
| 2.3.5          | Groundwater and Hydrology                | 2-16        |
| 2.3.6          | Sensitive Environments                   |             |
| 3              | ENVIRONMENTALLY SIGNIFICANT OPERATIONS   | 3-1         |
| 3.1            | Open Dump Areas                          | 3-1         |
| 3.2            | Building 138                             | 3-3         |
| 3.3            | Transformers                             | 3-4         |
| 3.4            | Underground Storage Tanks                | 3-5         |
| 3.5            | Asbestos                                 | 3-7         |
| 3.6            | Chemical Storage                         | 3-7         |
| 3.7            | Firing Ranges                            | 3-7         |
| 4              | HUMAN AND ENVIRONMENTAL RECEPTORS        | 4-1         |
| 4.1            | Releases to Groundwater                  | 4-1         |
| 4.2            | Releases to Surface Water and Sediments  | 4-2         |
| 4.3            | Releases to Soil                         | 4-2         |
| 4.4            | Air Releases                             | 4-2         |
| 4.5            | Other Hazards                            | 4-2         |
| 4.5.1          | Fire and Explosions                      | 4-3         |
| 4.5.2          | Direct Contact                           |             |
| 5              | CONCLUSIONS AND RECOMMENDATIONS          | 5-1         |
| 5.1            | Summary of Findings                      | 5-1         |
| 5.1.1          | Chemical Storage                         | 5-1         |

## TABLE OF CONTENTS (continued)

| <u>Section</u> | <u>Title</u>                                                                    | <u>Page</u> |
|----------------|---------------------------------------------------------------------------------|-------------|
|                | 5.1.2 Underground Storage Tanks                                                 | 5-2         |
|                | 5.1.3 Building 138                                                              | 5-2         |
|                | 5.1.4 Open Dump Areas                                                           | 5-2         |
|                | 5.1.5 Asbestos                                                                  | 5-2         |
|                | 5.1.6 Firing Ranges                                                             | 5-3         |
|                | 5.1.7 Transformers                                                              | 5-3         |
|                | 5.1.8 Rodgers Road                                                              | 5-3         |
| 5.2            | Recommendations for Further Action                                              | 5-3         |
|                | 5.2.1 Chemical Storage                                                          | 5-4         |
|                | 5.2.2 Underground Storage Tanks                                                 | 5-4         |
|                | 5.2.3 Building 138                                                              | 5-4         |
|                | 5.2.4 Open Dump Areas                                                           | 5-4         |
|                | 5.2.5 Asbestos                                                                  | 5-4         |
|                | 5.2.6 Firing Ranges                                                             | 5-8         |
|                | 5.2.7 Transformers                                                              | 5-8         |
|                | 5.2.8 Rodgers Road                                                              | 5-8         |
| 6              | INTERVIEWS                                                                      | 6-1         |
|                | 6.1 Direct Interviews                                                           | 6-1         |
|                | 6.2 Telephone Interviews                                                        | 6-1         |
|                | 6.3 Reports and Other Documents                                                 | 6-1         |
| 7              | PHOTOGRAPHS                                                                     | 7-1         |
|                | APPENDIX A - POTENTIAL HAZARDOUS WASTE<br>SITE PRELIMINARY ASSESSMENT<br>REPORT |             |
|                | APPENDIX B - CHEMICAL INVENTORY                                                 |             |

## LIST OF TABLES

| <u>Table No.</u> | <u>Title</u>                                                  | <u>Page</u> |
|------------------|---------------------------------------------------------------|-------------|
| ES-1             | ESOs Identified at FDM and Recommendations for Further Action | ES-5        |
| 2-1              | Property Information Summary                                  | 2-2         |
| 2-2              | Fort Des Moines Building Inventory                            | 2-5         |
| 3-1              | Fort Des Moines Underground Storage Tank Inventory            | 3-6         |
| 3-2              | Chemical Storage Inventory                                    | 3-8         |
| 5-1              | ESOs Identified at FDM and Recommendations for Further Action | 5-5         |

## LIST OF FIGURES

| <u>Figure No.</u> | <u>Title</u>                           | <u>Page</u> |
|-------------------|----------------------------------------|-------------|
| ES-1              | Property Information Composite         | ES-3        |
| 2-1               | Property Location Map                  | 2-3         |
| 2-2               | Site Plan                              | 2-4         |
| 2-3               | Wind Rose                              | 2-14        |
| 3-1               | Environmentally Significant Operations | 3-2         |
| 5-1               | Recommended Sampling Locations         | 5-7         |

## **EXECUTIVE SUMMARY**

### **BACKGROUND AND OBJECTIVES**

This Enhanced Preliminary Assessment (PA) report has been prepared by Roy F. Weston, Inc. (WESTON) at the request of the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) pursuant to Contract DAAA15-88-D-0007, Task Order 2. The purpose of the enhanced PA report is to present WESTON's findings concerning the environmental conditions at Fort Des Moines (FDM) located in Des Moines, Iowa, and to provide recommendations for further action.

The objectives of the enhanced PA were to:

- Identify and characterize environmentally significant operations (ESOs) associated with the historical and current use of the FDM property.
- Identify and characterize possible impacts of the ESOs on the surrounding environment.
- Identify additional environmental actions, if any, that should be implemented for the ESOs identified.

Information contained in this PA report was obtained through:

- Visual inspection of the facility.
- Review of available Army documentation.
- Review of related regulatory agency files at the state and federal levels.
- Interviews with current and former employees at FDM.

### **GENERAL PROPERTY DESCRIPTION**

The FDM site is part of what remains of a cavalry post that was established on 400 acres of donated land in Polk County on the outskirts of the City of Des Moines, Iowa, in 1903. An additional 240 acres was purchased by the Army along with a sewer line easement in 1908 [R-1].

FDM is listed on the National Register of Historic Places, partly because of its use in 1917 as the first training camp for black cavalry officers in the U.S. Army. The barracks, stables, and warehouses which contributed to this classification were constructed of brick with slate roofs during or prior to 1917 [R-1]. Those structures built at the site after 1917 are considered noncontributing [R-2].

Over the years Fort Des Moines has served as a U.S. General Hospital, the base for the 14th Cavalry Squadron, a training center for the Women's Army Auxiliary Corp., and a support base for the Army Reserve. In addition to

military use, portions of FDM have and continue to be leased out to the private sector and local and state government bodies. Leases to the Barco Chemical Company have substantially impacted the environment and contaminated the interior of Buildings 138 and 67 with pesticides. Building 67 has been removed.

Large segments of FDM have been excessed since the 1960s. This enhanced PA report focused on the 56 acres shown in Figure ES-1, which are scheduled for excessing.

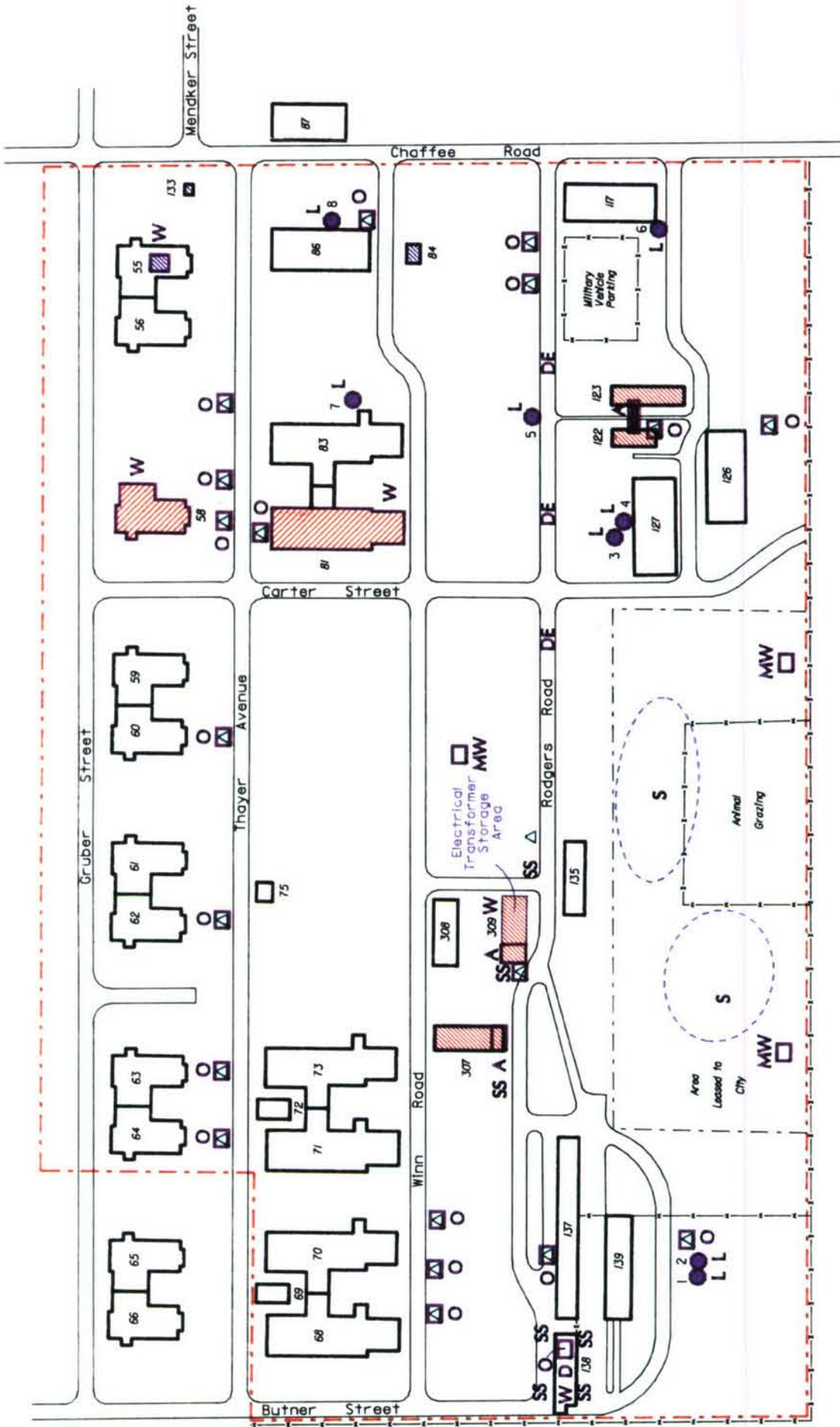
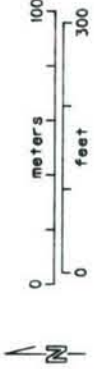
ESOs identified on the property include:

- Building 55 - Barracks with uncontrolled storage of chemicals in basement.
- Underground storage tanks (UST) - Eight tanks containing leftover, unusable, and contaminated gasoline, fuel oil, and waste oil.
- Building 138 - Former Barco Chemical Company pesticide blending operation - Approximately 4,000 sq ft building and contents contaminated with various pesticides. An abandoned elevator shaft contains an estimated 2,200 gal of waste fluid. Previous storage location for electrical transformers prior to shipment to Fort McCoy.
- Open dump areas - Two areas used to dump tree litter, scrap material, and appliances.
- Building 122 and 123 - Suspected asbestos-wrapped pipe covering used to insulate an overhead fill pipe connecting the buildings.
- Asbestos use in heating, and sewage systems has been reported by the maintenance staff to exist in most buildings. Suspected asbestos in a heating and sewage system were identified in Buildings 307 and 309, respectively.
- Buildings 58 and 81 - Firing ranges cluttered with debris, casings, and lead.
- Electrical transformers - Twenty pole-mounted transformers suspected of containing polychlorinated biphenyls (PCBs). Three PCB-contaminated transformers stored in Building 309 awaiting shipment to Fort McCoy. Building 309 is also a storage area for non-PCB transformers used to replace failing transformers.
- Rodgers Road - Road expansion and crack sealant used on Rodgers Road suspected of containing PCBs.

Figure ES-1 shows the locations of all identified ESOs.

Figure ES-1  
Property Information  
Composite

Compiled in 1989 from various sources  
provided by the U.S. Army Toxic and  
Hazardous Materials Agency



ENVIRONMENTALLY SIGNIFICANT OPERATIONS

- Underground Storage Tank
- Transformer
- Chemical Storage
- Building With Asbestos-containing Material
- Building B8 With Pesticide Contamination and Potentially PCB Laden Elevator Shaft Oil
- Former Firing Range
- Open Dump

RECOMMENDED SAMPLING METHODS

- Wipe
- Oil Sample
- Liquid Sample
- Surface Soil
- Sediment Sample
- Dust Sample
- Destructive
- MW Monitoring Well
- Asbestos



USATHAMA

U.S. Army Toxic and Hazardous Materials Agency

## **HUMAN AND ENVIRONMENTAL RECEPTORS**

Fort Des Moines is operated as an open post, providing free access to the public. However, most of the buildings are locked or sealed. The primary activities at FDM are restricted to the Army Reserve Center which is removed by some distance from the survey area. Therefore, the survey area is used by a small number of people who are either employed on the base or utilize the large open spaces for recreational use (jogging, walking). Recreational users are potentially at risk of exposure to PCBs, pesticides, metals, asbestos, and any contaminated soils which may contain these contaminants. The primary threat is posed by Building 138 which is known to be contaminated with pesticides. The deteriorating nature of Building 138 increases the likelihood of contaminant dispersion by exposing areas of Building 138 to the elements.

PCB leakage from electrical transformers has been documented and is believed to be continuing and poses the second major threat to humans and the environment.

Potable groundwater is not expected to be directly affected by the ESOs because it is restricted to depths in excess of 200 ft. The drinking water supply for the greater Des Moines area and FDM is provided by the city water works, which derives its water source from the confluence of the Des Moines and Raccoon Rivers. This surface water intake is located 4 to 5 miles upgradient from FDM and cannot be affected by the ESOs.

Land adjacent to the facility is used for recreational and housing purposes. Adjacent properties include the Blank Park and Blank Park Zoo directly west and southwest of Building 138, a golf course and county park (Fort Des Moines Park) south and east of the site, and an apartment complex north of the site. The greatest impact upon adjacent lands is believed to be runoff from the site onto the Blank Park and Blank Park Zoo. Drainage from the open dump areas may affect adjacent lands to the south. Impact upon humans living in the apartment complex via the air pathways is not anticipated at this time; however, in the event of a fire or roof failure of Building 138, this pathway may become an immediate concern.

No known endangered or threatened species are known to exist on FDM. No wetlands were identified on the FDM site; however, several low lying areas are present which have a tendency to collect surface water.

The most significant risks on the property appear to be related to Building 138, the pole transformers, and the potential for asbestos exposure.

## **CONCLUSIONS AND RECOMMENDATIONS**

No conditions were observed on the property that present an imminent threat to human health. However, long-term threats to human health are possible as a result of the leaking transformers and potential pesticide dispersal. The potential for environmental degradation is related to PCB leakage, pesticide migration, and open dumping. The ESOs, associated concerns, and recommendations are summarized in Table ES-1 and the following subsections.

Table ES-1

ESOs Identified at FDM  
and Recommendations for Further Action

| ESOs                      | Concern                              | Recommended Activity | Number of Samples Recommended | Location                     | Sample Type | Analysis                                              |
|---------------------------|--------------------------------------|----------------------|-------------------------------|------------------------------|-------------|-------------------------------------------------------|
| Chemical Storage          | Unknown Chemicals                    | Site Investigation   | 2                             | Basement of Building 55      | Wipe        | Priority Pollutants                                   |
| Underground Storage Tanks | Priority Pollutants                  | Site Investigation   | 8                             | Tanks Bottoms                | Oil         | Priority Pollutants, caloric value                    |
| Building 138              | Pesticide, metals, dioxin, TPH, PCBs | Site Investigation   | 10                            | Interior of Building         | Dust        | Cadmium, chromium, lead, mercury, arsenic, dioxin     |
|                           |                                      |                      | 5                             | Interior floors              | Wipe        | PCBs                                                  |
|                           |                                      |                      | 4                             | Exterior corners of building | Soil        | Pesticides, cadmium, chromium, lead, mercury, arsenic |
|                           |                                      |                      | 1                             | Top of drainage stream       | Sediment    | Priority Pollutants                                   |
|                           |                                      |                      | 1                             | Bottom of drainage stream    | Sediment    |                                                       |
|                           |                                      |                      | 1                             | Blank Park Zoo Flamingo Pond | Sediment    |                                                       |
|                           |                                      |                      | 1                             | Elevator Shaft               | Liquid      | TPH, pesticides and PCBs, caloric value               |
| Open Dump Areas           | Unknown                              | Site Investigation   | 2/Dump                        | Drainageways                 | Sediment    | Priority Pollutants                                   |
|                           |                                      | Well Installation    | 2                             | Downgradient                 | Groundwater | Priority Pollutants                                   |
|                           |                                      |                      | 1                             | Upgradient                   | Groundwater | Priority Pollutants                                   |

Table ES-1  
ESOs Identified at FDM and Recommendations for Further Action  
(continued)

| ESOs          | Concern          | Recommended Activity         | Number of Samples Recommended | Location                                      | Sample Type        | Analysis               |
|---------------|------------------|------------------------------|-------------------------------|-----------------------------------------------|--------------------|------------------------|
| Asbestos      | Asbestos removal | Site Survey of all buildings | 1                             | Building 122/123                              | Grab               | Asbestos               |
|               |                  |                              | 1                             | Building 307                                  | Grab               | Asbestos               |
|               |                  |                              | 1                             | Building 309                                  | Grab               | Asbestos               |
| Firing Ranges | Metals           | Site Investigation           | 2                             | Building 58                                   | Wipe               | Lead, barium, antimony |
|               |                  |                              | 2                             | Building 81                                   | Wipe               | Lead, barium, antimony |
| Transformers  | PCBs             | Site Investigation           | 20                            | Onsite                                        | Oil                | PCBs                   |
|               |                  |                              | 1                             | Confirmed Spill Area across from Building 135 | Composite Soil     | PCBs                   |
|               |                  |                              | 2                             | Building 309                                  | Wipe               | PCBs                   |
| Rodgers Road  | PCBs             | Site Investigation           | 1                             | West of Building 307                          | Composite Soil     | PCBs                   |
|               |                  |                              | 1                             | Along Roadway                                 | Composite of Chips | PCBs                   |

## **CHEMICAL STORAGE**

Wipe sampling in the basement of Building 55 is recommended due to the lack of information about the chemicals contained in the basement. Wipe samples should be analyzed for the priority pollutants. The chemicals should be disposed of in an appropriate manner.

## **UNDERGROUND STORAGE TANKS**

Employ a geophysics technique to locate possible underground storage tank (UST) across the street from Buildings 122 and 123. Due to the ages of the other seven tanks and the steel composition, it is recommended that the tank contents be tested and the tanks cleaned and decommissioned by removing them from the ground. In the event that a tank should be needed for future use, it is recommended that the tank contents be tested and the tank tested to assure its integrity. Samples collected from the tanks should be analyzed for priority pollutants and caloric value.

## **BUILDING 138**

Interior dust samples should be collected and analyzed for dioxin and pesticide-related metals. Wipe samples should be taken for PCB analysis from the second floor of the building where leaking transformers were stored. A liquid sample should be taken from the elevator shaft and analyzed for PCBs, pesticides, total petroleum hydrocarbons (TPH), and caloric value. Surface soil samples collected from a depth of between 0 to 6 in. should be taken around the periphery of the building and analyzed for pesticides and related metals. The drainage pattern from the building and site should be investigated by collecting sediment samples in the drainage stream and receiving water body (Blank Park Zoo flamingo pond). The sediment samples should be analyzed for pesticides and priority pollutants.

## **OPEN DUMP AREAS**

Debris in the dump areas should be removed followed by proper disposal. The drainageways should be sampled for the priority pollutants. Placement of two downgradient wells and one upgradient well should be implemented to determine whether the dumps have affected the groundwater.

## **ASBESTOS**

An asbestos survey of all structures should be conducted. The suspected asbestos material exposed to the elements should be sampled to verify the presence or absence of asbestos. These known areas are Buildings 122, 123, 307, and 309. Confirmation of outdoor asbestos should be followed by immediate removal or encapsulation.

## **FIRING RANGES**

Wipe samples of the firing ranges in Buildings 58 and 81 should be taken and analyzed for barium, antimony, and lead. The spent cartridges and litter should be disposed of in an appropriate manner.

## **TRANSFORMERS**

The deteriorating and leaking conditions of the transformers and the discovery of PCBs in a failed transformer suggest that the aging transformers should be replaced as soon as possible. In lieu of removing all the transformers, PCB analysis should be conducted in order to establish a priority replacement order based on the presence or absence of PCBs and the structural integrity of the transformer housing. The site of the confirmed PCB spill from a transformer should be tested by collecting a soil sample at a depth of between 0 to 6 in. and analyzing it for PCBs to confirm the extent of the cleanup. Wipe samples should be taken in Building 309 in the area where transformers are stored to identify the presence of PCBs from possible transformer leakage. Based on reports that a PCB-contaminated transformer had leaked prior to its removal, a composite surface soil sample should be collected at the former transformer location, west of Building 307, and analyzed for PCBs.

## **RODGERS ROAD**

Chip samples of the sealant on Rodgers Road should be collected for PCB analysis.



## SECTION 1

### INTRODUCTION

#### 1.1 BACKGROUND

Roy F. Weston, Inc. (WESTON) has been retained by the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) to conduct waste site characterizations of specific Department of Army properties under the authority of Contract DAAA15-88-D-0007, Task Order 2. This work is being performed within the scope of the U.S. Army Installation Restoration Program (IRP). As part of this contract, WESTON has also been asked to prepare enhanced preliminary assessment (PA) reports of selected properties destined to be included as part of the Base Closure Program. The purpose of these enhanced PA reports is to present WESTON's findings concerning the environmental conditions on the properties and provide recommendations for further action. The recommendations will serve as a guide to the U.S. Army in prioritizing the activities required to report these properties as excess.

This report discusses the enhanced preliminary assessment of Fort Des Moines (FDM) in Des Moines, Iowa. WESTON conducted a site visit to FDM on 10 October through 13 October 1989.

#### 1.2 OBJECTIVES

This enhanced PA report was prepared using existing information obtained from property records and from both current and past employees. No sampling activities were completed as part of this assessment.

The objectives of the enhanced PA were as follows:

- Identify and characterize ESOs associated with the historical and current use of the FDM property.
- Identify and characterize possible impacts of the ESOs on the surrounding environment.
- Identify additional environmental actions, if any, that should be implemented for the ESOs identified.

Certain issues have been excluded from consideration as ESOs for the purposes of this report. First, painted surfaces will not be identified as ESOs solely because there is a potential for their containing lead. Second, drinking water will not be designated as an ESO solely because there is a potential for lead contamination due to piping solder or piping materials. Third, the presence of radon gas in buildings will not be considered as an ESO. A radon survey of all buildings will be performed utilizing the guidelines set forth in the Army Radon Program.

### **1.3 PROCEDURES**

The information contained in this enhanced PA report is based on the following data-gathering activities:

- Visual inspection of the facility.
- Review of available Army documentation.
- Review of U.S. Environmental Protection Agency (EPA) Region VII files.
- Contact with the Iowa Department of Natural Resources.
- Interviews with current and former employees at FDM.

### **1.4 REPORT FORMAT**

This enhanced PA report presents an evaluation of the relevant data for the FDM site.

Section 2 describes the property and the surrounding environment and land uses. Section 3 identifies and characterizes all ESOs related to known and suspected releases to the environment. The potential impact of the ESOs on the local environment and human receptors is discussed in Section 4. Section 5 summarizes the findings and conclusions, discusses the quality and reliability of the supporting information, identifies areas requiring further action, and suggests how such actions may be accomplished. Section 6 lists the pertinent materials reviewed and the agencies that were contacted. Photographs taken during the site visit are provided in Section 7. Supporting documentation is provided in Appendices A and B.

References are presented throughout this report, where appropriate, by means of a letter and number designation in brackets, as follows: I refers to Direct Interviews; T refers to telephone conversations; and R refers to Reports or other written documents. The number following the letter refers to the specific item in the respective lists provided in Section 6.

## SECTION 2

### PROPERTY CHARACTERIZATION

#### 2.1 GENERAL PROPERTY DESCRIPTION AND HISTORY

The FDM site is part of what remains of a cavalry post that was established on 400 acres of donated land in Polk County on the outskirts of the City of Des Moines, Iowa, in 1903. An additional 240 acres were purchased by the Army along with a sewer line easement in 1908 [R-1]. Figure 2-1 presents a location map of the area. General information for Fort Des Moines is summarized in Table 2-1. Partly for its use in 1917 as the first training camp for black officers in the U.S. Army, FDM is listed on the National Register of Historic Places. The barracks, stables, and warehouses which contributed to this classification were constructed of brick with slate roofs during or prior to 1917 [R-1]. Those structures built at the site after 1917 are considered noncontributing [R-2].

When the training camp for black officers was closed in 1920, FDM was converted into U.S. General Hospital No. 26 and subsequently closed in 1920 [R-1]. From 1920 to 1940, extensive rehabilitation and alteration occurred while FDM was headquarters for the 14th Cavalry Squadron.

FDM became an induction center for the Army in 1941 and then a training center for the Women's Army Auxiliary Corp in 1942, when 173 new buildings were constructed south of the present site to house 5,900 women [R-1]. These buildings have subsequently been removed. FDM housed returning veterans in 1946 and began supporting the Army Reserve program in 1948. This activity continues today.

Portions of FDM were leased to Barco Chemical Company for pesticide blending from 1950 to 1959; portions to the south and west were exscessed for city and county use in 1961; a new Army Reserve Center was built in 1975, and an addition was added in 1983. Today FDM comprises 86.02 acres with 38 buildings [R-1]. The scope of this assessment includes 56 acres of the facility, 33 existing buildings, and the associated easements, utilities, streets, roads, and sidewalks. The remaining 30.02 acres of the Fort comprise the Army Reserve Center, which will remain active. Figure 2-2 shows a site plan of the study area within FDM. Table 2-2 presents the past and present uses of the buildings within the study area.

##### 2.1.1 GENERATION AND DISPOSAL OF WASTES

Only small quantites of waste are generated currently since the Post is inactive. Solid waste is removed by a private contractor, Artistic Solid Waste. Waste oil is generated at a rate of 30 to 40 gallons yearly and is stored in a 500-gallon underground tank. The generation of waste oil is too low to require a contract for removal. Previously, when larger quantities were accumulated, Diamond Oil was contracted to remove the waste.



Table 2-1

Property Information Summary  
FDM

---

Name: Fort Des Moines (FDM)

FFIS: IA-214020264

Property Number: 19045

Facility Address: 225 East Army Post Road, Des Moines, Iowa 50315

Commanding Officer: None (inactive site)

Location: Southcentral Des Moines, Iowa

Installation Coordinates: 41°30' N, 93°30' W

Size: 56 acres

Mission: FDM, an inactive subinstallation of Ft. McCoy, provides support and shelter for the U.S. Army Reserve. See Table 2-2 for the current occupancy status of the buildings at the site.

Operations: Current operations consist of U.S. Army Reserve training and maintenance functions performed by six civilian employees who are based in Building 117, the vehicle maintenance shop.

---

**U.S. Army**  
**Base Closure Preliminary Assessment**  
**Fort Des Moines**  
Des Moines, Iowa — November 1989

**FIGURE 2-1**  
**PROPERTY LOCATION**

Property boundary shown in red. Base map image is from the USGS 7.5' Series quadrangles Des Moines SW and SE, Iowa, 1956 (PR 1967, 1971, and 1976).

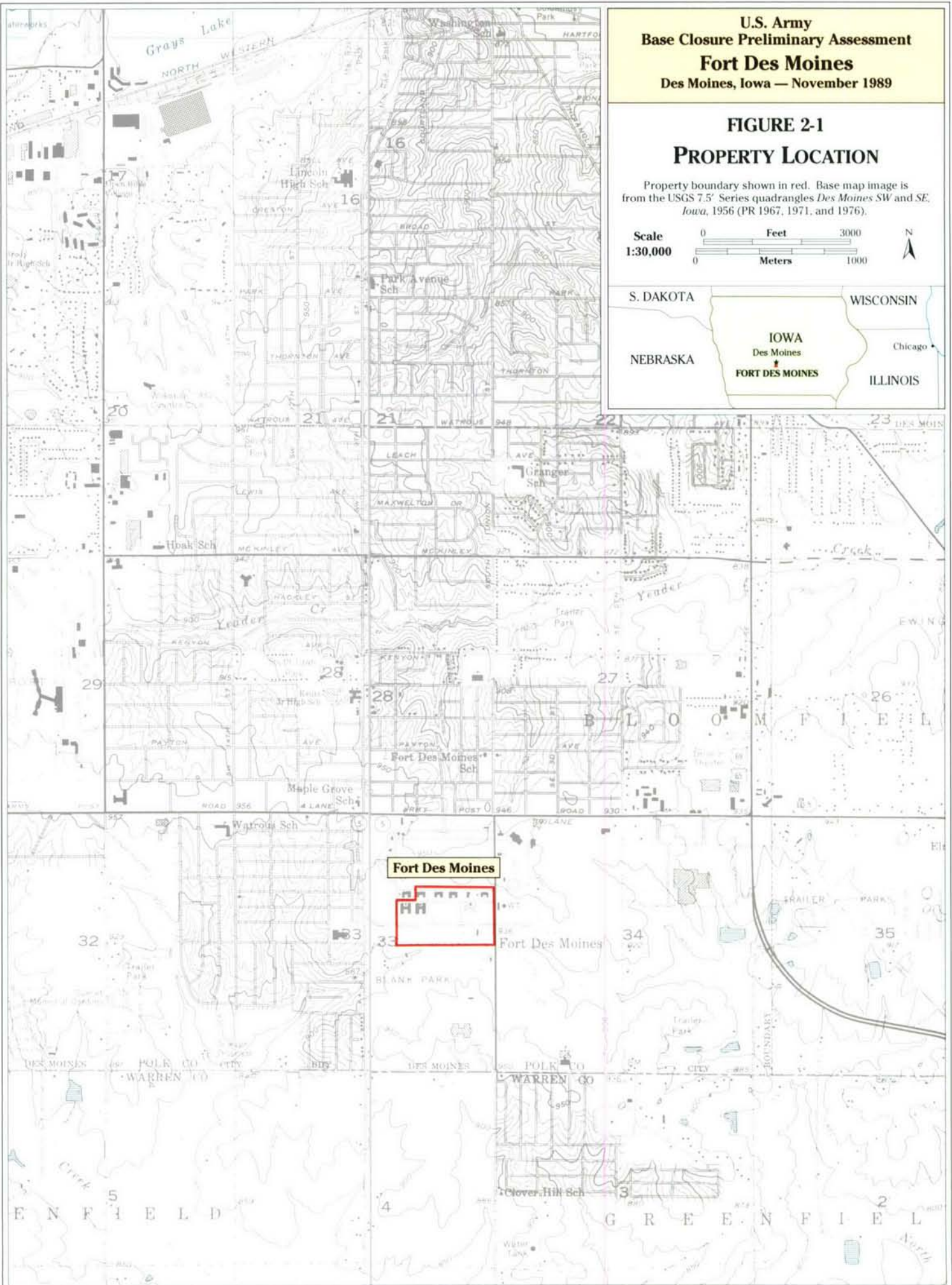
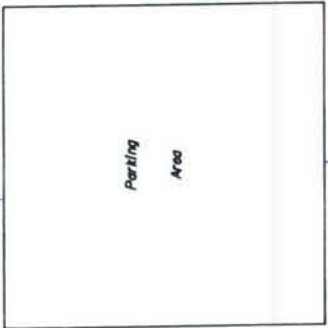
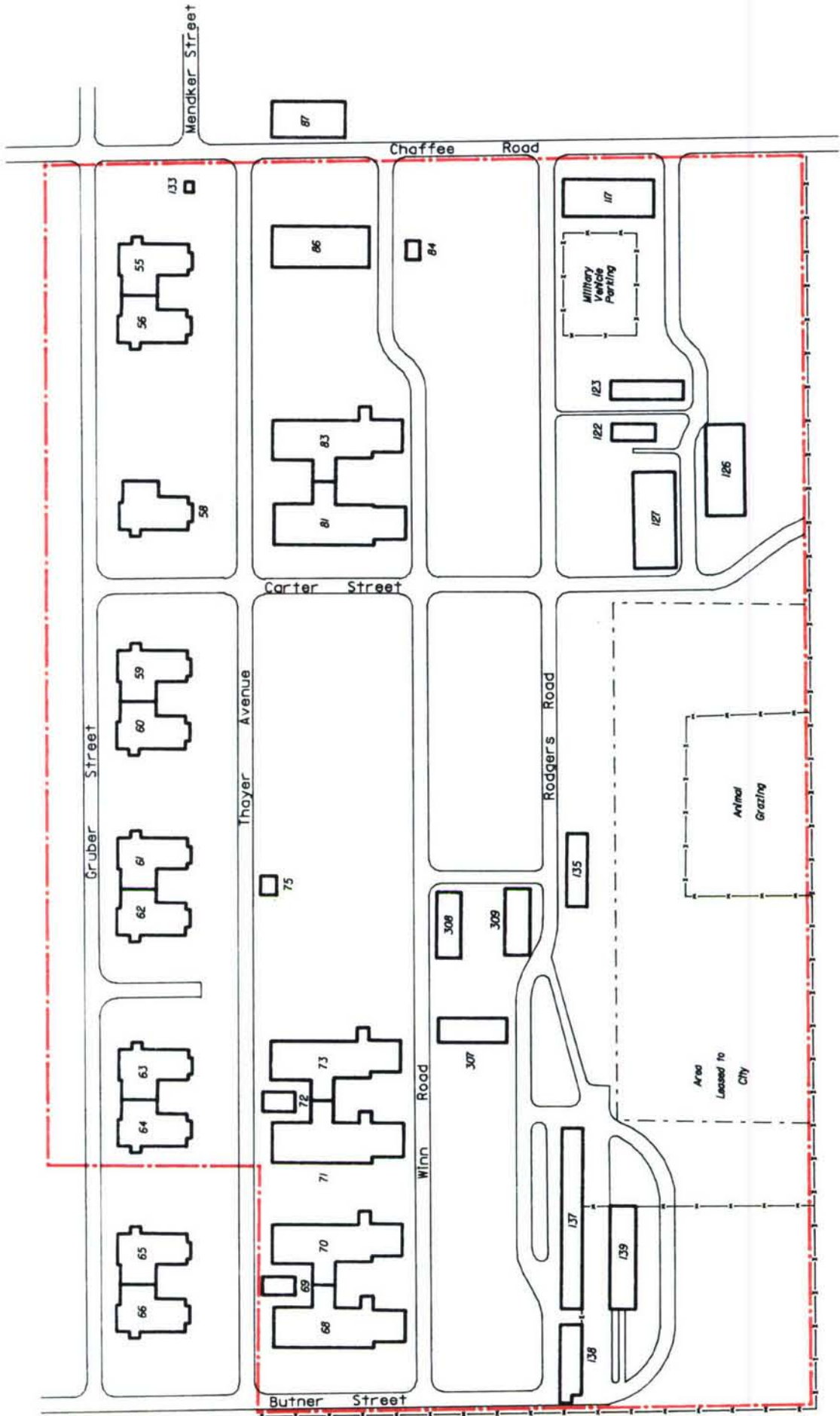
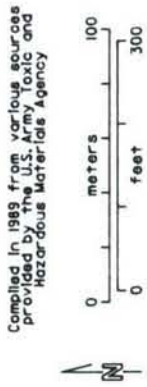


Figure 2-2  
Site Plan



USATHAMA

U.S. Army Toxic and Hazardous Materials Agency

Table 2-2

Fort Des Moines Building Inventory

| Bldg.<br>No. | Building Use<br>(Date of<br>Construction) | Period of Use                                     | Other Uses                                                                                                                                                                         |
|--------------|-------------------------------------------|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 55           | Barracks<br>(1903)                        | During & after WWI<br>1941<br>Early 1980s         | Hospital Ward<br>FDM Admin.<br>Army Reserve Admin.<br>Currently vacant                                                                                                             |
| 56           | Barracks<br>(1903)                        | During & after WWI<br>1941<br>Early 1980s         | Hospital Ward<br>FDM Admin.<br>Army Reserve Admin.<br>Currently vacant                                                                                                             |
| 57           | Barracks                                  | 1918-1919<br>Burned down 1930;<br>not replaced.   | Hospital Ward                                                                                                                                                                      |
| 58           | Barracks<br>(1904)                        | 1918-1919<br>1932<br>1932<br>1932<br>1933<br>1941 | Hospital Ward<br>Ordnance Corps/<br>Signal Corps/<br>Recruiting Office<br>CCC Physical Exam St.<br>Recruit Proc. Station<br>Inactive firing<br>range in attic.<br>Currently vacant |
| 59           | Barracks<br>(1904)                        | 1918-1919                                         | Hospital Ward<br>Army Reserve Admin.<br>Currently vacant                                                                                                                           |
| 60           | Barracks<br>(1904)                        | 1918-1919                                         | Hospital Ward<br>Army Reserve Admin.<br>Currently vacant                                                                                                                           |
| 61           | Barracks<br>(1904)                        | 1918-1919                                         | Hospital Ward<br>Army Reserve Admin.<br>Currently vacant                                                                                                                           |
| 62           | Barracks<br>(1904)                        | 1918-1919                                         | Hospital Ward<br>Army Reserve Admin.<br>Currently vacant                                                                                                                           |

Table 2-2

Fort Des Moines Building Inventory  
(continued)

| Bldg.<br>No. | Building Use<br>(Date of<br>Construction) | Period of Use                                     | Other Uses                                                                                                         |
|--------------|-------------------------------------------|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| 63           | Barracks<br>(1905)                        | During & after WWI<br><br>1987                    | Hospital Ward<br>Air Force Induction<br>Station, Military Ent.<br>Process Station                                  |
| 64           | Barracks<br>(1905)                        | During & after WWI<br><br>1987                    | Hospital Ward<br>Air Force Induction<br>Station, Military Ent.<br>Process Station                                  |
| 68           | Horse Stables<br>(1905)                   | 1935-Early<br>1940s                               | CCC Temp. Warehouse<br>WAAC's Barracks<br>Selective Service<br>Army Res. Dry<br>Storage/Admin.<br>Currently vacant |
| 69           | Stable/Black-<br>smith Shop<br>(1905)     | 1942                                              | WPA Office<br>Currently vacant                                                                                     |
| 70           | Horse Stable<br>(1905)                    | 1935<br>1942                                      | CCC Temp. Warehouse<br>WAAC's Barracks<br>Selective Service<br>Army Res. Dry<br>Storage/Admin.<br>Currently vacant |
| 71           | Horse Stable<br>(1905)                    | During & shortly<br>after WWI<br>1937<br><br>1942 | Classroom<br><br>Fourth Signal Co.<br>Garage<br>WAAC Barracks<br>Currently vacant                                  |
| 72           | Stable Shop<br>(1905)                     | 1987                                              | Civil Air Patrol                                                                                                   |

Table 2-2

Fort Des Moines Building Inventory  
(continued)

| Bldg.<br>No. | Building Use<br>(Date of<br>Construction) | Period of Use                                                   | Other Uses                                                      |
|--------------|-------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|
| 73           | Horse Stables<br>(1905)                   | 1932                                                            | Gun Shed<br>WAAC Barracks<br>Currently vacant                   |
| 74           | Date Unknown                              | Period of use not<br>documented<br>Building no longer<br>exists | None identified                                                 |
| 75           | Stable Shop<br>(1904)                     | 1946-1957<br>1957-1988                                          | Apartments<br>Dept. of Agriculture<br>Lease<br>Currently vacant |
| 76           | Horse Stable/<br>Administration           | Period of use not<br>documented<br>Building no longer<br>exists | None identified                                                 |
| 77           | Horse Stable/<br>Administration           | Period of use not<br>documented<br>Building no longer<br>exists | None identified                                                 |
| 78           | Horse Stable/<br>Administration           | Period of use not<br>documented<br>Building no longer<br>exists | None identified                                                 |
| 79           | Horse Stable/<br>Administration           | Period of use not<br>documented<br>Building no longer<br>exists | None identified                                                 |
| 80           | Horse Stable/<br>Administration           | Period of use not<br>documented<br>Building no longer<br>exists | None identified                                                 |

Table 2-2

Fort Des Moines Building Inventory  
(continued)

| Bldg.<br>No. | Building Use<br>(Date of<br>Construction) | Period of Use                                                   | Other Uses                                                            |
|--------------|-------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------|
| 81           | Horse Stable<br>(1904)                    |                                                                 | Army Reserve Dry Storage<br>Inactive firing<br>range present          |
| 82           | Horse Stable<br>Administration            | Period of use not<br>documented<br>Building no longer<br>exists | None identified                                                       |
| 83           | Horse Stable<br>(1904)                    | 1940<br>1942                                                    | 26 Vehicle Garage<br>WAAC Training Center<br>Army Reserve Dry Storage |
| 84 (old)     | Horse Stable                              | Period of use not<br>documented<br>Building no longer<br>exists | Motor Pool<br>Grease pit, (sump);<br>Bldg. burned down,               |
| 84 (new)     | POL Storage                               | Currently in use                                                | Containers of POL,<br>paint, antifreeze                               |
| 85           | Stable/Admin.                             | Period of use not<br>documented<br>Building no longer<br>exists | None identified                                                       |
| 86           | Horse Stables<br>(1903)                   |                                                                 | Motor Pool<br>Currently vacant                                        |
| 87           | Band Stable<br>(1905)                     | 1942                                                            | Fire Station<br>GSA                                                   |
| 117          | CCC Motor Pool                            | until 1984                                                      | AMSA 29<br>Post Engineers                                             |
| 118          | Quartermasters<br>Barracks                | Building no longer<br>exists                                    | None identified                                                       |

Table 2-2

Fort Des Moines Building Inventory  
(continued)

| Bldg.<br>No. | Building Use<br>(Date of<br>Construction) | Period of Use                   | Other Uses                                                                         |
|--------------|-------------------------------------------|---------------------------------|------------------------------------------------------------------------------------|
| 119          | Oil Station                               | Building no longer<br>exists    | None identified                                                                    |
| 120          | "Black Service<br>Club"                   | Building no longer<br>exists    | None identified                                                                    |
| 121          | Scale House                               | Building no longer<br>exists    | None identified                                                                    |
| 122          | Blacksmith Shop<br>(1907)                 | Before WWII                     | School Room<br>Currently vacant                                                    |
| 123          | Mule Barn<br>(1903)                       | Period of use not<br>documented | Machine Shop<br>Post Exchange<br>Army Reserve Dry Storage                          |
| 124          | Wagon Shed                                | Building no longer<br>exists    | None identified                                                                    |
| 125          | Wagon Shed                                | Building no longer<br>exists    | None identified                                                                    |
| 126          | Horse Stable<br>(1907)                    | 1942<br><br>1957-mid 1960s      | Warehouse<br>Wagon Shed<br>Maintenance Shop<br>Currently vacant                    |
| 127          | Mule Barn<br>(1910)                       | Period of use not<br>documented | Carpenters shop/<br>Post engineers<br>Army Reserve Dry Storage<br>Currently vacant |
| 128          | Feed Storage<br>(oats, hay, etc.)         | Building no longer<br>exists    | None identified                                                                    |
| 129          | Hay Shed                                  | Building no longer<br>exists    | None identified                                                                    |

Table 2-2

Fort Des Moines Building Inventory  
(continued)

| Bldg.<br>No. | Building Use<br>(Date of<br>Construction) | Period of Use                                                   | Other Uses                                                   |
|--------------|-------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------|
| 130          | Blacksmith Shop                           | Building no longer<br>exists                                    | None identified                                              |
| 131          | Post Engineers                            | Building no longer<br>exists                                    | None identified                                              |
| 132          | Blacksmith Shop                           | Building no longer<br>exists                                    | None identified                                              |
| 133 (old)    | Date Unknown                              | Building no longer<br>exists                                    | None identified                                              |
| 133 (new)    | Gas Meter/<br>Pressure Reg.<br>House      | Currently in use                                                | POL/Solvent Storage<br>4-55 gal drums<br>33-5 gal containers |
| 134          | Storage                                   | Building no longer<br>exists                                    | Uses unknown                                                 |
| 135          | Granary Store-<br>house<br>(1904)         | 1935-1936                                                       | Commissary<br>Currently vacant                               |
| 136          | Not documented                            | Period of use not<br>documented<br>Building no longer<br>exists | None identified                                              |
| 137          | Quartermaster<br>Warehouse<br>(1905)      | Late 1930s<br>Leased to Iowa<br>since late 1950s                | Commissary facility<br>Iowa Surplus Property<br>Department   |
| 138          | Quartermaster<br>Warehouse<br>(1908)      | Est. 140 trans-<br>formers stored<br>until removal in<br>1982   | Barco mixing/bagging<br>plant<br><br>Maintenance storage     |
| 139          | Quartermasters<br>Clothing Ware-<br>house | 1958-1983<br>Mobile MASH unit                                   | Post Engineers<br>Army Reserve Dry<br>Storage                |

Table 2-2

Fort Des Moines Building Inventory  
(continued)

| Bldg.<br>No. | Building Use<br>(Date of<br>Construction) | Period of Use                                                   | Other Uses                      |
|--------------|-------------------------------------------|-----------------------------------------------------------------|---------------------------------|
| 141          | Bakery                                    | Period of use not<br>documented<br>Building no longer<br>exists | None identified                 |
| 142          | WPA Time Shack                            | Period of use not<br>documented<br>Building no longer<br>exists | None identified                 |
| 152          | Mounted Guard<br>Station (1908)           | Period of use not<br>documented<br>Building no longer<br>exists | None identified                 |
| 281          | Date unknown                              | Period of use not<br>documented<br>Building no longer<br>exists | None identified                 |
| 286          | Date unknown                              | Period of use not<br>documented<br>Building no longer<br>exists | None identified                 |
| 307          | Mess Hall                                 | Period of use not<br>documented                                 | Collapsed in 1989               |
| 308          | Mess Hall                                 | Period of use not<br>documented<br>Currently vacant             | None identified                 |
| 309          | Mess Hall                                 | Period of use not<br>documented<br>Currently vacant             | Transformer storage<br>location |

Sanitary sewage and wastewater are discharged to the municipal sanitary sewer system. There is no onsite treatment and no indication of an abandoned septic system [I-1].

The existence of at least two unauthorized open dump sites is known. These sites are used by local residents and attempts to end this practice have been unsuccessful [T-1].

There is little information available on past waste disposal practices. At the time the post was de-activated, reportedly all equipment was removed and there was no waste for disposal. During excavation in the late 1960s for a lake at the adjacent county park (Fort Des Moines Park), a former Army dump was exposed. Reportedly transmission oil, auto brakes, chemicals, and asbestos had been placed here [R-1].

The flamingo pond in the Blank Park Zoo is known to have been used as a dump by FDM prior to accessing the land to the City of Des Moines. Reportedly construction debris was placed in the pond. Chemical waste from the Barco Chemical Company housed in Buildings 138 and 67 (now removed) was reportedly discarded into the stormwater sewer system. There is little information available regarding the composition of the waste stream, however, it is suspected that the waste stream was composed of pesticide residues because Barco Chemical conducted a pesticide blending operation.

## **2.2 PERMITTING STATUS**

The following agencies were contacted regarding the status of permits for FDM:

- Iowa Department of Natural Resources (IDNR) Environmental Protection Division - No permits
- IDNR Air Quality Section - No permits
- Iowa Department of Public Health PCB Program - No inspections or permits
- EPA Region VII - No permits
- EPA Region VII CERCLA Branch - No response

Although the EPA response to inquires about FDM did not include a response from the CERCLA branch, FDM is apparently listed on the CERCLA list of potential hazardous waste sites because a preliminary assessment of the site was completed by IDNR [R-1]. A 1984 preliminary assessment report (see Appendix A) concluded with a recommendation for soil sampling outside of Building 138.

## **2.3 GENERAL ENVIRONMENTAL INFORMATION**

### **2.3.1 DEMOGRAPHICS AND LAND USE**

The land adjacent to FDM is used for commercial, residential, and recreational purposes. There is an apartment complex along the northern border of the site; a golf course, county park, and zoo along the southern border; and a conservation and a recreational park, respectively along the eastern and western borders. The adjacent land has been expropriated by the Army. The county park, zoo, and the conservation park were previously used as dump sites by the Army. Historical records indicate that construction debris and non-PCB transformers were discarded in the dumps [R-1].

The City of Des Moines is leasing land south of Building 135 and has reportedly expressed an interest in further development of the zoo into that area [T-2].

### **2.3.2 CLIMATE**

Because of the latitude and interior continental location of FDM, the climate is continental in nature with marked seasonal variations [R-3].

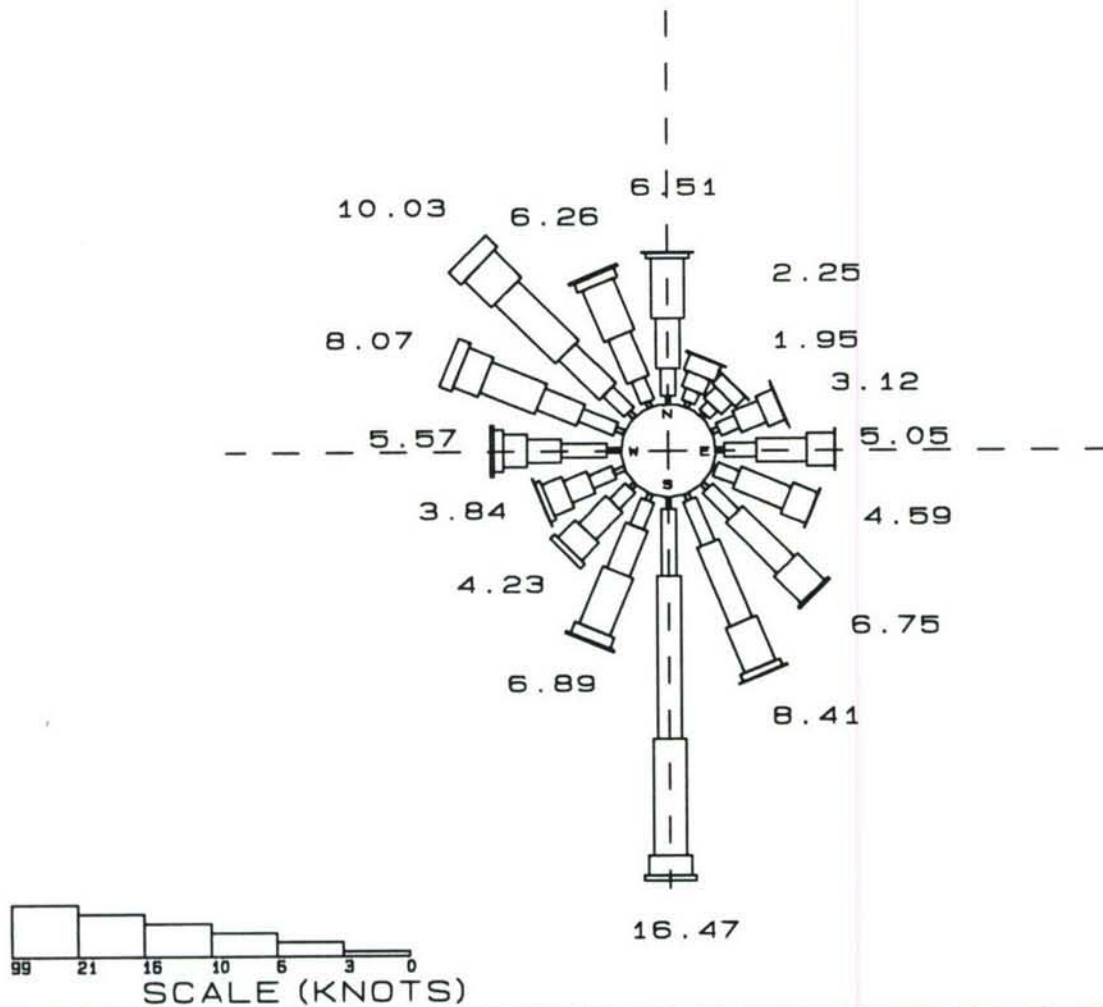
Figure 2-3 is a wind rose for Des Moines for the year 1988. The winds are most frequently towards the south. During the six warm months of the year, May through October, the prevailing wind direction normally has a southerly flow during the cold months of November through April, the prevailing wind direction normally has a northwesterly flow [R-4].

Precipitation shows a seasonal variation with a maximum occurring in the summer and spring. Normal yearly precipitation is 30.83 in. June is the wettest month with 4.18 in. January is the driest month with 1.01 in. Average yearly snowfall is 33.9 in. The recorded 24-hour maximum snowfall was 19.8 in. in January 1942. The maximum recorded monthly snowfall was 23.9 in. in December 1961 [R-4].

Temperatures vary moderately from season to season. The normal daily maximum temperature ranges from 86.2°F during July to 27.0°F during January. The normal daily minimum temperature is 66.3°F during July and 10.1°F during January [R-4].

Severe weather affecting Des Moines consists of thunderstorms, tornadoes, and on an infrequent basis, blizzards. Thunderstorms, which occur an average of 49 days per year, occasionally reach a severe stage and are accompanied by hail, high winds, and heavy rains. Tornadoes are also occasionally associated with these severe thunderstorms. The highest probability of tornadoes occurs in the late spring and early summer. Droughts do occur periodically in Iowa [R-4].

DES MOINES, IOWA  
YEAR: 1988  
CALMS INCLUDED



|     | WIND SPEED (KNOTS) |      |      | PERCENT OCCURRENCE |       |      |     | WIND SPEED (KNOTS) |      |      | PERCENT OCCURRENCE |       |      |
|-----|--------------------|------|------|--------------------|-------|------|-----|--------------------|------|------|--------------------|-------|------|
|     | 0-3                | 3-6  | 6-10 | 10-16              | 16-21 | >21  |     | 0-3                | 3-6  | 6-10 | 10-16              | 16-21 | >21  |
| N   | 0.35               | 1.17 | 2.16 | 2.58               | 0.23  | 0.01 | S   | 0.48               | 2.88 | 7.01 | 5.02               | 0.85  | 0.22 |
| NNE | 0.24               | 0.82 | 0.71 | 0.75               | 0.03  | 0.00 | SSW | 0.32               | 1.23 | 2.09 | 2.65               | 0.52  | 0.07 |
| NE  | 0.17               | 0.48 | 0.68 | 0.60               | 0.01  | 0.00 | SW  | 0.27               | 0.97 | 1.66 | 1.06               | 0.27  | 0.00 |
| ENE | 0.29               | 0.84 | 1.15 | 0.77               | 0.05  | 0.01 | WSW | 0.49               | 1.07 | 1.06 | 0.92               | 0.25  | 0.05 |
| E   | 0.34               | 1.38 | 2.14 | 1.17               | 0.02  | 0.00 | W   | 0.58               | 1.97 | 1.43 | 1.04               | 0.41  | 0.14 |
| ESE | 0.14               | 0.99 | 2.30 | 1.14               | 0.02  | 0.00 | WNW | 0.40               | 1.61 | 1.84 | 2.54               | 1.14  | 0.55 |
| SE  | 0.32               | 1.58 | 3.10 | 1.63               | 0.13  | 0.00 | NW  | 0.33               | 1.27 | 2.42 | 3.65               | 1.63  | 0.72 |
| SSE | 0.29               | 2.04 | 3.64 | 2.07               | 0.32  | 0.05 | NNW | 0.27               | 1.04 | 2.06 | 2.39               | 0.40  | 0.11 |

FIGURE 2-3 WIND ROSE

### **2.3.3 SURFACE WATER AND PHYSIOGRAPHY**

There are no lakes or ponds on the FDM property, but there are man-made surface water bodies to the south and southwest: the one to the south is a recreational lake in the county park (Fort Des Moines Park); the others are located in the zoo.

Two southerly trending drainageways lead from the southern border of the FDM site towards these surface waters; a third southerly trending drainageway leads towards the zoo along the western border of FDM.

In addition, a man-made underground drainage system directs stormwater from the FDM property towards the southeast and to the south and southwest through stormwater outfalls. Sewage is directed to a municipal treatment plant through a separate municipal sewer system.

### **2.3.4 SOILS AND GEOLOGICAL INFORMATION**

The U.S. Soil Conservation Service has characterized the soils and produced maps for the soils adjacent to the FDM property. The surface soils in this area are characterized as grayish-brown silty loams or silty clay loams from the Ladogas series. These surface soils are typically 60 to 70 in. in depth and occur in areas where the slope ranges from 2 to 30 percent. The upper layers of these soils are medium acid to slightly acid. Erosion is a hazard, and the hazard increases in severity with increasing steepness of slope. Their drainage properties are considered good in most areas, but in some of the gently sloping areas, the drainage properties are considered only moderately good to imperfect [R-5].

Moreover, in this part of Polk County, bedrock can be expected at 0 to 80 ft, beneath a layer of unconsolidated glacial drift material. The upper 300 to 450 ft rock layers are found to be primarily shales and limestones from the Pennsylvania Cherokee Group. These are underlain by Mississippian age limestones and dolomites to a depth of 650 to 750 ft [R-6].

### **2.3.5 GROUNDWATER AND HYDROLOGY**

The area in the vicinity of the FDM property is serviced by the City of Des Moines public water supply system which uses surface water as its source. Since groundwater is not primarily used as a potable water source, very little information is available about groundwater levels in the vicinity of the FDM property. The drinking water source for the greater City of Des Moines is the surface water intake at the confluence of the Raccoon and Des Moines Rivers. The intake point is approximately 4 to 5 miles north of FDM [I-2].

Wells installed in surficial, glacial drift materials in other parts of Polk County have groundwater 10 to 50 ft below the surface. However, water was not encountered until 450 to 460 ft below the surface in two wells drilled on the golf course immediately south of FDM [R-6].

### 2.3.6 SENSITIVE ENVIRONMENTS

FDM is not considered to be in a flood plain [R-7]. A small, wet, low-lying habitat exists along the drainageway in the recreational park to the west and a man-made wetland environment is maintained in the zoo to the south. Elsewhere, maintained lawn and landscaped trees and shrubs limit the habitat to birds and small mammals [R-1].

## **SECTION 3**

### **ENVIRONMENTALLY SIGNIFICANT OPERATIONS**

The objectives of this section are to document areas where hazardous materials are currently known to exist and to identify known or potential releases of these materials into the environment and their likely migration pathways. A description of each ESO is provided in the following subsections. The locations of all identified ESOs are depicted in Figure 3-1.

#### **3.1 OPEN DUMP AREAS**

##### **3.1.1 DESCRIPTION**

There are currently two open dumps: one is southeast of Building 135 in a former railcar unloading area within the remnants of a retaining wall which partially encloses the dump site; the other is southwest of Building 135 in a drainageway that extends southwesterly through a wooded area abutting the Blank Park Zoo (Photo 1).

The full history and current extent of the dumping of solid wastes at each open dump is unknown. The dump in the area of the former railcar unloading area has a "No Dumping" sign posted by the Des Moines Department of Environmental Health. The dump near the zoo has what appears to be recently deposited wastes. Each of these two open dumps contains isolated mounds of municipal and residential solid wastes 3 to 4 ft high. The open dump adjacent to Building 135 occupies approximately 1,000 sq ft, and the open dump adjacent to the zoo occupies approximately 100 sq ft.

Maintenance personnel observed two men dumping an unidentified waste oil on the ground behind Building 117. The oil laden soils had to be manually excavated and removed from the property. Similarly, the maintenance staff also reported various acts of vandalism, pilfering, and unauthorized entry into some of the buildings [I-1]. Graffiti, missing chimney and foundation bricks, and debris left in some of the buildings attest to these reports.

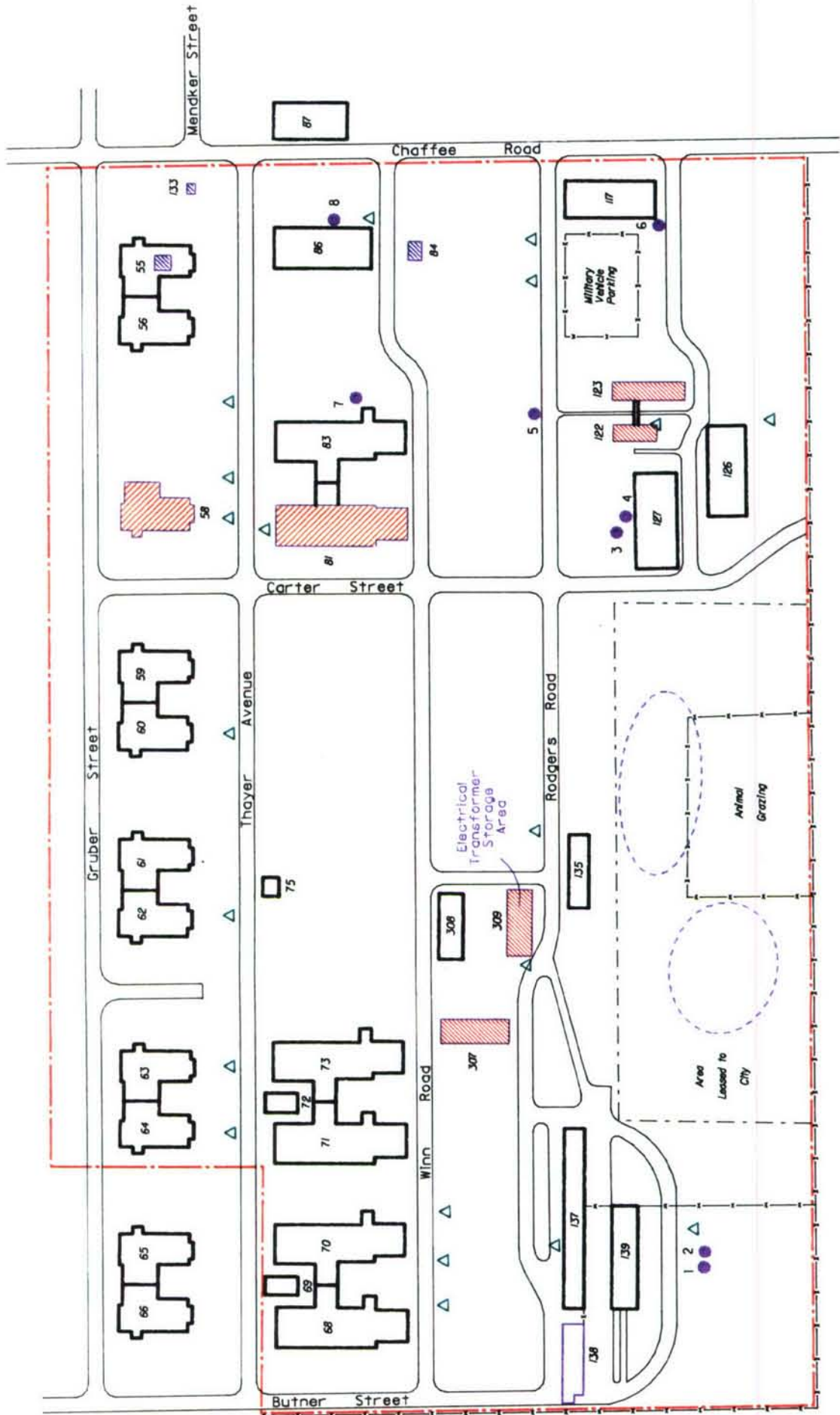
##### **3.1.2 KNOWN AND SUSPECTED RELEASES**

It is not known what solid or liquid wastes have been dumped onto the ground or into the drainage ways of the property; hence it is not known what may

Figure 3-1  
Environmentally Significant  
Operations

Compiled in 1989 from various sources  
provided by the U.S. Army Toxic and  
Hazardous Materials Agency

0 100 300  
meters  
feet



- ENVIRONMENTALLY SIGNIFICANT OPERATIONS
- Underground Storage Tank
  - Transformer
  - Chemical Storage
  - Building 128 with Asbestos-containing Material
  - Building 128 with Pesticide Contamination and Potentially PCB Laden Elevator Shaft Oil
  - Former Firing Range
  - Open Dump



USATHAMA

U.S. Army Toxic and Hazardous Materials Agency

have been released to the groundwater or surface water runoff. Given the presence of the two dump sites and the indications of unauthorized use of the property as a dump site for liquid wastes, there is reason to suspect that there has been and continues to be uncontrolled disposal of wastes on the property by residents of the surrounding communities or others who are aware of the accessibility of the site.

Aside from the diligence of the maintenance staff and the scrutiny provided by the local health authorities who inspect the posted dump site, there is no current remedial activity at the site.

### **3.2 BUILDING 138**

#### **3.2.1 DESCRIPTION**

Building 138 is located on the southwest corner of the property along Rodgers Road. The building is adjacent to the Blank Park and Blank Park Zoo, which is to the south, and the zoo parking lot, which is to the west.

This vacant two story warehouse, which has a basement and a reported 4,032 sq ft of floor space [R-8], has been investigated previously and found to be contaminated with a variety of pesticide residues and to potentially contain PCB-contaminated oil in an abandoned elevator shaft [R-9, R-10, R-11]. The residues have been documented as accumulated dust [R-7, R-8].

The pesticide residues have been attributed to a pesticide blending and packaging operation conducted by Barco Chemical Company, which leased this building and Building 67 during the early 1950s to formulate and bag organochlorine pesticides [R-9].

Drawings showing details of the foundation and the elevator were not available at the site or from Fort McCoy, but maintenance personnel at the site estimated the elevator shaft to be 8 ft by 8 ft with a nominal oil depth of 3 ft. Others have stated that it extends approximately 20 ft below the basement floor [R-12]. The building was not entered during the site visit to confirm this information because of the health and safety concerns raised by the documented pesticide contamination.

#### **3.2.2 KNOWN AND SUSPECTED RELEASES**

Based on personal interviews with the maintenance personnel, it is suspected that Barco Chemical generally discarded chemical wastes into the stormwater sewer system and in various locations onsite [I-1].

Parts of Building 138 (Photo 2) are open to the atmosphere, and there are reports of unauthorized entry by juveniles despite the warning signs. There is no monitoring of the level of potentially PCB-contaminated oil in the

elevator shaft and there are reports of raccoons tracking the oil about the inside of the building. A sampling program (R-12) which recommended samples to explore the area adjacent to Building 138 was apparently not implemented. The possibility of transferring contamination from the building to the surrounding areas cannot, therefore, be ruled out entirely (see Appendix A).

### **3.3 TRANSFORMERS**

#### **3.3.1 DESCRIPTION**

There are materials at the site that raise concern about PCBs: the dielectric fluids in the electric transformers which were formerly stored in Building 138 before shipment to Fort McCoy, transformers presently stored in Building 309, transformers mounted on poles, the expansion joint and crack sealant used on the concrete roadway that forms Rodgers Rd, and the oil left in the elevator shaft of Building 138.

Building 309 currently contains 8 to 9 transformers. Three of the transformers were removed from the platform west of Building 307 when one of them was reported leaking small amounts of oil. Within hours, the transformer had been contained (a trash can containing oil-dry and several layers of plastic was chained around it) to catch any of the leaking liquid. The oil of the leaking transformer was analyzed and found to be PCB-contaminated. All three transformers were removed from the platform and placed in Building 309 where they are currently awaiting removal to Fort McCoy. Although the other two transformers were not tested, they are suspected to contain PCBs because their age, size, appearance, etc. is the same as the first one that was found to contain PCBs. Remediation of this site by FDM personnel consisted of placing oil-dry material wherever they saw oil and digging up the ground where oil was known or suspected to have fallen. Both the removed soil and the oil-dry was placed in plastic bags and is currently stored in Building 309 awaiting removal from the site.

Also stored in Building 309 are 5 or 6 non-PCB transformers which will be used to replace failing transformers. Building 309 has a non-epoxy coated concrete floor, no floor drains, but no curb at the door. There are no leaks or stains on the floor and it is reported that based on the size of the building and containment measures used, a leak from a transformer would not reach the outside of the building [T-3].

The location of each of the twenty transformers that are still mounted on utility poles is provided in Figure 3-1. Photos 3 and 4, respectively show the condition of a transformer which has failed and spilled its potentially PCB-contaminated oil on the ground and one that typifies the visible staining indicative of partial leakage from the bottom of some of the others. Photo 5 shows the deteriorating conditions of transformers still in use. Photo 6 shows the bituminous-based sealant, which reportedly used PCBs as a softening and emulsifying agent, in an expansion joint in the concrete along Rodgers Road [I-1]. It was reported that approximately 140 transformers had been stored in Building 138 until 1982 when they were removed from the property. No photograph was taken of the elevator shaft inside Building 138 during the site visit because the reported contamination precluded entry without suitable health and safety equipment.

### **3.3.2 KNOWN AND SUSPECTED RELEASES**

The maintenance personnel reported that they monitor the condition of the pole-mounted transformers and remove them and the associated contaminated materials when failure occurs. The failed transformers have reportedly been removed manually by pulley and tackle and stored in Building 138 prior to shipment to Ft. McCoy for ultimate disposal. Transformers in storage were found to leak, contaminating the second floor of Building 138 [T-3]. Further indication of periodic releases from pole-mounted transformers was available from the EPA office in Region VII, which supplied one notification report form for a 21 July 1989 leak that reportedly spilled 10 gal of PCB-contaminated transformer oil onto the supporting pole and the nearby soil (Photo 7) and concrete [R-13]. Apparently no efforts have been made to document the presence of PCBs in the expansion joint and crack sealant or to monitor the loss of any oil from the abandoned elevator shaft.

### **3.4 UNDERGROUND STORAGE TANKS**

#### **3.4.1 DESCRIPTION**

Eight underground storage tanks (USTs) have been identified on the property. Table 3-1 lists their estimated size, age, contents, and other available related information. The UST located in front of Buildings 122 and 123 could not be located because it lacks a visible fill pipe. The approximate location of the tank was estimated based on discussions with maintenance staff [I-1]. None of the eight underground storage tanks is apparently registered with the Iowa Department of Natural Resources [R-14].

#### **3.4.2 KNOWN AND SUSPECTED RELEASES**

Undated and unsigned notes in the files at the site indicate that some effort was made to identify the contents, measure the level of the remaining fluids, and record the depth to the bottom of each tank through the fill pipes.

Notes taken during this effort indicated that the two tanks in front of Building 127 contained water. Site files also indicated that some of the residues in the tanks contained "water, sediment, and biological growth". There is not enough information to infer how much water was involved or precisely which tanks were sampled and analyzed. It is also not readily possible to infer whether this water is rainwater, which entered the tanks through or along the fill openings, or groundwater that has infiltrated the tank through a failed wall. If the latter is the case, some of the petroleum products could be expected to escape through the same openings which allowed the accumulation of infiltrating groundwater. The reports of water in some of these tanks then raises the prospect of a release of petroleum product but no leak test or other definitive data is currently available.

Table 3-1

Fort Des Moines  
Underground Storage Tank Inventory<sup>a</sup>

| Tank I.D./<br>Location <sup>b</sup> | Designated<br>Service/<br>Contents | Estimated<br>Installed Tank<br>Capacity (gal) | Comments                                 |
|-------------------------------------|------------------------------------|-----------------------------------------------|------------------------------------------|
| 1. S. Bldg. 139                     | Diesel fuel                        | 1,500                                         | Inoperative with<br>product <sup>c</sup> |
| 2. S. Bldg. 139                     | Gasoline                           | 1,500                                         | Inoperative                              |
| 3. N. Bldg. 127                     | Gasoline/water                     | 10,000                                        | Inoperative <sup>d</sup>                 |
| 4. N. Bldg. 127                     | Fuel oil/water                     | 1,500                                         | Inoperative                              |
| 5. Unknown                          | Gasoline                           | 10,000                                        | No visible fill pipe                     |
| 6. S.W. Bldg. 117                   | Waste oil                          | 500                                           | In use <sup>e</sup>                      |
| 7. E. Bldg. 83                      | Fuel oil                           | 500                                           | Inoperative                              |
| 8. E. Bldg. 86                      | Fuel oil                           | 500                                           | Inoperative                              |

<sup>a</sup>All tanks assumed to be installed before 1950 unless otherwise noted.

<sup>b</sup>See Figure 3-1 for tank locations on FDM.

<sup>c</sup>Tank No. 1 contents being used to fuel tractor.

<sup>d</sup>Tank No. 3 is corroded around fill pipe.

<sup>e</sup>Reportedly moved to current location in 1973.

### **3.5 ASBESTOS**

#### **3.5.1 DESCRIPTION**

The maintenance staff reported that the heating systems in the buildings and boilers were insulated with asbestos and that the sewage system used an asbestos cement pipe in many places. Photo 8, for example, shows a suspected asbestos-wrapped water heater tank in the debris from the collapse of Building 307. Photo 9 shows a sewage vent pipe at Building 309 which was reportedly made of the asbestos cement, and Photo 10 shows a suspected asbestos-wrapped pipeline which runs overhead outdoors between Buildings 122 and 123. A complete survey of the site was not conducted. These documented cases of suspected asbestos represent readily visible materials of interest.

#### **3.5.2 KNOWN AND SUSPECTED RELEASES**

Site file data indicate that some removal of asbestos from Building 138 occurred and was subsequently buried in the soil near the building, but there is no indication of how this was performed. The materials at Buildings 309, 122, and 123 appear to be in good condition. The water tank wrapping at Building 307 is badly damaged, deteriorating, and exposed to the elements. The presence of materials reportedly containing asbestos that are exposed to the weather indicates that there may be some wind-blown releases of asbestos.

### **3.6 CHEMICAL STORAGE**

#### **3.6.1 DESCRIPTION**

The chemicals stored at the site can be grouped into three main categories: the first comprises materials labelled "lubricants", "antifreeze", and "paints", which were left behind in buildings where storage appeared to have been planned; the second comprises unlabeled or unidentifiable materials haphazardly stored which were left behind in buildings where storage did not appear to have been planned; the third comprises materials which are part of an active inventory which is used by the maintenance staff. Table 3-2 lists the abandoned materials, their locations, and the number and type of their containers. Appendix B lists the chemical inventory which is used by the maintenance staff at the site.

#### **3.6.2 KNOWN AND SUSPECTED RELEASES**

There was no evidence of any known or suspected releases; however, some mismanagement situations, such as the haphazard storage of lubricants in Building 55, promote the potential for releases. Photos 11 and 12 show the storage of chemicals in the basement of Building 55.

### **3.7 FIRING RANGES**

#### **3.7.1 DESCRIPTION**

The remnants of two firing ranges were found; one firing range was in the loft of Building 58, the other was in Building 81. Each was cluttered with debris and contained spent lead.

**Table 3-2**

**Chemical Storage Inventory**

| Building        | Number <sup>a</sup>                                               | Quantity | Partial Contents       | Comments                            |
|-----------------|-------------------------------------------------------------------|----------|------------------------|-------------------------------------|
| 133             | 4                                                                 | 55 gal   | antifreeze             | Inactive POL storage<br>(110 sq ft) |
|                 | 33                                                                | 5 gal    | lube oil               |                                     |
|                 | 2                                                                 | 55 gal   | lube oil               |                                     |
|                 | 1                                                                 |          | lot debris             |                                     |
| 84              | 1                                                                 | 55 gal   | antifreeze             | Inactive storage<br>(160 sq ft)     |
|                 | 12                                                                | 55 gal   | illegible              |                                     |
|                 | 9                                                                 | 5 gal    | paint                  |                                     |
|                 | 18                                                                | 1 gal    | paint                  |                                     |
|                 | 1                                                                 | lot      | aerosol paint cans     |                                     |
|                 | 1                                                                 |          | locked storage cabinet |                                     |
|                 | 1                                                                 |          | lot debris             |                                     |
| 55 <sup>b</sup> | 1                                                                 | 5 gal    | unidentifiable powder  | Representative of unplanned storage |
|                 | 5 to 10                                                           | 1 pt     | unidentifiable liquids | Representative of unplanned storage |
| 117             | Maintenance chemicals Active storage<br>(see Appendix B for list) |          |                        |                                     |

<sup>a</sup>The number and size of each container are approximations based on observations in the field.

<sup>b</sup>Building 55 was selected at random.

### **3.7.2 KNOWN AND SUSPECTED RELEASES**

Spent cartridges were observed lying about. While no apparent releases were observed, it is well known that the gunpowder primer and propellant release antimony and barium compounds during firearm discharge. The confined nature of these firing ranges may promote deposition of heavy metals constituting an unobservable release.

## SECTION 4

### HUMAN AND ENVIRONMENTAL RECEPTORS

In this section, the pathways by which human and environmental receptors may be exposed to site-related chemicals are discussed.

#### 4.1 RELEASES TO GROUNDWATER

Chemicals that leach into the ground from the solid and liquid wastes that have been dumped on the site present the potential for groundwater contamination.

The condition of the elevator shaft in Building 138 is not known and the oil level is not monitored. Leakage from this shaft probably represents the greatest potential for groundwater contamination from Building 138. However, rainfall infiltrating from contaminated vegetated areas surrounding the building could also convey contamination into the groundwater. If groundwater flow follows the ground surface topography in the vicinity of the building, it would appear to have the potential to convey groundwater contaminants in a southwesterly direction towards the Blank Park Zoo maintenance shed because there is a southwesterly trending dip in this area.

The groundwater at the site is also at risk of exposure to the petroleum fuel contaminants and waste oils that may escape from the eight underground storage tanks which lack secondary containment.

Humans are unlikely to be exposed through this medium because the greater Des Moines area receives potable water from the City of Des Moines public works which derives its source from surface water (see Subsection 2.3.5).

#### 4.2 RELEASES TO SURFACE WATER AND SEDIMENTS

The open dump southwest of Building 135 is in a naturally occurring drainageway which extends off the property and onto the zoo south of the site. Constituents of concern conveyed by any water flowing in this drainageway during conditions of surface water runoff represent a potential hazard to visitors and occupants of the zoo.

Because the open dump southeast of Building 135 is not located in a drainageway, it does not present a similar hazard; however, this area has a tendency to collect surface water and may provide a mechanism for the offsite transport of constituents during periods of heavy rain.

The prospect of someone dumping liquid wastes into the stormwater sewer through drains along the roadways on the property cannot be ruled out in light of the past dumping practices which have been reported. Flow from this stormwater sewer is directed offsite through any one of four outfalls that service the site.

There are no ponds (with the exception of those in the Blank Park Zoo), lakes, or streams in the vicinity of Building 138; however, a stormwater sewer, which runs parallel to the building along Rodgers Road, could convey settled fugitive pesticide dust emissions and contaminated soil to an offsite outfall west of Butner St. and onto the parking lot for the Blank Park Zoo.

Surface water contamination would also be possible from any contaminated groundwater which intercepted the surface drainageways south and west of the property in the vicinity of the Blank Park Zoo. Environmental receptors should be limited to the grazing animals and water fowl on exhibit at the zoo. Impact to humans is anticipated to be negligible because adjacent surface water is not used for drinking or recreational purposes.

#### **4.3 RELEASES TO SOIL**

Because people use the site for picnics and other recreational purposes, it is possible for them to receive exposure to onsite soils which may be contaminated. People using the site for disposal purposes also risk exposure to liquid and solid wastes already dumped on the property. Foot traffic in and around the area of Building 138 also has the potential for conveying soil contamination away from the site.

#### **4.4 AIR RELEASES**

Windborne dust from the soils around Building 138 and dust which could escape Building 138 from openings in the roof or sides represents a potential risk to Army staff, occupants of the apartment complex, site visitors, and visitors and occupants of the zoo. There were no records of any ambient air sampling in the vicinity of Building 138. Similarly, the lack of noticeable "pesticide odors" is discussed in one of AEHA's evaluations of the contamination in the building. There were no reports of any offsite odor complaints, even though the investigators for AEHA think there is a potential for pesticide odors to be generated on warm days with calm winds [R-9].

Fugitive air emissions are also possible from the leaking electric transformers mounted on utility poles along the roadways of the property. In addition, asbestos materials on the insulated pipelines and water heater equipment at the site may be released into the air.

#### **4.5 OTHER HAZARDS**

##### **4.5.1 FIRE AND EXPLOSIONS**

A fire in Building 138 presents the greatest risk for distributing the contaminants from this building and exposing the public to the airborne emissions. This risk should not be minimized as a possibility in light of the incidence of unauthorized entries into this building and the loss of other buildings at the site through fire. A fire in any one of the other vacant buildings would probably not be as serious because the other buildings are not as contaminated.

#### **4.5.2 DIRECT CONTACT**

The maintenance personnel reported that unauthorized entry and use of the vacant buildings at night or on the weekends is a fairly common occurrence. There is a reference in the site files to a party held in Building 138. Therefore, the prospect of human exposure through direct contact with wastes stored aboveground or left at the site is currently real.

## SECTION 5

### CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 SUMMARY OF FINDINGS

The major findings of this PA report are as follows:

- Fort Des Moines is operated as an open post, which means it has been and continues to be accessible to virtually anyone who wishes to enter any of the vacant buildings or who wishes to use the grounds for recreation or waste disposal purposes.
- The recreational users are potentially at risk of exposure to asbestos, PCBs, pesticides, metals, and any contaminated soils that may contain these or other wastes brought to the site.
- The unauthorized dumping raises the prospect of a varying situation wherein any one of a number of materials that are difficult to dispose of may find its way to the site from the neighboring residences and communities.
- The vacant buildings present a number of physical hazards, including those resulting from structural collapse, falling roof tiles, and fire.
- The pesticide residues in Building 138 have been analyzed and found to contain 2,4,5-T, but the residues were not analyzed for 2,3,7,8-TCDD (dioxin), an associated and important compound.
- There is contradictory information about whether or not there was pesticide manufacturing at the site. The written material states that there was no manufacturing, but the former facilities engineer reports seeing carbolic acid wastes that eroded the concrete-lined open storm drain west of Butner St. and the use of stills and other production equipment in Building 67 which has since been removed. The interpretation of the analytical results of the pesticide residues in the dust of Building 138 would be aided by knowing who manufactured the components of the pesticides and what production processes were employed.
- Offsite migration of contaminants from the pesticide operations has not been adequately assessed in past surveys.

##### 5.1.1 CHEMICAL STORAGE

Final disposition of the vacant buildings will be complicated by the presence of the discarded and unidentifiable chemicals left in them even though the amount of material in each building, with the exceptions of Buildings 84, 133, and 138, appears to be small.

### **5.1.2 UNDERGROUND STORAGE TANKS**

An inventory of the underground storage tanks was prepared previously by the maintenance personnel using measuring sticks and probes. With one exception, the contents of the tanks were not sampled for analysis, and this one exception was not identified clearly enough to determine which tank had been sampled. The contents of each of the six inactive tanks therefore should be considered unknown.

### **5.1.3 BUILDING 138**

The pesticide residues in Building 138 were not analyzed for metals associated with pesticides (cadmium, chromium, lead, and mercury) possibly because these metals, with the exception of lead, were not found at significant concentrations in the soils near Building 67 [R-9]. Because some or all of the materials handled in Building 138 may have had no relationship to those handled (or manufactured) in Building 67, there would not have appeared to be a need to analyze the pesticide residues in Building 138 for metals at the time of the Army investigation. PCB contamination from the storage of transformers has not been investigated.

Soils and sediments collected at the "Old Dump" and the lake south of the site at what is now the location of the Fort Des Moines Park were found to have insignificant levels of the pesticides identified in Building 138 (R-9). Although it is a relatively low point where contamination from the site could be expected to accumulate, the Old Dump site was probably chosen for sampling because of the suspicion that pesticide wastes were once deposited there and not because of concerns for the gradual accumulation of pesticide residues downgradient of Building 138. The Blank Park Zoo flamingo pond is closer to Building 138 than the "Old Dump" and represents an area where PCB and pesticide contaminants from Building 138 would be expected to accumulate. Since sampling of the zoo pond has not occurred, analysis of the pond sediment and upgradient sediments (from pond) will shed further light on any possible downgradient migration of contaminants from Building 138.

The laboratory report for the analysis of the oil accumulated in the abandoned elevator shaft in Building 138 indicates that the laboratory had some difficulty in analyzing the oil because of matrix interferences. There is also some ambiguity in the manner in which the degree of PCB contamination is reported.

### **5.1.4 OPEN DUMP AREAS**

The open dumps are isolated areas at FDM where unwanted materials have been discarded and pose a potential threat to the environment.

### **5.1.5 ASBESTOS**

Pipeline insulation which reportedly contains asbestos is outside and exposed to the weather along a 1 to 2 in. abandoned hot water line that runs overhead for about 50 to 75 ft between Buildings 122 and 123. The suspected asbestos wrapping of the heating water tank at Building 307 is located outdoors, where it is deteriorating and exposed to the weather.

### 5.1.6 FIRING RANGES

The two firing ranges in Buildings 58 and 81 are not well ventilated and have not been well maintained thereby increasing the likelihood of indoor contamination by heavy metals.

### 5.1.7 TRANSFORMERS

The current practice of removing the failed pole-mounted electric transformers by climbing the poles and lowering them manually using tackle and pulley increases the risks to the maintenance personnel and the prospects of further distributing the PCB-contaminated dielectric oils.

Transformers are presently stored in Building 309. Three of them are believed to contain PCB-contaminated oil and are awaiting removal from the property. Several others (5 or 6) have non-PCB oil and will be used to replace failing transformers.

### 5.1.8 RODGERS ROAD

Documentation other than a personal interview with a former FDM employee is not available to suggest that PCB was used in the road sealant. However, there is no reason to believe that the former employee is in error, because this employee is considered by the FDM staff to be the local expert on the Fort operations and its history.

## 5.2 RECOMMENDATIONS FOR FURTHER ACTION

The ESOs identified on the site should be addressed as follows:

- Immediate Action - Confirm the presence or absence of friable asbestos in the materials in Buildings 307, 122, and 123. Asbestos confirmation should be followed by immediate removal of the material in Building 307 and encapsulation or removal of the material in Buildings 122 and 123.
- Immediate Action - Repair and replace boarding material in Building 138 to secure the building. Exterior maintenance, especially to the slate roof, is necessary to control building deterioration and control contaminant migration.
- Site Investigation - All other ESOs should be further characterized through a program of sampling and analysis and other investigations.

The proposed site investigation should:

- Identify contamination onsite and offsite by collecting samples from likely potential source areas and impacted areas.
- Identify migration pathways for constituents by defining site hydrogeology and surface drainage pathways.

- Install groundwater monitoring wells to assess the impact upon groundwater.

Table 5-1 outlines recommended actions for the ESOs located at FDM. Figure 5-1 shows proposed sampling locations. Recommendations are discussed in the following subsections.

#### **5.2.1 CHEMICAL STORAGE**

Wipe sampling in the basement of Building 55 is recommended due to the lack of information about the chemicals contained in the basement. Wipe samples should be analyzed for the priority pollutants. The chemicals should be discarded in an appropriate manner.

#### **5.2.2 UNDERGROUND STORAGE TANKS**

Employ a geophysics technique to locate the possible underground storage tank (UST) across the street from Buildings 122 and 123. Due to the ages of the other seven tanks and the steel composition, it is recommended that the tank contents be tested and the tanks cleaned and decommissioned by removing them from the ground. In the event that a tank should be needed for future use, it is recommended that the tank contents be tested and the tank leak-tested to assure its integrity. Samples collected from the tanks should be analyzed for priority pollutants and caloric value.

#### **5.2.3 BUILDING 138**

Interior dust samples should be collected and analyzed for dioxin and pesticide related metals. Wipe samples should be taken for PCB analysis from the second floor of the building where leaking transformers were stored. A liquid sample should be taken from the elevator shaft and analyzed for PCBs, pesticides, total petroleum hydrocarbons (TPH) and caloric value. Surface soil samples collected from 0 to 6 in. should be taken around the periphery of the building and analyzed for pesticides and related metals. The drainage pattern from the building and site should be investigated by collecting sediment samples in the drainage stream and receiving water body (Blank Park Zoo flamingo pond). The sediment samples should be analyzed for pesticides and priority pollutants.

#### **5.2.4 OPEN DUMP AREAS**

Debris in the dump areas should be removed followed by proper disposal. The drainage ways should be sampled for the priority pollutants. Placement of two downgradient wells and one upgradient well should be implemented to determine whether the dumps have impacted groundwater.

#### **5.2.5 ASBESTOS**

An asbestos survey of all structures should be conducted. The suspected friable asbestos material exposed to the elements should be sampled to verify the presence or absence of asbestos. These known areas are Buildings 122, 123, 307, and 309. Friable asbestos confirmation of outdoor asbestos should follow immediate removal or encapsulation.

Table 5-1

ESOs Identified at FDM and Recommendations for Further Action

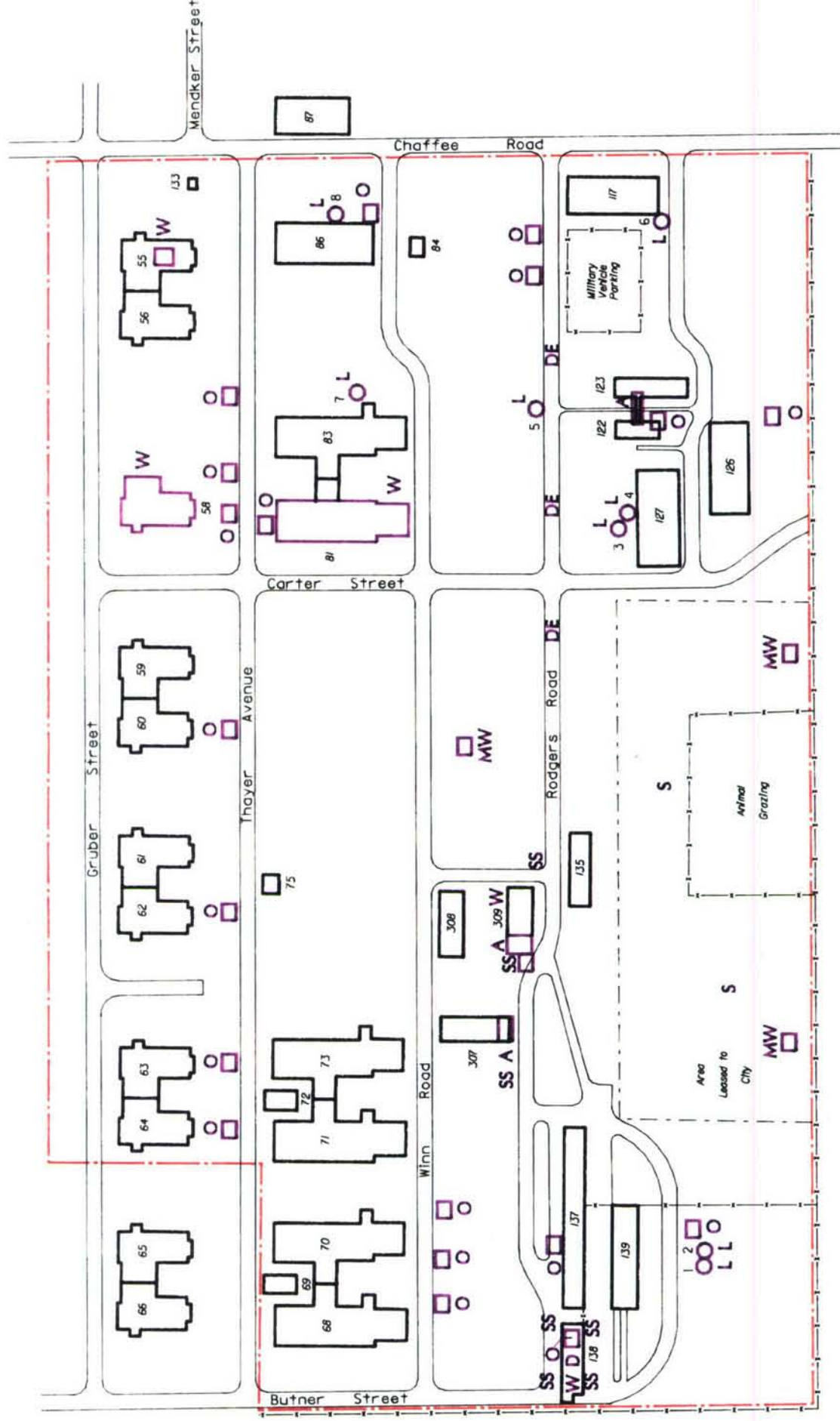
| ESOs                      | Concern                              | Recommended Activity | Number of Samples Recommended | Location                     | Sample Type | Analysis                                              |
|---------------------------|--------------------------------------|----------------------|-------------------------------|------------------------------|-------------|-------------------------------------------------------|
| Chemical Storage          | Unknown Chemicals                    | Site Investigation   | 2                             | Basement of Building 55      | Wipe        | Priority Pollutants                                   |
| Underground Storage Tanks | Priority Pollutants                  | Site Investigation   | 8                             | Tanks Bottoms                | Oil         | Priority Pollutants, caloric value                    |
| Building 138              | Pesticide, metals, dioxin, TPH, PCBs | Site Investigation   | 10                            | Interior of Building         | Dust        | Cadmium, chromium, lead, mercury, arsenic, dioxin     |
|                           |                                      |                      | 5                             | Interior floors              | Wipe        | PCBs                                                  |
|                           |                                      |                      | 4                             | Exterior corners of building | Soil        | Pesticides, cadmium, chromium, lead, mercury, arsenic |
|                           |                                      |                      | 1                             | Top of drainage stream       | Sediment    | Priority Pollutants                                   |
|                           |                                      |                      | 1                             | Bottom of drainage stream    | Sediment    |                                                       |
|                           |                                      |                      | 1                             | Blank Park Zoo Flamingo Pond | Sediment    |                                                       |
|                           |                                      |                      | 1                             | Elevator Shaft               | Liquid      | TPH, pesticides and PCBs, caloric value               |
| Open Dump Areas           | Unknown                              | Site Investigation   | 2/Dump                        | Drainageways                 | Sediment    | Priority Pollutants                                   |
|                           |                                      | Well Installation    | 2                             | Downgradient                 | Groundwater | Priority Pollutants                                   |
|                           |                                      |                      | 1                             | Upgradient                   | Groundwater | Priority Pollutants                                   |

Table 5-1  
ESOs Identified at FDM and Recommendations for Further Action  
(continued)

| ESOs          | Concern          | Recommended Activity         | Number of Samples Recommended | Location                                      | Sample Type        | Analysis               |
|---------------|------------------|------------------------------|-------------------------------|-----------------------------------------------|--------------------|------------------------|
| Asbestos      | Asbestos removal | Site Survey of all buildings | 1                             | Building 122/123                              | Grab               | Asbestos               |
|               |                  |                              | 1                             | Building 307                                  | Grab               | Asbestos               |
|               |                  |                              | 1                             | Building 309                                  | Grab               | Asbestos               |
| Firing Ranges | Metals           | Site Investigation           | 2                             | Building 58                                   | Wipe               | Lead, barium, antimony |
|               |                  |                              | 2                             | Building 81                                   | Wipe               | Lead, barium, antimony |
| Transformers  | PCBs             | Site Investigation           | 20                            | Onsite                                        | Oil                | PCBs                   |
|               |                  |                              | 1                             | Confirmed Spill Area across from Building 135 | Composite Soil     | PCBs                   |
|               |                  |                              | 2                             | Building 309                                  | Wipe               | PCBs                   |
| Rodgers Road  | PCBs             | Site Investigation           | 1                             | West of Building 307                          | Composite Soil     | PCBs                   |
|               |                  |                              | 1                             | Along Roadway                                 | Composite of Chips | PCBs                   |

**Figure 5-1**  
**Recommended Sampling**  
**Locations**

Compiled in 1989 from various sources  
provided by the U.S. Army Toxic and  
Hazardous Materials Agency



RECOMMENDED SAMPLING METHODS

|    |                 |
|----|-----------------|
| W  | Wipe            |
| O  | Oil Sample      |
| L  | Liquid Sample   |
| SS | Surface Soil    |
| S  | Sediment Sample |
| D  | Dust Sample     |
| DE | Destructive     |
| MW | Monitoring Well |
| A  | Asbestos        |

### **5.2.6 FIRING RANGES**

Wipe samples of the firing ranges in Buildings 58 and 81 should be taken and analyzed for barium, antimony and lead. The spent cartridges and litter should be disposed of in an appropriate manner.

### **5.2.7 TRANSFORMERS**

The deteriorating and leaking conditions of the transformers and the discovery of PCB in a failed transformer suggest that the aging transformers should be replaced as soon as possible. In lieu of removing all the transformers, PCB analysis should be conducted in order to establish a priority replacement order based on the presence or absence of PCBs and the structural integrity of the transformer housing. The site of the confirmed PCB spill from a transformer should be tested by collecting a soil sample at a depth of between 0 to 6 in. and analyzing it for PCBs to confirm the extent of the cleanup. Wipe samples should be taken in Building 309 in the area where transformers are stored to determine whether leakage of PCBs from the storage of the transformers has occurred. A composite surface soil sample should be collected at the former transformer location west of Building 307 and analyzed for PCBs.

### **5.2.8 RODGERS ROAD**

Chip samples of the sealant on Rodgers Road should be taken for PCB analysis.

## SECTION 6

### INTERVIEWS

#### 6.1 DIRECT INTERVIEWS

- I-1 Former FDM Maintenance Supervisor  
(1946-1986) and FDM Engineer  
10 October 1989
- I-2 Administrator, Environmental Protection Division  
Iowa Department of Natural Resources  
11 October 1989

#### 6.2 TELEPHONE INTERVIEWS

- T-1 Des Moines Department of Public Health  
24 October 1989
- T-2 Blank Park Zoo Director  
Des Moines Parks Department  
27 October 1989
- T-3 FDM Engineer  
27 November 1989; 22 December 1989

#### 6.3 REPORTS AND OTHER DOCUMENTS

- R-1 Archives Search Report of Fort Des Moines Polk County, Iowa; Report No. A024, Environmental Science and Engineering, Inc., May 1985.
- R-2 National Register of Historic Places Inventory Nomination Form.
- R-3 Climate of the States 2, Western States, Water Information Center, Inc. Port Washington, New York, 1974.
- R-4 1988 Local Climatological Data, Annual Summary with Comparative Data, Des Moines, Iowa, National Oceanic and Atmospheric Administration, Asheville, North Carolina.
- R-5 Soil Survey of Polk County, Iowa, Series 1953, No. 9, United States Department of Agriculture Soil Conservation Service.
- R-6 Ground Water Resources, Polk County, Iowa Geological Survey, Report 82-77 WRD.
- R-7 Flood Insurance Rate Map, City of Des Moines, Iowa, Polk County, Panel 9 of 11, 15 July 1988.

- R-8 Memorandum on Preliminary Base Closure Report on Fort Des Moines, Iowa, U.S. Department of the Army, 30 August 1989.
- R-9 Pesticide Monitoring Special Study No. 17-44-0786-84, Investigation of Possible Contamination Sites, Fort Des Moines, Iowa, HSH-B-RP-Mo. U.S. Army Hygiene Agency. Aberdeen Proving Ground, Maryland, 1 November 1983.
- R-10 Evaluation of Pesticide Contamination in Building 138, Fort Des Moines, Iowa, U.S. Army Hygiene Agency. Aberdeen Proving Ground, Maryland, 24-25 April 1984.
- R-11 Moore Analytic Sample Test Report, 3 April 1984.
- R-12 Sampling Design Plan/Safety Plan, Dames and Moore, Task Order No. 2, Contract No. DAA15-85-D0016, 15 December 1986.
- R-13 Incident Notification Report, U.S. Environmental Protection Agency, 21 July 1989.
- R-14 Letter from Underground Storage Tank Section, Iowa Department of National Resources, 23 October 1989.



## SECTION 7

### PHOTOGRAPHS

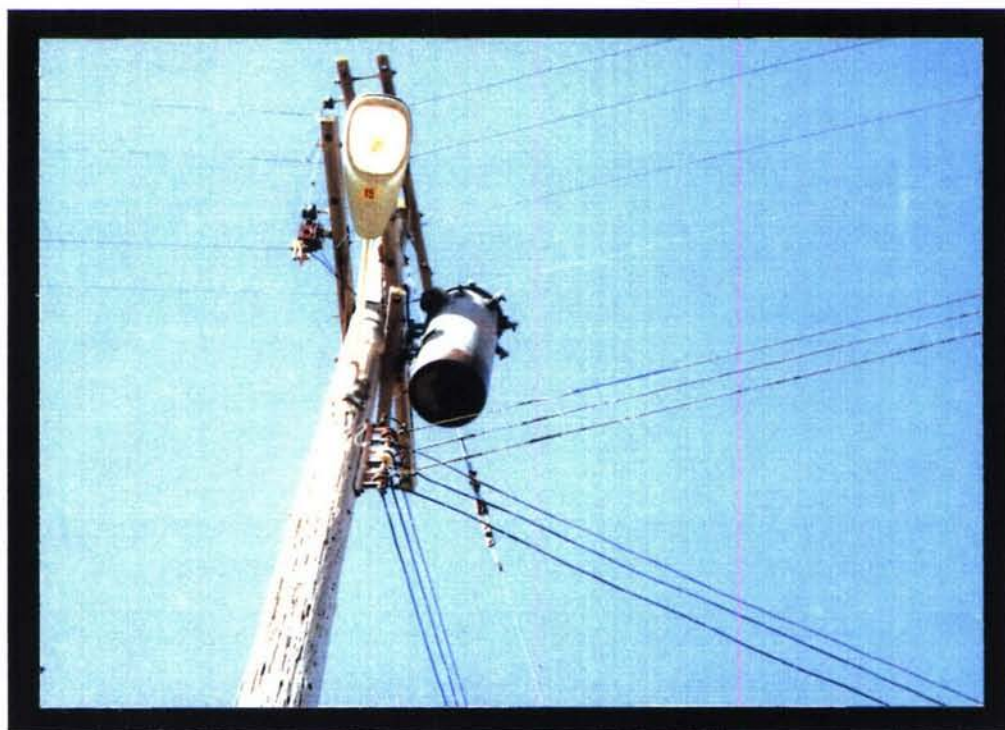
Photographs of ESOs taken during WESTON's site visit are included in this section.



**1. OPEN DUMPING - HEAVILY WOODED  
DRAINAGEWAY WITH OPEN DUMPING,  
ADJACENT TO THE BLANK PARK ZOO**



**2. BUILDING 138 - VIEWED FROM THE  
NORTH LOOKING SOUTH**

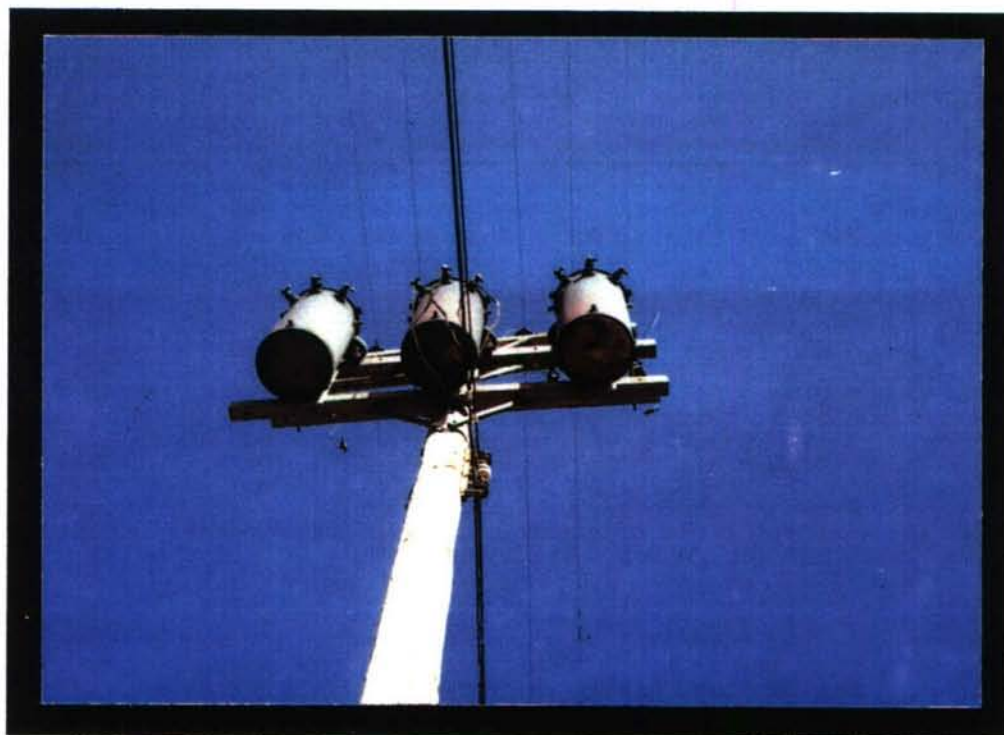


**3. DOCUMENTED PCB LEAK AND SPILL  
FROM THIS FAILED TRANSFORMER**

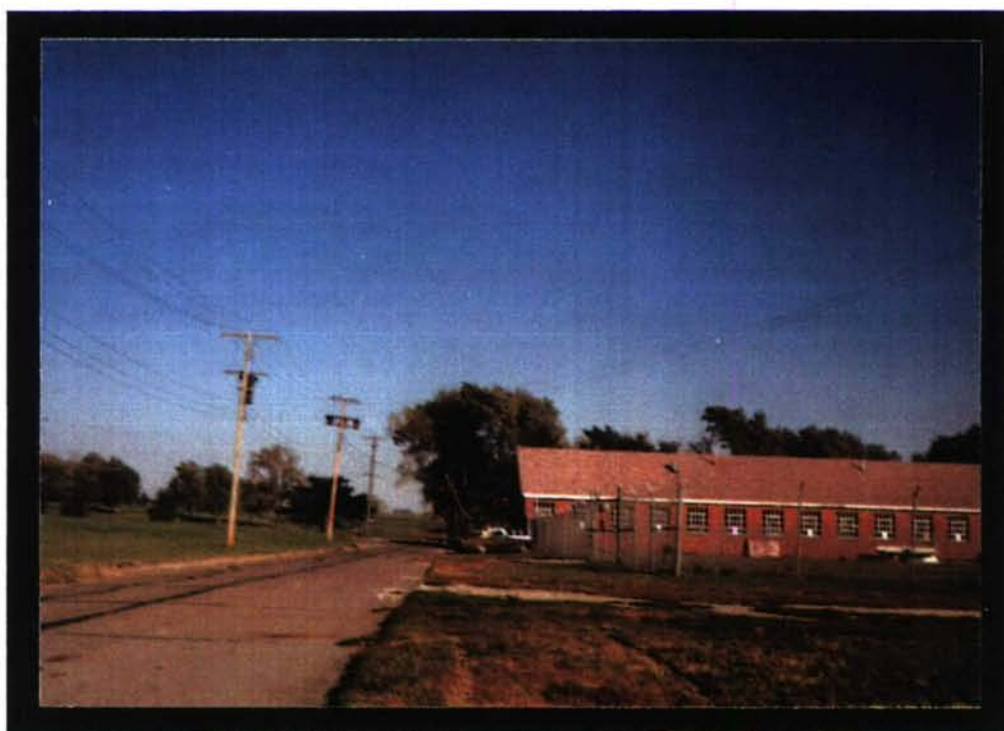
PCBs



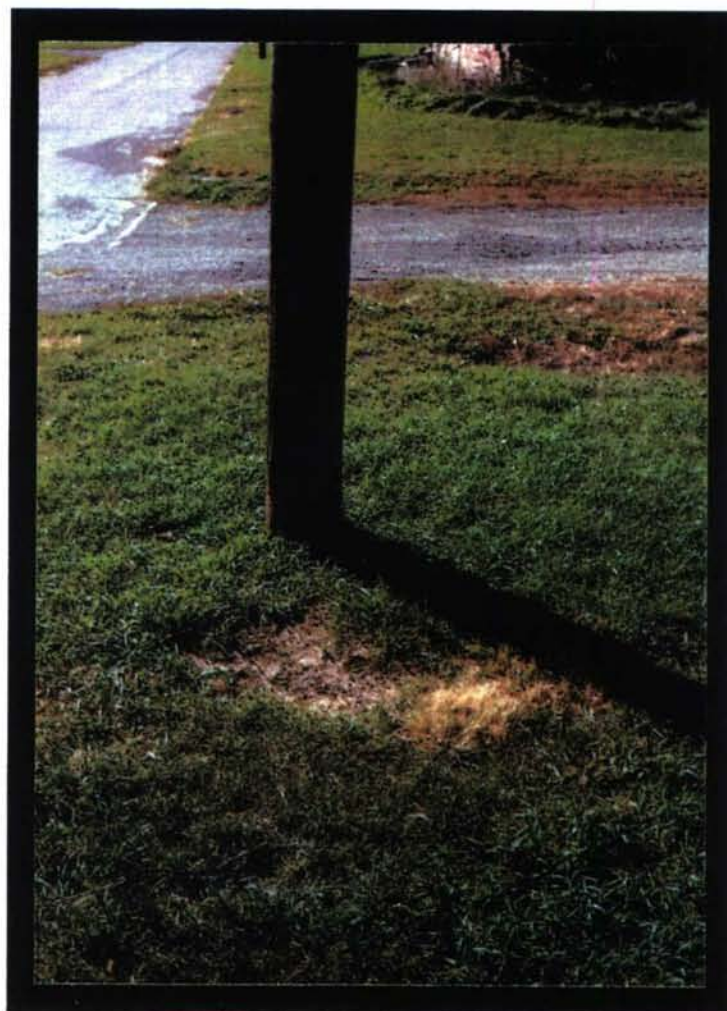
**4. LEAKING POLE TRANSFORMER LOCATED  
NEAR THE GSA BUILDING**



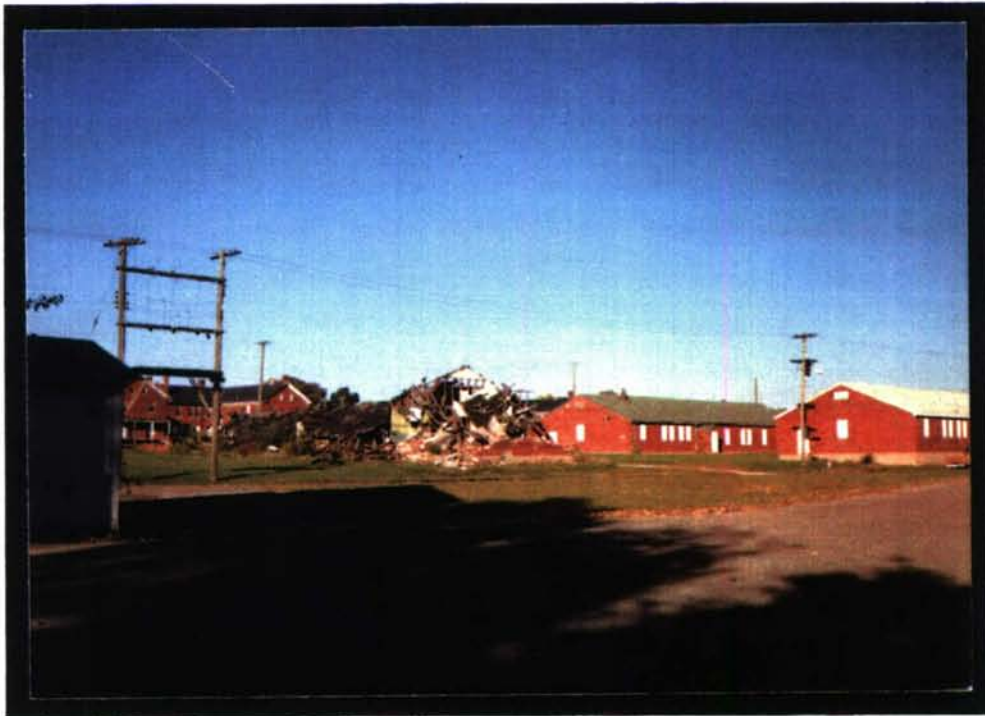
**5. RUSTING POLE TRANSFORMERS LOCATED  
BETWEEN BUILDINGS 56 AND 58**



**6. PCBs - BITUMINOUS JOINT AND CRACK  
SEALANT REPORTEDLY CONTAINING  
PCBs ALONG DARK LINES ON RODGERS ROAD**



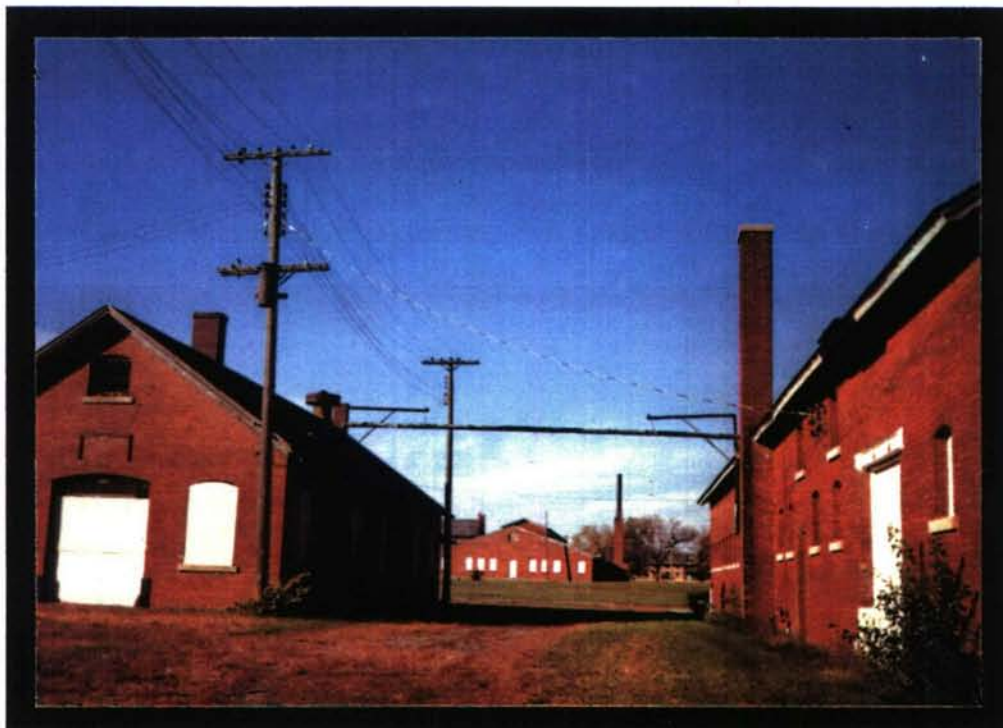
**7. STRESSED VEGETATION AT SITE OF PCB  
SPILL FROM POLE MOUNTED TRANSFORMER**



**8. COLLAPSED BUILDING 307 WITH  
ASBESTOS-WRAPPED WATER HEATER TANK**



**9. REPRESENTATIVE SUSPECTED ASBESTOS CEMENT  
SEWAGE VENT PIPE (BUILDING 309)**



**10. SUSPECTED ASBESTOS INSULATED  
HEADER PIPE RUNNING OVERHEAD  
BETWEEN BUILDINGS 122 AND 123**

**ASBESTOS**



**11. CHEMICALS IN FILING CABINET IN BUILDING 55**



**12. UNKNOWN CHEMICALS LOCATED IN THE  
BASEMENT OF BUILDING 55**

**CHEMICAL STORAGE**

**APPENDIX A**

**POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT REPORT**



POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT  
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

Ia D980966071

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)

Fort Des Moines

02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER

225 East Army Post Road

03 CITY

Des Moines

04 STATE

05 ZIP CODE

06 COUNTY

07 COUNTY CODE

08 CONG DIST

Ia

50315

Polk

09 COORDINATES LATITUDE

LONGITUDE

10 DIRECTIONS TO SITE (Starting from nearest public road)

From Army Post Road - enter main entrance - then to Bldg. 138

III. RESPONSIBLE PARTIES

01 OWNER (If known)

U.S. Army (Dept. of the Army)

02 STREET (Business, mailing, residential)

Hdqs. Ft. McCoy

03 CITY

Sparta

04 STATE

05 ZIP CODE

06 TELEPHONE NUMBER

Wi

54656

(608) 388-2160

07 OPERATOR (If known and different from owner)

Commander

08 STREET (Business, mailing, residential)

Ft. Des Moines - 225 Army Post Rd.

09 CITY

Des Moines

10 STATE

11 ZIP CODE

12 TELEPHONE NUMBER

Ia

50315

(515) 284-6005

13 TYPE OF OWNERSHIP (Check one)

☐ A. PRIVATE

☒ B. FEDERAL:

U.S. Army  
(Agency name)

☐ C. STATE

☐ D. COUNTY

☐ E. MUNICIPAL

☐ F. OTHER:

(Specify)

☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

☐ A. RCRA 3001 DATE RECEIVED:

MONTH DAY YEAR

☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED:

MONTH DAY YEAR

☒ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

☒ YES

DATE

11/1/83  
MONTH DAY YEAR

☐ NO

BY (Check all that apply)

☐ A. EPA

☐ B. EPA CONTRACTOR

☐ C. STATE

☒ D. OTHER CONTRACTOR

☐ E. LOCAL HEALTH OFFICIAL

☐ F. OTHER:

Proctor's Monitoring Special Study

CONTRACTOR NAME(S):

US Army Env. Hygiene Agency - Aberdeen, Maryland

02 SITE STATUS (Check one)

☐ A. ACTIVE

☒ B. INACTIVE

☐ C. UNKNOWN

03 YEARS OF OPERATION

1951

1959

☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Dust sample collected in Bldg. 138 was listed in enclosure 2 attached to Pest Monitoring Special Study No. 17-44-0986-84 Ft. DM, Ia. 1, Nov. 1983 attached to this report.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Possible transfer of dust, by wind to surrounding area. Hazard to anyone that enters bldg. 138 of breathing dust contaminated with the pesticides or possible ingestion by hand contact with dust.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)

☒ A. HIGH

(Inspection required promptly)

☐ B. MEDIUM

(Inspection required)

☐ C. LOW

(Inspect on time available basis)

☐ D. NONE

(No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT

John Esson

02 OF (Agency/Organization)

Env. Mgt. & Energy Control Office  
Hdqs. Fort McCoy, Sparta, WI 54656

03 TELEPHONE NUMBER

(608) 388-2160

04 PERSON RESPONSIBLE FOR ASSESSMENT

Jack W. Clemens, P.E.

05 AGENCY

Ia DWAAM

06 ORGANIZATION

FS - FOS

07 TELEPHONE NUMBER

(515) 284-8929

08 DATE

12/10/84  
MONTH DAY YEAR



POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT  
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

Id 980966071

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

☒ A SOLID  
☐ B POWDER, FINES  
☐ C SLUDGE  
☐ D OTHER  
☐ E SLURRY  
☐ F LIQUID  
☐ G GAS

dust  
(Specify)

02 WASTE QUANTITY AT SITE

(Measures of waste quantities must be independent)

TONS NA

CUBIC YARDS

NO. OF DRUMS

03 WASTE CHARACTERISTICS (Check all that apply)

☒ A TOXIC  
☐ B CORROSIVE  
☐ C RADIOACTIVE  
☐ D PERSISTENT  
☐ E SOLUBLE  
☐ F INFECTIOUS  
☐ G FLAMMABLE  
☐ H IGNITABLE  
☐ I HIGHLY VOLATILE  
☐ J EXPLOSIVE  
☐ K REACTIVE  
☐ L INCOMPATIBLE  
☐ M NOT APPLICABLE

WASTE TYPE

| CATEGORY | SUBSTANCE NAME          | 01 GROSS AMOUNT | 02 UNIT OF MEASURE | 03 COMMENTS                         |
|----------|-------------------------|-----------------|--------------------|-------------------------------------|
| SLU      | SLUDGE                  |                 |                    |                                     |
| OLW      | OILY WASTE              |                 |                    |                                     |
| SOL      | SOLVENTS                |                 |                    |                                     |
| PSD      | PESTICIDES              | NA              | NA                 | only dust present in Bldg 138       |
| OCC      | OTHER ORGANIC CHEMICALS |                 |                    |                                     |
| IOC      | INORGANIC CHEMICALS     |                 |                    |                                     |
| ACD      | ACIDS                   |                 |                    |                                     |
| BAS      | BASES                   |                 |                    |                                     |
| MES      | HEAVY METALS            | NA              | NA                 | Soil samples at demolished Bldg. 67 |

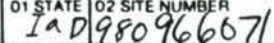
HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

| CATEGORY | 02 SUBSTANCE NAME | 03 CAS NUMBER | 04 STORAGE/DISPOSAL METHOD    | 05 CONCENTRATION | 06 MEASURE OF CONCENTRATION |
|----------|-------------------|---------------|-------------------------------|------------------|-----------------------------|
| PSD      | 2,4-D             |               | Bldg 138 dust only - Basement | 99.3             | ppm                         |
| PSD      | 2,4,5-T           |               | " " "                         | 98.3             | ppm                         |
| PSD      | DDT               |               | " " "                         | 2.31             | %                           |
| PSD      | BHC               |               | " " "                         | 0.23             | %                           |
| PSD      | dieldrin          |               | " " "                         | 113.9            | ppm                         |
| PSD      | aldrin            |               | " " "                         | 79.5             | ppm                         |
| PSD      | 2,4-D             |               | Bldg 138 dust only 1st Fl.    | 171.8            | ppm                         |
| PSD      | 2,4,5-T           |               | " " " "                       | 16.8             | ppm                         |
| PSD      | DDT               |               | " " " "                       | 1.62             | %                           |
| PSD      | BHC               |               | " " " "                       | 0.05             | %                           |
| PSD      | dieldrin          |               | " " " "                       | 154.9            | ppm                         |
| PSD      | aldrin            |               | " " " "                       | 105.0            | ppm                         |
| PSD      | 2,4-D             |               | Bldg 138 dust only 2nd Fl.    | 0.12             | %                           |
| PSD      | 2,4,5-T           |               | " " " "                       | 30.8             | ppm                         |
| PSD      | DDT               |               | " " " "                       | 12.6             | %                           |
| PSD      | BHC               |               | " " " "                       | 0.12             | %                           |

III. FEEDSTOCKS (See Appendix for CAS Numbers)

| CATEGORY | 01 FEEDSTOCK NAME | 02 CAS NUMBER | CATEGORY | 01 FEEDSTOCK NAME | 02 CAS NUMBER |
|----------|-------------------|---------------|----------|-------------------|---------------|
| FDS      |                   |               | FDS      |                   |               |
| FDS      |                   |               | FDS      |                   |               |
| FDS      |                   |               | FDS      |                   |               |
| FDS      |                   |               | FDS      |                   |               |

IV. SOURCES OF INFORMATION (See specific references, e.g., state files, sample analysis, reports)



|               |              |                   |
|---------------|--------------|-------------------|
| A TOXIC       | E SOLUBLE    | I HIGHLY VOLATILE |
| B CORROSIVE   | F INFECTIOUS | J EXPLOSIVE       |
| C RADIOACTIVE | G FLAMMABLE  | K REACTIVE        |
| D PERSISTENT  | H IGNITABLE  | L INCOMPATIBLE    |
|               |              | M NOT APPLICABLE  |



POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

1a 0780

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION

03 POPULATION POTENTIALLY AFFECTED: 0

02 ☐ OBSERVED (DATE: )

04 NARRATIVE DESCRIPTION

☒ POTENTIAL ☐ ALLEGED

The lead in the soil at Bldg. 67 site could contaminate underground water supply.

01 ☒ B. SURFACE WATER CONTAMINATION

03 POPULATION POTENTIALLY AFFECTED: 0

02 ☐ OBSERVED (DATE: )

04 NARRATIVE DESCRIPTION

☒ POTENTIAL ☐ ALLEGED

The lead in soil at the Bldg. 67 site could be washed into surface water.

01 ☒ C. CONTAMINATION OF AIR

03 POPULATION POTENTIALLY AFFECTED:

02 ☐ OBSERVED (DATE: )

04 NARRATIVE DESCRIPTION

☒ POTENTIAL ☐ ALLEGED

air inside Bldg. #138 could be contaminated with pesticides. Outside (ambient) air not likely to get contaminated

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS

03 POPULATION POTENTIALLY AFFECTED:

02 ☐ OBSERVED (DATE: )

04 NARRATIVE DESCRIPTION

☐ POTENTIAL ☐ ALLEGED

N/A

01 ☒ E. DIRECT CONTACT

03 POPULATION POTENTIALLY AFFECTED:

02 ☐ OBSERVED (DATE: )

04 NARRATIVE DESCRIPTION

☒ POTENTIAL ☐ ALLEGED

Only to persons involved in final clean up of contaminated dust in Bldg. #138.

01 ☒ F. CONTAMINATION OF SOIL

03 AREA POTENTIALLY AFFECTED: <1 (Acres)

02 ☒ OBSERVED (DATE: 11/1/83)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL ☐ ALLEGED

Soil in area where Bldg. #67 was located has high lead concentration. see attached investigation report No. 17-44-0986-84

01 ☒ G. DRINKING WATER CONTAMINATION

03 POPULATION POTENTIALLY AFFECTED:

02 ☐ OBSERVED (DATE: )

04 NARRATIVE DESCRIPTION

☐ POTENTIAL ☐ ALLEGED

None - see narrative

01 ☒ H. WORKER EXPOSURE/INJURY

03 WORKERS POTENTIALLY AFFECTED:

02 ☐ OBSERVED (DATE: )

04 NARRATIVE DESCRIPTION

☒ POTENTIAL ☐ ALLEGED

Only to persons involved in decontaminating Bldg. #138

01 ☒ I. POPULATION EXPOSURE/INJURY

03 POPULATION POTENTIALLY AFFECTED:

02 ☐ OBSERVED (DATE: )

04 NARRATIVE DESCRIPTION

☒ POTENTIAL ☐ ALLEGED

Very unlikely, except for child running playing in area where Bldg. #67 was located because of high lead.



POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT  
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
IA D980966 071

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

NA

01 ☐ K. DAMAGE TO FAUNA  
04 NARRATIVE DESCRIPTION (include name(s) of species)

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

NA

01 ☐ L. CONTAMINATION OF FOOD CHAIN  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

NA

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES  
(Spills/runoff/standing liquids/leaking drums)  
03 POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

04 NARRATIVE DESCRIPTION

NA

01 ☐ N. DAMAGE TO OFFSITE PROPERTY  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

NA

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

NA

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

NA

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

asbestos waste generated was considered as indicated in Feb. 14, 1984 letter from Jerome A. Roberts, Hdq. Ft. McCoy, Sparta, WI 54656 attached, but assumed to be buried.

III. TOTAL POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_

IV. COMMENTS

see attached narrative

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

2/14/84 letter & report of investigation No. 17-444 D986-84, Nov. 1, 1983 by Dept. of the Army, US Army Env. Hygiene Agency, Aberdeen Proving Ground, Maryland 21010. Letter from Capt. Jerome A. Roberts, Ft. McCoy, Sparta, WI 54656 & lab. analysis attached.



POTENTIAL HAZARDOUS WASTE SITE  
TENTATIVE DISPOSITION

REGION VII SITE NUMBER IAD 980966071

File this form in the regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force (EN-335); 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

|                                 |                                      |                      |
|---------------------------------|--------------------------------------|----------------------|
| A. SITE NAME<br>Fort Des Moines | B. STREET<br>225 East Army Post Road |                      |
| C. CITY<br>Des Moines           | D. STATE<br>Iowa                     | E. ZIP CODE<br>50315 |

II. TENTATIVE DISPOSITION

Indicate the recommended action(s) and agency(ies) that should be involved by marking 'X' in the appropriate boxes.

| RECOMMENDATION                                                                                                                                                                  | MARK 'X' | ACTION AGENCY |       |       |         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------|-------|-------|---------|
|                                                                                                                                                                                 |          | EPA           | STATE | LOCAL | PRIVATE |
| A. NO ACTION NEEDED -- NO HAZARD                                                                                                                                                |          |               |       |       |         |
| B. INVESTIGATIVE ACTION(S) NEEDED (If yes, complete Section III.)                                                                                                               |          |               | X     |       |         |
| C. REMEDIAL ACTION NEEDED (If yes, complete Section IV.)                                                                                                                        |          |               |       |       |         |
| D. ENFORCEMENT ACTION NEEDED (If yes, specify in Part E whether the case will be primarily managed by the EPA or the State and what type of enforcement action is anticipated.) |          |               |       |       |         |

E. RATIONALE FOR DISPOSITION

Dust samples were collected inside of building 138. This building was used as a pesticide formulating plant. No dust samples were taken outside of the building. Those from inside the building ~~showed~~ showed significant pesticide levels.

F. INDICATE THE ESTIMATED DATE OF FINAL DISPOSITION (mo., day, & yr.)

G. IF A CASE DEVELOPMENT PLAN IS NECESSARY, INDICATE THE ESTIMATED DATE ON WHICH THE PLAN WILL BE DEVELOPED (mo., day, & yr.)

H. PREPARER INFORMATION

|                         |                                     |                                      |
|-------------------------|-------------------------------------|--------------------------------------|
| 1. NAME<br>Lynn J. Hall | 2. TELEPHONE NUMBER<br>515/281-6614 | 3. DATE (mo., day, & yr.)<br>2-26-86 |
|-------------------------|-------------------------------------|--------------------------------------|

III. INVESTIGATIVE ACTIVITY NEEDED

A. IDENTIFY ADDITIONAL INFORMATION NEEDED TO ACHIEVE A FINAL DISPOSITION.

Sample or request sampling outside of building 138. Soils outside of building 138 may have been contaminated by the activities in building 138.

B. PROPOSED INVESTIGATIVE ACTIVITY (Detailed Information)

| 1. METHOD FOR OBTAINING NEEDED ADDITIONAL INFO. | 2. SCHEDULED DATE OF ACTION (mo., day, & yr.) | 3. TO BE PERFORMED BY (EPA, Contractor, State, etc.) | 4. ESTIMATED MANHOURS | 5. REMARKS |
|-------------------------------------------------|-----------------------------------------------|------------------------------------------------------|-----------------------|------------|
| a. TYPE OF SITE INSPECTION                      |                                               |                                                      |                       |            |
| (1)                                             |                                               |                                                      |                       |            |
| (2)                                             |                                               |                                                      |                       |            |
| (3)                                             |                                               |                                                      |                       |            |
| b. TYPE OF MONITORING                           |                                               |                                                      |                       |            |
| (1)                                             |                                               |                                                      |                       |            |
| (2)                                             |                                               |                                                      |                       |            |
| c. TYPE OF SAMPLING                             |                                               |                                                      |                       |            |
| (1)                                             |                                               |                                                      |                       |            |
| (2)                                             |                                               |                                                      |                       |            |

**APPENDIX B**  
**CHEMICAL INVENTORY**

R&U Shop #63, Ft Des Moines, IA.  
Hazard Communication Program Inventory

| <u>Stock #</u>   | <u>Item Description</u>                        | <u>Manufacturer</u>                           |
|------------------|------------------------------------------------|-----------------------------------------------|
| 6850-00-181-7929 | Antifreeze Ethylene Glycol                     | CSD Inc.<br>Conroe, TX.                       |
| 9150-00-256-6411 | Lubrication Oil Internal<br>Combustion         | Battenfield                                   |
| 9150-00-698-2382 | Hydraulic Fluid Auto<br>Transmission Dexron II | Borne Chemical<br>Co., Inc.                   |
| 6850-00-274-5421 | Dry Cleaning Solvent                           | Matthews                                      |
| 6850-00-281-1985 | Dry Cleaning Solvent<br>(Stoddard)             | Penn-Fleet                                    |
| 7930-00-234-6237 | Detergent Dry Cleaning<br>Solvent              | Continental Chemical<br>Terre Haute, In       |
| 8010-00-837-7969 | Thinner Paint                                  | CSD Inc.<br>Conroe, TX.                       |
| 6850-00-281-1985 | Dry Cleaning Solvent                           | PMP Ind.<br>Irving, TX.                       |
| 7930-00-234-6237 | Dry Cleaning Solvent                           | MSCI Ltd.<br>Chicago                          |
| 8010-00-160-5787 | Thinner Dope &<br>Lacquer                      | CSD Inc.<br>Conroe                            |
| 8010-00-160-5794 | Thinner Synthetic<br>Enamel                    | CSD Inc.                                      |
| 8010-00-246-6443 | Spirits of Turpentine                          | Phipps Products Corp<br>Boston, MA.           |
| 8010-00-165-4784 | Duer Paint                                     | Unknown                                       |
| 6810-00-598-7316 | Sodium Hypochlorite<br>(Bleach)                | Bute Mfg. Co., Inc.<br>New Orleans, LA.       |
| 7930-00-078-5831 | Dishwashing Compound                           | Hoffman Co.<br>Allentown, PA.                 |
| 7930-00-926-5280 | Detergent General Purpose                      | Lighthouse for the<br>Blind Houston, TX.      |
| 6850-00-926-2275 | Cleaning Compound<br>Windshield                | Tradoc Chemical Corp<br>& Midwest Polychem L. |

|                  |                                         |                                                                              |
|------------------|-----------------------------------------|------------------------------------------------------------------------------|
| 8030-01-103-2868 | Protective Coating<br>Compound          | Bulk Chemicals<br>Greting, LA.                                               |
| 9150-01-054-6453 | Cleaner Lubricant<br>Preservative       | San/Bar Corp.<br>Irvine, Calif.                                              |
| 6850-00-260-5163 | Fuel System Dryer<br>& Antifreeze       | Demert & Dougherty<br>Oakbrook, Ill.                                         |
| 7930-00-184-9423 | Glass Cleaner                           | Pac-Tec<br>Wallingford, CT.                                                  |
| 7930-00-721-8592 | Scouring Powder<br>Chlorinated Cleanser | Allied Block Chem.<br>New Eagle, PA.<br>&<br>Purex Corp.<br>Lakewood, Calif. |
| 7930-00-515-2477 | Detergent General Purpose               | Solar Chemicals<br>Smyrna, GA.                                               |
| 6810-00-422-2169 | Calcium Chloride                        | Urea Technical<br>&<br>GS Robbins & Co.                                      |
| 7930-00-269-1272 | Absorbent Material                      | Edward Lowe<br>Industries                                                    |
| 6830-00-584-3041 | Propane                                 | Turner Ltd.<br>Sycamore, Ill.                                                |
| Unknown          | Acetylene & Oxygen                      | Unknown                                                                      |