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THE MEMPHIS DEPOT
TENNESSEE

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 193

VERSION 1 FINAL REPORT

U.S. ARMY BASE REALIGNMENT AND CLOSURE 95 PROGRAM

BRAC Cleanup Plan

Defense Distribution Depot Memphis, Tennessee

Prepared for

U.S. Army Corps of Engineers
Seattle District
Mobile District

November 1996

Woodward-Clyde

Woodward-Clyde Federal Services
1500 Century Square
1501 Fourth Avenue
Seattle, WA 98101-1662
EE9518MD

ENTITY: TDEC

INDIVIDUAL: Terry Templeton

TITLE: Project Manager/TDEC/DSF-MFO

DATE: October 18, 1996

General Comments

It appears that many previous comments made related to the EBS have not been incorporated in this document.

Response:
We have attempted to incorporate EBS-related changes into the BCP. Due to the parallel schedules for the documents, some comments on the draft final EBS may not have been reflected by the draft BCP.

Specific Comments

Comment:
Executive Summary, page I: Elements are discussed in the Executive Summary (ES) that are not discussed in the document itself. The ES should be a condensed discussion of document contents. TDSF has no problem with the ES presented; however, the document itself should have expanded sections (discussion of Public Laws, BRAC process, etc.).

Response:
The content and format of both the ES and main document follow specific BRAC BCP guidance.

Comment:
Section 1.0, page 1-1: This comment applies document-wide: do you want to say "the DDMT" and "the TDEC"?

Response:
The document has been edited to reflect correct grammatical use of "the" before these acronyms.

Comment:
Section 2.1.1, page 2-1: Has MDRA reviewed this?

Response:
According to DDMT personnel, this information has been reviewed by MDRA.

Comment:
Sections 2.1.3 & 2.1.4: A couple of documents and activities are referred to as having been completed since September 1996 that TDEC has not seen or is not familiar with.

Response:
This comment has been forwarded to DDMT personnel.

Comment:
Section 3.4.1 through Section 3.4.9: These sections have not been exhaustively reviewed, but should be reflected in EBS corrections which would be carried over to the BCP.

Response:
Comment noted. The EBS corrections have been carried over into the BCP.

Comment:
Table 4-2: Three reports are listed with final dates in September 1996 and one is listed with a final date in July 1996. TDEC has not seen any of these reports. Are not RI/FS Work Plans for each OU already finalized?

Response:
This comment has been forwarded to DDMT personnel.

Comment:
Figure 5-1: The estimated durations for some of these tasks seem to be overly ambitious.

Response:
Figure 5-1 has been revised as requested by DDMT personnel.

Comment:
Figure 5-1, page 12A: What sampling in Dunn Field for 1997 is being referred to? What does "HTW" in MDRA Parcel Number 36-HTW mean?

Response:
Figure 5-1 has been revised. "HTW" refers to hazardous and toxic waste (as opposed to "CWM," which refers to chemical warfare material).

Comment:
Section 6-2, page 6-1: Since TDEC does not possess IRPIMS or IRDMIS, are there any other options for data formats? Will there be a specified format for GIS data, such as ArcView or ArcInfo?

Response:
This comment has been discussed with DDMT personnel and is recommended for resolution in the Version 2 BCP.

Comment:
Section 6.2.1., first bullet, page 6-2: Will appropriate DBMS software be provided to TDEC?

Response:
This comment has been discussed with DDMT personnel and is recommended for resolution in the Version 2 BCP.

Comment:
Section 6.2.2, page 6-2: When spatial data (e.g, real estate maps) are referred to, are GIS data requirements to be taken into account?

Response:
This comment has been discussed with DDMT personnel and is recommended for resolution in the Version 2 BCP.

Comment:
Appendix A, first page: Should plans to transport CWM in Dunn Field to Pine Bluff be referred to here: In the third row under the FY 97 column the word "investigate" is misspelled. In the Category column there is space for the word "other" to be spelled out.

Response:
Appendix A has been revised as requested by DDMT personnel.

ENTITY: TDEC

INDIVIDUAL: Jordan English

TITLE: Manager/TDEC/DSF-MFO

DATE: October 24, 1996

General Comments

Table pages should be consecutively numbered with the document narrative. Referencing a specific item within a specific table is otherwise rather difficult.

Response:

Tables are numbered according to the Woodward-Clyde BCP standard. Items may be referenced by providing both the table and table page number. We apologize for this inconvenience.

Comment 1:

Executive Summary, page I, 2nd paragraph - I was under the impression that the word "economic" should be used prior to the word "reuse" in the last sentence.

Response:

DDMT personnel preferred allowing a broader interpretation of the word "reuse."

Comment 2:

Section 3.4.4, Page 3-25 - For this entire section it seems logical to describe individually per parcel or generically at front the fact that relevant documentation exists (include where) to confirm the nature of the event (spill, etc.) and the nature of the response. Specifically with regard to several parcels, who determined that the release was not of sufficient quantity? Also with regard to parcel 25.1(4), how did spills of such magnitude get categorized as category 4? By whom?

Response:

This section is derived from the EBS report. In accordance with DDMT spill response records (DDMT 1992, 1993) the contaminated materials associated with these spills were removed. Therefore, Category 4 was applied to the parcels. We can work with the BCT to provide additional individual or generic information on spills and spill response in the Version 2 BCP.

VERSION 1 FINAL REPORT

193 6

U.S. ARMY BASE REALIGNMENT AND CLOSURE 95 PROGRAM

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EXECUTIVE SUMMARY

The Secretary of Defense, in cooperation with Congress, proposed a law to close bases and bring base structure in line with force structure. Public Law 100-526, enacted in 1988, created the Commission on Base Realignment and Closure (BRAC). The law charged the Commission with recommending installations for closure or realignment, based on independent study of the domestic military base structure. With subsequent passage of Public Law 101-510 under Title XXIX, enacted in 1990, Congress created the Defense BRAC Commission to provide a fair process that will result in the timely closure and realignment of military installations. Public Law 101-510 provides for the BRAC Commission to meet in 1991, 1993, and 1995. The BRAC process identifies installations based on eight criteria, including military value, cost saving and return-on-investment, and the economic and environmental impacts of closure. In July 1993, the President of the United States announced his base closure community reinvestment program to help speed the economic recovery of communities affected by the Department of Defense's BRAC program. The BRAC 95 program has been developed in response to the President's program to limit delays in property reuse and transfer by changing the way cleanup is conducted (i.e., from a slow-paced, structured process to an accelerated process).

This BRAC Cleanup Plan (BCP) for Defense Distribution Depot Memphis, Tennessee (DDMT), is being prepared under the BRAC 95 program. The BRAC process includes preparing an environmental baseline survey, Community Environmental Response Facilitation Act reports, sampling and analysis recommendations, and a BCP. The BCP process under the BRAC 95 program centers on a single goal: *expediting and improving environmental response actions in order to facilitate disposal and reuse of DDMT while protecting human health and the environment.*

The BCP provides the status, management and response strategy, and action items related to the ongoing environmental restoration and associated compliance programs at DDMT. These programs support full restoration of the base property, where feasible, which is necessary to meet the requirements for property disposal and reuse activities associated with closure of the installation.

The BCP is a planning document based on the best available, current information. The information and assumptions presented may not necessarily have final approval from the base authorities and/or federal and state regulatory agencies. The BCP is a dynamic document that will be updated periodically to reflect the current status and strategies of remedial actions. This document is the first in a series of updates/modifications and represents conditions and strategies as of October 1996.

The following BCP abstract (Table ES-1) provides a summary of essential information contained in the BCP for DDMT. It includes summaries of the installation description; environmental condition of the property; reuse planning status; restoration program; compliance program; conservation program; issues for execution of the program; and projected fiscal year funding.

FINAL

TABLE ES-1
BRAC CLEANUP PLAN (BCP) ABSTRACT
DEPARTMENT OF DEFENSE COMPONENT: U.S. ARMY

Installation Name:	Defense Distribution Depot Memphis, Tennessee	**Date Prepared:**	96/10/4
FFID:	TN-971520570	**BRAC Round:**	IV
Location:	Memphis, TN	**BRAC Type:**	Closure

INSTALLATION SUMMARY

Scheduled Operational Closure Date:	97/9/30	Date CERFA EBS Submitted:	1996/9
Actual Operational Closure Date:		Number of CERFA Acres Proposed:	6.2
		Number of CERFA Acres Concurred:	NA
Total Number of Installation Acres:	642	Date CERFA Concurrence Received:	NA
Acres Retained by Component:	0		
Acres to be Transferred to another Component:	0	Date BCT Formed:	1995/12
Acres Planned for Federal Transfer:	0	Date Initial BCP Completed:	1996/11
Acres Planned for Non-Federal Transfer:	642	Date of Last BCP Update:	NA
		Date RAB Established:	1994/2

Total Number of Acres Environmentally Suitable for Transfer:	56.8
Total Number of Acres Eligible for Disposal	642

Types of Acres	Category of Environmental Condition of Property						
	1	2	3	4	5	6	7
Acres according to CERCLA	6.2	10.8	3.4	36.4	2.0	0.0	583.2

Types of Environmental Condition	Number of Acres
Petroleum, oils, and lubricants	420
Unexploded ordnance	8.2
Areas that require protection because of the presence of natural or cultural resources	Unknown at this time

	Installation Budget ($000)								
Activity	FY95	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03-Completion
Restoration			14,500	11,540	3,890	4,838	2,859	7,879	10,973
Compliance			1,557	830	123	0	0	0	0
Planning			0	0	0	0	0	0	0
Management			620	671	665	492	506	400	354
TOTAL			16,676	13,041	4,678	5,330	3,365	8,279	11,327

REUSE PLANNING STATUS

Name of LRA: Memphis Depot Redevelopment Agency
Status of the Redevelopment Plan: Preliminary interest identified. Redevelopment plan being drafted.
Projected Date of Installation-Wide Disposal and Reuse EA/EIS: June 1997
Actual Date of Installation-Wide Disposal and Reuse EA/EIS:
Final Property Disposal Date:

Actual Acres Leased to Federal Entity:	0	Actual Acres Transferred to Federal Entity:	0
Actual Acres Leased to Non-Federal Entity:	0	Actual Acres Transferred to Non-Federal Entity:	0

	FOST	FOSL
Cumulative **NUMBER** Completed	0	0
Cumulative **ACRES** Completed	0	0
NUMBER Projected in Next Fiscal Year	0	2
ACRES Projected in Next Fiscal Year	0	400

TABLE ES-1
BRAC CLEANUP PLAN (BCP) ABSTRACT
DEPARTMENT OF DEFENSE COMPONENT: U.S. ARMY (continued)

RESTORATION PROGRAM

Summary:
The EPA placed DDMT on the National Priorities List on October 14, 1992. Contaminated media include soil, pond and lake sediment, and groundwater. EPA and TDEC recognize 81 sites at DDMT that include former landfill areas, former hazardous material/waste storage areas, the former recoup area, spray paint booth and sandblast area, and former wood treatment dipvat area. Contaminants include TCE, PCE, DDT, DDE, dieldrin, PCBs, heavy metals, and CWM. RI/FS and screening site workplans have been completed and approved. Interim remedial action for groundwater will be implemented fiscal year 1997. Fiscal year 1997/1996 funding request was limited due to the availability of prior year program funds.

	Site Name	Date
Final Remedy in Place/Response Complete:	NA	NA
Long-Term Monitoring	NA	NA

COMPLIANCE PROGRAM

Summary:
DDMT successfully complies with federal, state and local regulations. DDMT operates under a state NPDES permit, a city Industrial Wastewater Discharge Agreement, three city air permits, two state UST permits and a RCRA Part B permit. DDMT has identified asbestos-containing material and manages it in place. Concerns have been raised by the MDRA regarding asbestos abatement at Building 210. DDMT plans to remove and close out the permits for the remaining USTs.

CONSERVATION PROGRAM

Summary:
No threatened or endangered species, protected habitats, wetlands, or Native American sites have been identified at DDMT. The architectural and archaeological survey results have not been finalized for DDMT.

FAST-TRACK CLEANUP SUMMARY

Summary:
DDMT works very closely with EPA, TDEC, and the USACE in determining appropriate investigation and remediation strategies. Without this close coordination, DDMT would not be as far along in the process as it is. Issues are quickly discussed and consensus obtained via monthly meetings, telephone conversations, and facsimile.

CWM presents the one issue that will delay fast-track clean up of the former landfill area known as Dunn Field. DDMT and USACE continue to investigate all avenues to quickly investigate and remove the CWM, so the other materials buried there can be investigated and remediated.

BCT CONCURRENCE

The BCP Abstract has been reviewed and concurred to by the BCT:		YES	NO
DoD BEC:	Eric Holladay, Deputy Commander (Name)	☒	☐
US EPA BCT Member:	Dann J. Sparrosa (Name)	☒	☐
State BCT Member:	Jordan English (Name)	☒	☐

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LIST OF ACRONYMS

ACRONYM	DEFINITION
ACM	Asbestos-containing material
AST	Aboveground storage tank
BCP	BRAC Cleanup Plan
BCT	BRAC Cleanup Team
BEC	BRAC Environmental Coordinator
bgs	Below ground surface
BRAC	Base Realignment and Closure
CAIS	Chemical Agent Identification Set
CEHNC	U.S. Army Engineering and Support Center, Huntsville
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act, as amended
CERFA	Community Environmental Response Facilitation Act
CFR	Code of Federal Regulations
CWM	Chemical warfare material
CWMP	Chemical Warfare Management Plan
DA	Department of the Army
DDMT	Defense Distribution Depot Memphis, Tennessee
DDT	4,4'-Dichlorodiphenyltrichloroethane
DENIX	Defense Environmental Network Information Exchange
DLA	Defense Logistics Agency
DLAM	Defense Logistics Agency memo
DOD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
EA	Environmental assessment
EBS	Environmental baseline survey
EPA	Environmental Protection Agency
ER	Early removal
°F	Degrees Fahrenheit
FS	Feasibility study
HR	Hazardous substance release or disposal
HS	Hazardous substance storage
IRDMIS	Installation Restoration Data Management Information System

LIST OF ACRONYMS

IRP	Installation Restoration Program
IRPIMS	Installation Restoration Program Information Management System
LBP	Lead-based paint
LRA	Local reuse authority
MDRA	Memphis Depot Redevelopment Agency
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEPA	National Environmental Policy Act
NFA	No further action
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration
OU	Operable unit
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
pCi/L	PicoCuries per liter
POL	Petroleum, oil, and lubricants
ppm	Parts per million
PR	Petroleum release or disposal
PS	Petroleum storage
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RFA	RCRA facility assessment
RI	Remedial investigation
RI/FS	Remedial investigation/feasibility study
ROD	Record of decision
SARA	Superfund Amendments and Reauthorization Act
SPCC	Spill prevention, control, and countermeasures
TDEC	Tennessee Department of Environment and Conservation
TRC	Technical Review Committee
USACE	U.S. Army Corps of Engineers
UST	Underground storage tank
UXO	Unexploded ordnance
VOC	Volatile organic compound

TAB

10

1.0 INTRODUCTION AND SUMMARY

This Base Realignment and Closure (BRAC) Cleanup Plan (BCP) for Defense Distribution Depot Memphis, Tennessee (DDMT), was prepared by Woodward-Clyde for the U.S. Army Corps of Engineers (USACE) under Contract No. DACA67-95-D-1001, Delivery Order No. 0003.

Located in the city of Memphis, Tennessee (Shelby County), DDMT is in the south-central section of Memphis and encompasses approximately 642 acres. In March 1995, the BRAC Commission recommended the mission at DDMT end by September 30, 1997 and called for the assumption of its responsibilities by other installations. All 642 acres have been identified for transfer.

As a result of past waste and resource management practices at DDMT, some areas are contaminated by various hazardous substances, contaminants, or wastes. Federal law requires federal agencies to investigate and clean up, as necessary, environmental contamination to support the release and reuse of the BRAC parcel. To address these past practices, a number of environmental restoration programs have been initiated at DDMT. Current waste and resource management practices are conducted in compliance with applicable environmental laws and regulations in order to protect human health and the environment.

This BCP is a planning document that presents the status, strategy, and schedule for environmental restoration and compliance activities at DDMT. The BCP is based on the best information currently available to the U.S. Army and regulatory agencies. The information and schedules presented in this BCP were obtained from the BRAC Cleanup Team (BCT). Because it was necessary to make certain assumptions in preparing this BCP, implementation programs and cost estimates could be significantly altered if environmental conditions and/or administrative decisions change from those assumed. Such changes, if they occur, will be reflected in updates to the BCP.

The BCP is organized into the following sections and appendices in accordance with the BRAC Clean-up Plan Guidebook (DOD 1995).

- Section 1 describes environmental restoration program objectives; explains the purpose of the BCP; introduces the BCT and project team formed to review the program; provides a brief installation history; and summarizes the site environmental setting

- Section 2 summarizes the current status of the DDMT property disposal planning process, describes the relationship of the disposal process to other environmental programs, and summarizes potential and anticipated property transfer mechanisms

- Section 3 summarizes the current status and past history of the DDMT Installation Restoration Program (IRP), environmental compliance programs, natural and cultural resource programs, community relations activities that have occurred to date, and the environmental condition of DDMT property

- Section 4 describes the DDMT-wide strategy for environmental restoration, compliance, natural and cultural resources, and community involvement

- Section 5 provides the master schedules of planned and anticipated activities to be performed throughout the duration of the environmental restoration program, including IRP activities and natural and cultural resources, and provides a BCT meeting schedule

- Section 6 describes specific technical and/or administrative issues to be resolved and presents a strategy for resolving those issues

- Section 7 lists the primary references used in preparation of the BCP

The following appendices are included in this document:

- Appendix A contains tables presenting funding requirements.

- Appendix B contains a technical documents summary, which is a chronological list of previous environmental restoration program reports and associated documents.

- Appendix C contains summaries of decision documents for which a remedial action was selected.

- Appendix D contains summaries of each decision document for each site for which a no-further-action decision has been made. (Reserved; no decision documents have been completed. Appendix D will be updated in Version 2 of this BCP.)

- Appendix E presents working conceptual models for installation restoration at BRAC sites and presents other materials relevant to the BCP, including a summary of issues related to environmental justice at DDMT, an administrative record index, a letter of regulatory concurrence on the Community Environmental Response Facilitation Act (CERFA) report, a transformer inventory and test results, and radon survey test results for DDMT. (Summary of environmental justice issues and letter of regulatory concurrence reserved. These items will be included in Version 2 of this BCP.)

1.1 ENVIRONMENTAL RESPONSE OBJECTIVES

The Environmental Protection and Safety Office of DDMT is responsible for the management and overall implementation of environmental programs at DDMT. The U.S. Army Engineering and Support Center, Huntsville (CEHNC), is managing remedial investigations/feasibility studies (RI/FSs) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The CEHNC also manages Resource Conservation and Recovery Act (RCRA) facility investigations/ corrective measures studies at the installation. In addition, the CEHNC is managing other environmental investigation, remedial design, and corrective measures design activities. The USACE, Mobile District, provides support to the CEHNC for remedial action and corrective measures implementation, as well as compliance program support.

The combined objectives of the BCT, DDMT, CEHNC, and other supporting U.S. Army agencies for the environmental restoration and compliance program at DDMT are as follows:

- Protect human health and the environment
- Continue compliance with existing statutes and regulations
- Conduct ongoing IRP activities in accordance with CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA); RCRA; the State of Tennessee underground storage tank (UST) regulations; and other applicable regulations
- Meet Federal Facility Agreement schedules and deadlines

- Continue efforts to identify all potentially contaminated areas and incorporate any new sites into the BCP, as appropriate
- Establish priorities for environmental restoration and restoration-related compliance activities so that property disposal and reuse goals can be met
- Complete the environmental restoration process as soon as practicable for each site, in an order of priority that takes into account both environmental concerns and redevelopment plans
- Identify opportunities for selected removal actions to control, eliminate, or reduce risks to manageable levels
- Continue to consider future land use when characterizing risks associated with releases of hazardous substances, pollutants, contaminants, or hazardous wastes
- Conduct long-term remedial actions for groundwater and any necessary reviews to evaluate the progress of remediation
- Establish interim and long-term monitoring plans for other RAs as appropriate
- Continue to identify and map the environmental condition of installation property with the intent of identifying areas suitable for transfer by deed
- Conduct site-specific environmental baseline surveys (EBSs) as necessary to support transfer and lease of property
- Meet requirements of the National Environmental Policy Act (NEPA) related to environmental restoration, property disposal, and reuse of DDMT
- Advise the real estate arm of the USACE of property that is deemed suitable for transfer and properties that are not suitable for transfer because they are either not properly evaluated or pose an unacceptable human health or environmental risk

1.2 BCP PURPOSE, UPDATES, AND DISTRIBUTIONS

This BCP is intended to:

- Summarize the current status of DDMT environmental restoration programs
- Present a comprehensive strategy for implementing response actions necessary to protect human health and the environment
- Present schedules for restoration and compliance activities

The strategy integrates activities being performed under the IRP and associated environmental compliance programs to support full restoration of DDMT.

This BCP was prepared with information available as of October 1996. Certain information presented in this BCP is derived from the DDMT final EBS, which was completed in November 1996. Additional information on the site history and environmental setting can be found in the EBS.

The BCP is a dynamic document that will be updated as needed to incorporate newly obtained information and reflect the completion or change in status of any remedial actions. Updates of the BCP will be distributed to each member of the BCT, as well as to additional parties identified in Table 1-1.

1.3 BCT/PROJECT TEAM

The DDMT BCT has been established and is led by the BRAC Environmental Coordinator (BEC). The BCT meetings are the means of conducting periodic program reviews and reaching consensus on decisions with federal and state regulators. The BCT includes the BEC, the U.S. Environmental Protection Agency (EPA) Region IV, and the State of Tennessee Department of Environment and Conservation (TDEC). The BCT is supported by a project team consisting of technical, operational, reuse, and administrative specialists, as needed. A list of the BCT and project team members and descriptions of their roles and responsibilities are provided in Table 1-1.

1.4 SITE DESCRIPTION AND HISTORY OF INSTALLATION

This section describes the site and operations history of DDMT.

1.4.1 Site Description

The DDMT is located in the south-central section of Memphis in Shelby County, Tennessee (Figure 1-1). It comprises 642 acres (Figure 1-2), and can be divided into two geographical areas: the main installation and Dunn Field. The main installation consists of 578 acres, and Dunn Field consists of 64 acres.

The DDMT has been placed on the National Priorities List. The DDMT has conducted environmental investigations and plans to conduct further environmental investigations under the requirements of CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). To assist further investigations at DDMT, representatives of DDMT, the CEHNC, EPA, and TDEC divided the facility into four potential operable units (OUs) (Figure 1-2). The main installation is divided into three OUs (2 through 4). Operable Unit 2 (OU-2) is located in the southwestern quadrant of the main installation area of DDMT and is characterized as an industrial area where maintenance and repair activities have taken place. Operable Unit 3 (OU-3) is located in the southeastern quadrant of the main installation area and contains the entire southeastern watershed and golf course. Operable Unit 4 (OU-4) is located in the north-central section of the main installation area, where material storage has taken place. Dunn Field is located north of the main installation area and is identified as OU-1. Operable Unit 1 is the only known and documented burial area on DDMT. The local reuse authority (LRA), known as the Memphis Depot Redevelopment Agency (MDRA), further subdivided each OU into MDRA parcels (Figure 1-3). Each MDRA parcel is further subdivided into BRAC parcels (Figure 1-3).

1.4.2 Installation History and Mission

The 642 acres on which DDMT is located were originally used for producing cotton until their purchase by the U.S. Army in 1940. The initial mission and function of DDMT was to provide stock control, storage, and maintenance services for the Army Engineer, Chemical, and Quartermaster Corps. The installation was originally named Memphis General Depot, but has also been known as Memphis Quartermaster Depot, Memphis Army Service Forces Depot, and Memphis Army Depot.

During World War II, DDMT served as an internment center for 800 prisoners of war and performed supply missions for the Signal and Ordnance Corps. Since 1963, DDMT has been a principal distribution center for the Defense Logistics Agency (DLA) (formerly the Defense Supply Agency) for shipping and receiving hazardous materials, textile products, food products, electronic equipment, construction materials, and industrial, medical, and general supplies. The DDMT receives, warehouses, and distributes supplies common to all U.S. military services in the southeastern United States, Puerto Rico, and Panama. Approximately four million line items are received and shipped by DDMT annually. The DDMT ships approximately 107,000 tons of goods a year (CH2M Hill 1995b).

1.5 OFF-BASE PROPERTY/TENANTS

There are no off-base properties or tenants associated with DDMT. For the EBS, an electronic records search of federal and state environmental databases was conducted for properties adjacent to DDMT. In addition, visual inspections by automobile were performed on properties and facilities adjacent to DDMT. Recent groundwater samples collected in a monitoring well upgradient from DDMT contained detectable chlorinated solvents. An investigation to identify the source of the chlorinated solvents is being planned.

1.6 ENVIRONMENTAL SETTING

This section describes the environmental setting of DDMT, including the physical setting, demographics, climatology, hydrology, geology and soils, and hydrogeology.

1.6.1 Physical Setting

The DDMT encompasses 642 acres in the south-central section of Memphis, 4 miles southeast of the Central Business District and 1 mile north of Memphis International Airport (Figure 1-1). The installation is located in a mixed residential, commercial, and industrial land use area.

Generally, DDMT is described as consisting of two geographic areas—the main installation and Dunn Field. The main installation area consists of 574 acres bordered by Airways Boulevard to the east, Perry Road to the west, Ball Road to the south, and Dunn Road to the north. The main installation area is highly developed and contains most of the buildings and material storage yards for the facility. The Dunn Field area is located just to the north, across Dunn Road from the northwest quadrant of the main installation area. Dunn Field consists of 68 acres of mostly undeveloped land, which has

historically been used for storage of bauxite and fluorspar and for waste disposal. There are approximately 110 buildings, 26 miles of railroad tracks, and 28 miles of paved streets at DDMT. Approximately 126 acres are used for covered storage space and approximately 138 acres are used for open storage space.

1.6.2 Demographics

The DDMT is located in an area of widely varying uses. Formerly a residential and agricultural area, the surrounding area is characterized by small commercial and manufacturing uses north and east of DDMT and single-family residences south and west of DDMT. Numerous small church buildings are scattered throughout the residential neighborhoods. Several schools are located in the neighborhoods, as well as two neighborhood parks.

Airways Boulevard, located on the east border of the main installation, is the most heavily traveled thoroughfare in the vicinity. It is developed with numerous small, commercial establishments, particularly in the area from DDMT south to the Airways Boulevard interchange with Interstate 240. Businesses along Airways Boulevard are typical of highway commercial districts and include convenience stores, liquor stores, restaurants, used car dealers, and service stations. Other commercial establishments are located north, south, and west of DDMT. Most are small groceries or convenience stores that serve their immediate neighborhoods. Memphis Light, Gas, and Water operates a large substation located northwest of DDMT along Person Avenue.

The Frisco Railroad and Illinois Central Gulf Railroad rail lines are north of DDMT. A number of large industrial and warehousing operations are located along the rail lines in this area, including the Kellogg Company; Laramie Tires; Lanigan Storage and Van Company; the Kroger Company; the National Manufacturing Company, Incorporated; and United Uniforms. A triangular area located immediately north of DDMT along Dunn Road also contains several industrial firms.

Most of the land surrounding DDMT is highly developed; however, three relatively large, undeveloped sites exist in the general area. The largest site is located north of DDMT at Person Avenue and Rozelle Street. The other undeveloped areas are located south of DDMT along Ball Road and Ketchum Road in the vicinity of the Orchid Manor Apartments, and east of DDMT along Dwight Street.

In Memphis, zoning controls and subdivision requirements are under the jurisdiction of the Memphis and Shelby County Office of Planning and Development. The DDMT property is zoned Light Industrial. This designation extends to several contiguous land parcels located east of DDMT along Airways Boulevard, in the vicinity of the Kellogg plant west past Rozelle Street. Several smaller areas adjacent to those mentioned above are zoned Heavy Industrial. Most of the remaining land in the vicinity of DDMT is zoned for residential use.

The 1990 census data for the city of Memphis and for Shelby County is listed below (Memphis and Shelby County Division of Planning and Development 1993).

Location	1990 Census Data
City of Memphis	610,337
Shelby County	826,330

1.6.3 Climatology

The DDMT is located in the West Tennessee Climatic Division of the United States (Law Environmental 1990b). This division experiences a typical continental climate with warm, humid summers and cold winters. The average temperatures are 40 degrees Fahrenheit (°F) in the winter and 80°F in the summer. The Memphis area has a 30-year annual precipitation average of 50 inches. Normally, precipitation is heaviest during the winter and early spring. A second, less significant rainfall period occurs as thundershowers during late spring and early summer. The one-year, 24-hour average rainfall for the area surrounding DDMT is 3.4 inches (Law Environmental 1990b). Prevailing winds are from the southwest.

1.6.4 Hydrology

Surface drainage at DDMT is accomplished by overland flow to swales, ditches, concrete-lined channels, and a storm drainage system. The majority of surface drainage at the Dunn Field area is achieved by overland flow to adjacent properties located north and west of the installation (Figure 1-4). The northeast quadrant of the Dunn Field area drains to the east, to a concrete-lined channel or to adjacent properties located to the north. The main installation's surface drainage is achieved by overland flow to a storm drainage system. The concrete-lined channels and storm drainage system are directed to Nonconnah Creek or to Cane Creek, a tributary of Nonconnah Creek. Nonconnah Creek

drains into Lake McKellar, a tributary of the Mississippi River. Where exposed, undisturbed installation surface soils are predominantly grassed, fine-grained semi-cohesive materials which tend to promote large volumes of rapid runoff. Paved and built-up sections of the installation also tend to generate significant amounts of runoff.

Topographically, most of DDMT is generally level with or above the surrounding terrain; therefore, DDMT receives little or no run-on from adjacent areas.

Two permanent surface water bodies exist at DDMT. The larger is Lake Danielson, which is approximately four acres in size. Lake Danielson receives a significant amount of the installation's stormwater runoff, primarily from the area where Buildings 470, 489, 490, 670, 689, and 690 are located. Lake overflow is channeled through a drop inlet at the dam through a concrete-lined channel to a culvert extending beneath N Street and Ball Road. The smaller surface water body is the golf course pond. It receives runoff from the surrounding golf course; the area where Buildings 249, 450, 251, 265, 270, 271 are located; and the south parking lot. Pond overflow is directed to the culvert extending beneath N Street and Ball Road. Surface water flow is then directed to Nonconnah Creek via unnamed tributaries.

1.6.5 Geology and Soils

Topographically, DDMT is situated in an area of gently rolling loess hills. Most of the DDMT terrain is fairly uniform, with elevations ranging from 282 to 300 feet above mean sea level. Five distinct surface soil units have been mapped at DDMT: the Falaya Silt Loam, the Filled Land-Silty, the Graded Land, the Memphis Silt Loam, and the Memphis Silt Loam 2. Surface soils at the developed portion of the DDMT main installation primarily consist of filled land (CH2M Hill 1995b).

Geologically, the area around DDMT is located in the north-central part of the Mississippi embayment, which is a broad, trough-like geologic structure that plunges to the south. The geologic units that have been identified at DDMT are: loess, which can contain "perched" water-bearing zones for short periods of time after a rainfall event; fluvial (terrace) deposits, which contain the site's shallow aquifer; the Jackson Formation/Upper Claiborne Group, which is a confining unit between aquifers; and the Memphis Sand, which represents the region's most important source of water.

Subsurface soils at DDMT consist of moderately drained to well drained silty deposits. The soil in graded areas varies from clay to sandy silt. The permeability range for the soil is 4.4×10^{-4} to 1.4×10^{-3} centimeters per second (CH2M Hill 1995b). The upper strata in the Dunn Field area, located adjacent to the DDMT main installation area, consists of a loess layer underlain by fluvial deposits of sand and gravel, which includes a perched water element.

The DDMT is situated approximately 40 miles southeast of Marked Tree, Arkansas, where the abrupt termination of one of the two major deeply buried faults of the New Madrid region seismic zone is located. This places DDMT in one of the highest earthquake risk zones east of the Rocky Mountains. Three of the greatest earthquakes in American history occurred in the New Madrid seismic zone in 1811 and 1812. The recurrence of quakes of similar magnitude is estimated to be 600 to 800 years. Although thousands of microearthquakes are recorded, very few earthquakes have been felt in the Memphis/Shelby County area.

1.6.6 Hydrogeology

A layer of unsaturated loess, a firm silty clay or clayey silt that is approximately 20 to 30 feet thick, underlies DDMT. Where intact and undisturbed, the loess unit tends to limit precipitation infiltration (recharge) to significant underlying aquifers. Sandy zones within the loess may become seasonal perched water-bearing zones that contain water for short periods of time after rainfall events.

Terrace deposits underlie the loess. The lower, saturated portion of the terrace deposits is referred to as the Fluvial Aquifer, which is the uppermost unconfined aquifer beneath DDMT. The saturated thickness of the Fluvial Aquifer varies from 5.7 feet to 18 feet at DDMT, and the water level top varies from 37 to 145 feet below ground surface (bgs) (CH2M Hill 1995b). The Fluvial Aquifer is not used as a drinking water source within the city of Memphis.

The Memphis Sand Aquifer underlies the Fluvial Aquifer and is the primary source of drinking water for the city of Memphis.

The Fluvial and Memphis Sand Aquifers are separated by the Jackson Formation/Upper Claiborne Group, which generally consists of a high-plasticity clay of variable thickness. The depth to the top of the confining clay unit at DDMT ranges from approximately 70 feet bgs on the east and west sides of OU-4 to approximately 160 feet bgs in the north-central portion of OU-4, where a structural

depression in the top of the clay unit exists. The thickness of this confining stratum ranges from approximately 85 feet to less than 15 feet. The Memphis Sand Aquifer underlies DDMT at a depth of approximately 180 feet bgs and averages 500 feet in thickness. Some recharge is derived from overlying or hydraulically communicating units; however, most of its recharge is derived from the unit's outcrop area, located generally east of Memphis. The outcrop area consists of a broad band ranging in width from approximately 50 miles at the Tennesee-Mississippi border to less than 15 miles at the Tennessee-Kentucky border (in Henry County, Tennessee). The southernmost part of the outcrop area in Tennessee begins in southeasternmost Shelby County, Tennessee, although the unit's outcrop continues south into Mississippi and north into Kentucky.

The Fort Pillow Sand Aquifer underlies DDMT at an approximate depth of 1,400 feet bgs. It averages approximately 200 feet in thickness. The unit contains groundwater under artesian (confined) conditions and derives most of its recharge from unit outcrop areas and hydrogeologic units in hydraulic communication (CH2M Hill 1995b).

Figure 1-5 presents the 1996 potentiometric surface map of the Fluvial Aquifer at DDMT (CH2M Hill 1995b).

Two general groundwater flow regimes occur in the Fluvial Aquifer at DDMT. In the Dunn Field area, a west-southwest direction of flow is indicated by the contours. However, over the majority of the main installation, the direction of groundwater flow is toward the depression in the top of the clay-confining unit on the northern portion of OU-4 just south of the southwest corner of Dunn Field. This area of apparent convergent flows is suspected to be an area with hydraulic interconnection between the Fluvial Aquifer and the underlying Memphis Sand Aquifer. An investigation of the presence or absence of a hydraulic connection between the aquifers is planned as part of the ongoing RI/FS.

1.7 HAZARDOUS SUBSTANCES AND WASTE MANAGEMENT PRACTICES

Past activities conducted at DDMT include a wide range of storage, distribution, and maintenance practices. The Dunn Field area has been used as a landfill, for storage of mineral stockpiles, and as a pistol range. The range house also was used for pesticide and herbicide storage. The primary activities conducted at the main installation include material storage and recoupment; other activities include sandblasting and painting, vehicle maintenance, polychlorinated biphenyl (PCB) transformer storage,

pesticide and herbicide storage and use, treatment of wood products with pentachlorophenol, and a former pistol range. The former pistol range was located on part of the golf course.

1.7.1 Hazardous Substance Activities

As a result of DDMT's complex site-utilization history, large quantities of industrial chemicals or hazardous materials have been stored, repackaged, shipped, or disposed of on installation property. Some of these items were spilled, leaked, or disposed of within installation boundaries.

The following types of hazardous materials have been warehoused and issued at DDMT:

- Flammable liquids
- Flammable solids
- Corrosives (acids and bases)
- Poisons (including insecticides)
- Compressed gases (nonflammable)
- Compressed gases (flammable)
- Class C explosives
- Oxidizers
- Radioactive materials
- Other regulated material

These materials are received as packaged commodities from manufacturers in containers that vary in size up to 55-gallon drums. While in storage, these materials are segregated by hazardous storage compatibility groups to assure optimum safety conditions are met (Harland Bartholomew & Associates, Inc. 1988).

Mission chemical stock items were stored in Building 629, which was constructed on a concrete foundation with seven bays separated by concrete walls and fire doors. Some mission chemical stock items also were stored in Building 319, which is the hazardous waste/hazardous materials and alcohol

storage area for the Defense Reutilization and Marketing Office (DRMO). Hazardous materials requiring temperature-controlled environments also are stored in Building 359. Building 319 has a concrete berm and is situated on a concrete foundation with no floor drains. In the past, cyanide compounds were stored in a mechanically ventilated, separately bermed room. located in the west end of the building. The building is equipped with explosion-proof lighting and spill booths of similar construction to those in Building 629. Security control at Building 319 is stringent.

The majority of mission chemical stock items are now stored in Building 835. This building was constructed on a concrete foundation without floor drains and contains five bays separated by concrete walls and fire doors. Spill booths containing absorbent materials and cleanup equipment are located in each bay area. The bays are marked to preclude incompatible chemicals being placed in the same bay.

The X-25 area was a bermed, concrete pad, located in the open storage area on the northwest side of the installation. The X-25 area was used to store Class 1 flammable liquids. These liquids were usually stored in 55-gallon drums and include a wide range of industrial grade organic solvents. Two tension-fabric roof structures were constructed over the area. Currently, one fabric building remains. Building 925, which stores flammable liquids in 55-gallon drums, was built over the site of the other structure. Building 925 now stores Class 1 flammables and is located in the former X-25 area.

Nonflammable petroleum, oil, and lubricant (POL) products were stored in the open areas X13 and X15. Building S873 is an open-sided shed for POL products storage and antifreeze. Overflow chemicals are also stored in Building S873. The existing hazardous materials recoupment facility is located in Building 865.

The DDMT is a RCRA generator of hazardous wastes in the state of Tennessee under generator number TN 4210020570.. The source of hazardous wastes at DDMT is the cleanup of small hazardous materials spills. Of the approximately 100,000 hazardous materials transfers conducted per year at DDMT, only an estimated 50 transfers per year result in an out-of-container event. More than 90 percent of these events result from packaging failures during transport. The remaining events are attributed to accidents during handling at DDMT (Harland Bartholomew & Associates, Inc. 1988).

The former Defense Property Disposal Office has been redesignated the DRMO. The DRMO is a tenant of DDMT and provides property disposal services for hazardous materials and hazardous

wastes generated by DDMT, the Memphis Naval Air Station, and the Air Force Air National Guard. The installation has obtained a Part B permit from EPA, which allows the storage of hazardous wastes for up to 180 days. Hazardous materials in the DRMO's possession are stored in Building 319. Building 319 is situated on a concrete foundation with no floor drains. Spill containment and cleanup materials are kept in the building.

1.7.2 Waste Management Activities

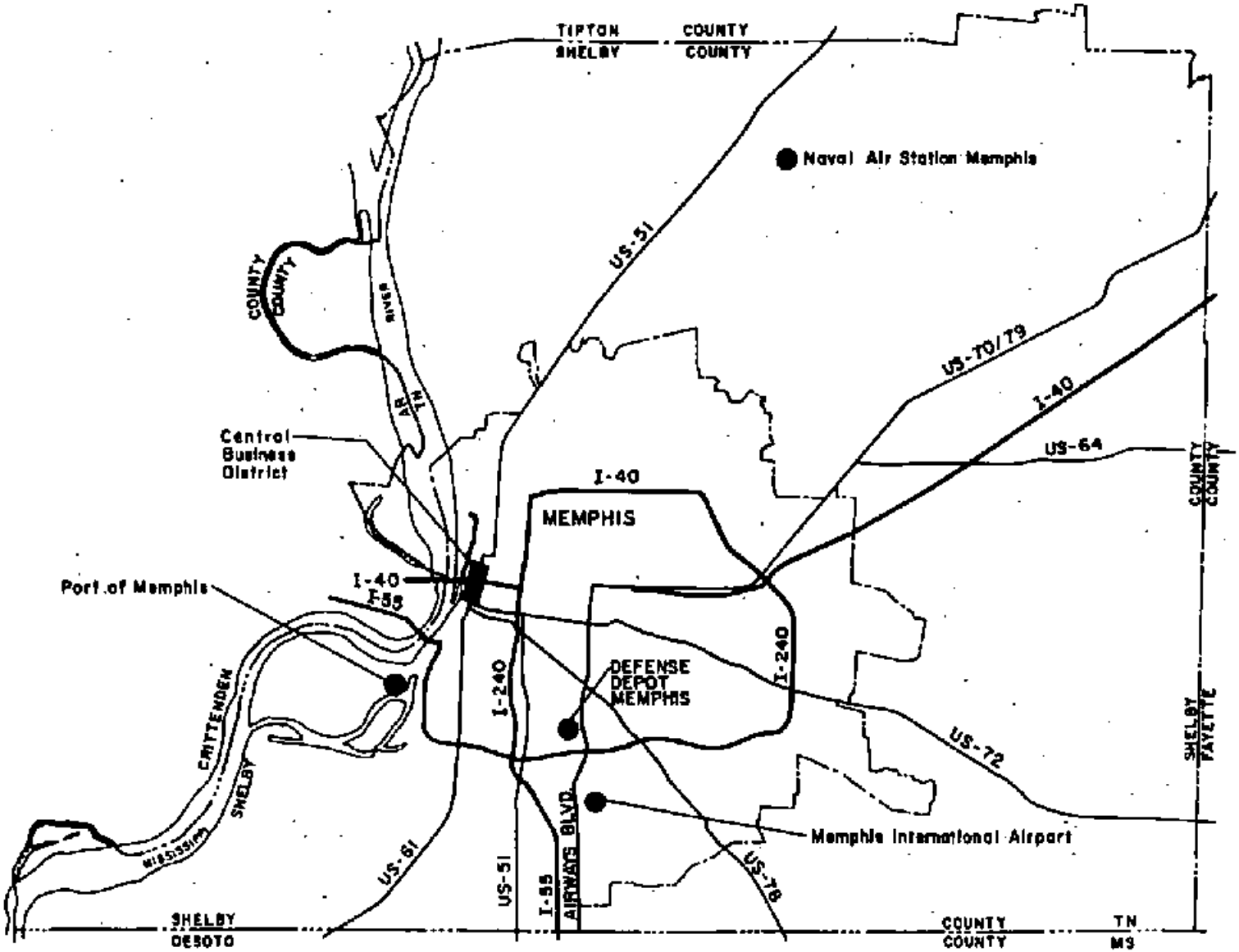
The northwest section of the Dunn Field area was used as the landfill site for unusable, nonhazardous subsistence stocks from the early 1940s to 1948. Additionally, small quantities of hazardous materials (e.g., acids, mixed chemicals, and chemical agent identification sets) have been buried in Dunn Field. Subsequently, DDMT used municipal landfills for sanitary solid waste disposal.

TABLE 1-1
BCT/PROJECT TEAM MEMBERS
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

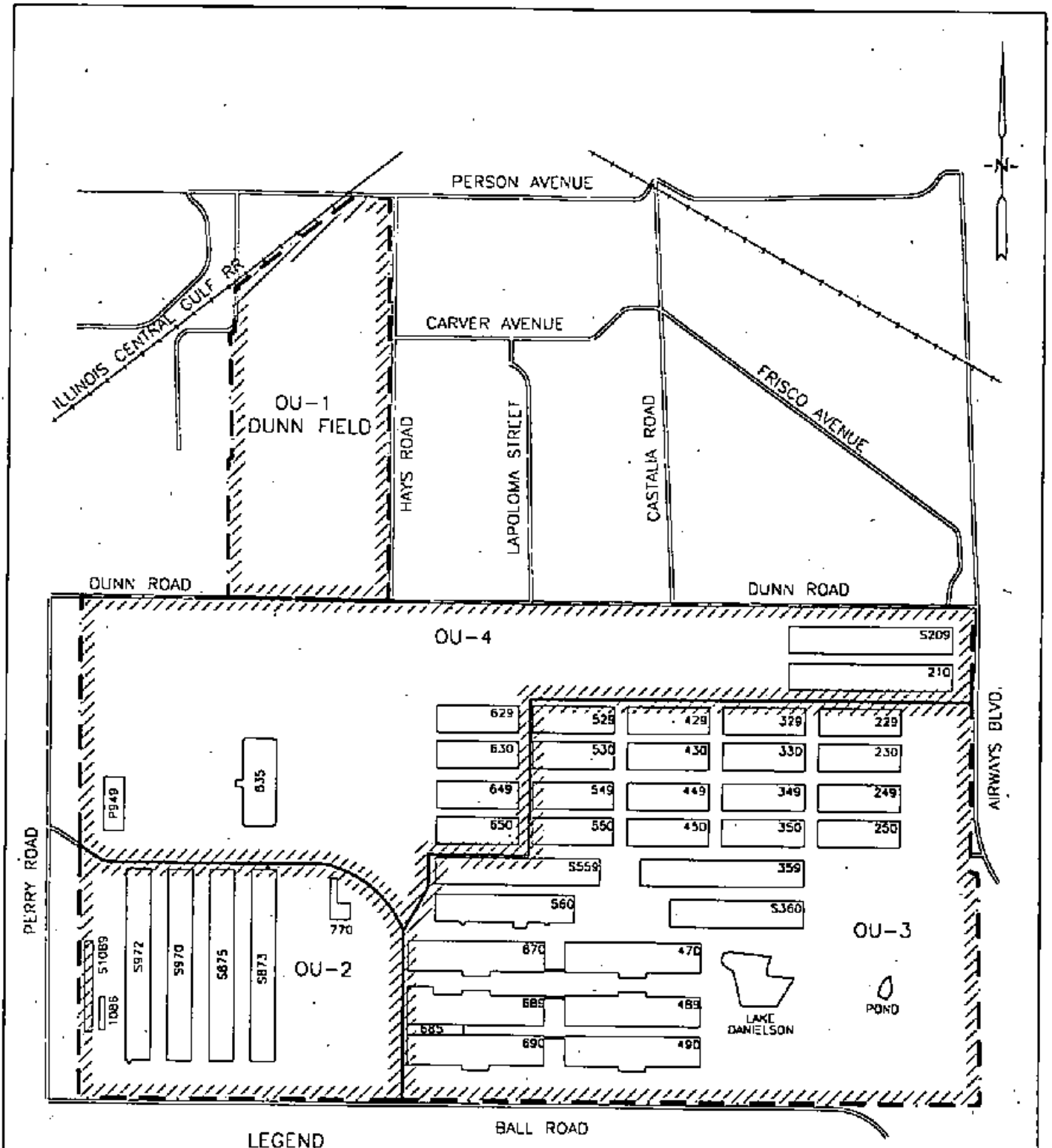
NAME	AFFILIATION	TELEPHONE NUMBER	ROLE/ RESPONSIBILITY
BCT Members			
vacant	DDMT	(901) 775-4568	Installation BEC
Jordan English	TDEC	(901) 368-7953	TDEC Representative
Dann Spariosu	EPA Region IV	(404) 562-8552	EPA Representative
Project Team Members			
Kurt Braun	USACE Mobile	(334) 690-3415	BRAC Program Manager
Ellis Pope	USACE Mobile	(334) 690-3077	BRAC Project Manager
Julian Savage	USACE Huntsville	(205) 895-1462	IRP Project Manager
Denise Cooper	DDMT	(901) 775-4508	DDMT Environmental Protection Specialist
Terry Templeton	TDEC	(901) 368-7957	TDEC Project Manager
Jeff Waugh	AEC	(410) 671-1615	AEC Representative
Doug Warnock	USACD	(410) 612-7189	Non-Stockpile CWM
Mark Corey	CH2M Hill	(334) 271-1445 extension 310	RI/FS, Design
John Martin	Woodward-Clyde	(303) 740-3822	EBS, BCP
Mike Bettcher	Tetra Tech	(703) 385-6000	NEPA, CERCLA investigations

Notes:

AEC: Army Environmental Center
BCP: BRAC Cleanup Plan
BEC: BRAC Environmental Coordinator
BRAC: Base Realignment and Closure
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act, as amended
CWM: Chemical warfare material
DDMT: Defense Distribution Depot Memphis, Tennessee
EBS: Environmental Baseline Survey
EPA: Environmental Protection Agency
IRP: Installation Restoration Program
NEPA: National Environmental Policy Act
RI/FS: Remedial investigation/feasibility study
TDEC: Tennessee Department of Environment and Conservation
USACD: U.S. Army Chemical Demilitarization
USACE: U.S. Army Corps of Engineers



DEFENSE DEPOT MEMPHIS, TENNESEE	PROJECT NO. EE9518MD	SITE LOCATION MAP	FIGURE 1-1
Woodward-Clyde			



LEGEND

DDMT BOUNDARY

OU BOUNDARY

Source: Engineering-Science, 1993

DEFENSE DEPOT MEMPHIS TENNESEE	PROJECT NO. EE9518MD	SITE PLAN	FIGURE 1-2
Woodward-Clyde			

TAB

20

2.0 PROPERTY DISPOSAL AND REUSE

This section describes the status and strategy for real property disposal, as well as the relationship between environmental cleanup efforts and anticipated or known property transfer methods.

2.1 STATUS OF DISPOSAL PLANNING PROCESS

In March 1995, the BRAC Commission recommended the following closure action at DDMT:

- Disestablish Defense Distribution Depot Memphis, Tennessee of the DLA and relocate the depot's functions and material to other defense distribution depots

Pursuant to Public Law 101-510 and BRAC 95, the U.S. Army has identified 642 acres at DDMT that will be excess to its needs following closure. The closure is to be completed by September 30, 1997.

The U.S. Army and DLA have initiated the BRAC parcel disposal process for DDMT. This process involves three interrelated activities: (1) developing a redevelopment plan; (2) developing a disposal plan; and (3) meeting requirements of the NEPA process. This three-part disposal process is designed to integrate goals held by the U.S. Army, DLA, and the City of Memphis/Shelby County in order to provide for the efficient transfer of the DDMT mission within DLA and to minimize the impact of closure on the community. The status of each of these activities is outlined below.

2.1.1 Redevelopment Plan

The redevelopment planning process for DDMT is being implemented by MDRA. The reuse process began in 1995 when the Department of Defense (DOD) and Office of Economic Adjustment approached the City of Memphis to help form a reuse committee. The MDRA was formed as a joint City/County agency and represents a broad spectrum of community interests in the reuse of DDMT.

The MDRA's goals for redevelopment are as follows:

- Maintain overall community public health as the first priority in environmental remediation work

- Maximize community employment, wages, and capital investment through redevelopment of the depot and the surrounding area, commencing immediately
  - Place highest priority on attracting new or expanding businesses to the Memphis market area rather than on relocating existing businesses already in the Memphis market area
  - Encourage new depot businesses to hire depot employees and local community residents
- Improve the local quality of life by using depot facilities to meet community needs and by ensuring that redevelopment is compatible with the surrounding areas
- Generate early cash flow through interim leases and other means of support maintenance, improvements, and marketing efforts

The MDRA was created by the City of Memphis/Shelby County as the LRA for DDMT. The MDRA is the legal government entity recognized under Tennessee law and by the federal government as the authority that can enter into agreements with the federal government for lease or conveyance of the installation property, thereby implementing the redevelopment plan.

The draft redevelopment plan is scheduled for completion in December 1996. The final redevelopment plan is scheduled for completion in January 1997. In addition to identifying the general land use for the future of DDMT, the draft redevelopment plan will provide a strategy for plan implementation by MDRA.

Prior to property transfer, the U.S. Army will work with MDRA to lease the depot facilities on an interim basis. When the facilities become available (e.g., remedial actions necessary to protect human health have been conducted), the facilities will be leased by the U.S. Army to MDRA. The MDRA will then sublease the facilities to private parties.

The timing and conveyance of parcels to the private sector by the MDRA may vary from parcel to parcel, depending on the requirements for access, condition of improvements within the right-of-way, and demand for specific parcels.

2.1.2 Disposal Plan

A disposal plan is under development for DDMT. The disposal plan will consider BRAC realignment requirements and schedules, U.S. Army disposal goals, and the redevelopment planning goals of the local community. The plan will incorporate relevant U.S. Army BRAC disposal hierarchy requirements established by Public Law 100-526 and the Federal Property and Administration Services Act, the Surplus Property Act, the Federal Property Management Regulations, and the 1994 Defense Authorization Act.

The process shall include the following actions in the sequence listed: (1) offer facility to DOD agencies for use; (2) offer facility to other federal agencies; (3) offer facility under the 1994 Redevelopment Act (excluding property taken by DOD agencies) to sponsoring organizations and qualified homeless assistance providers; (4) offer facility to state and local government agencies through public benefit discount conveyance; (5) offer facility to a redevelopment agency at or below fair market value through an economic development conveyance; and (6) offer the property for negotiated or competitive bid sale to the private sector.

The Base Closure Community Redevelopment and Homeless Assistance Act of 1994, signed into law October 25, 1994, and Title XXIX of the 1994 Defense Authorization Act amended this process as it pertains to homeless, state, and local screening. These pieces of legislation exempt BRAC properties from screening under McKinney Act provisions. They do, however, require that the needs of the homeless be considered during the reuse planning process and that these needs be balanced with the need for further economic redevelopment. To accomplish this, the new process requires that screening for state, local, and homeless assistance needs to be done at the local level by the MDRA.

2.1.3 National Environmental Policy Act Documentation

The NEPA does not apply to the BRAC decision process or closing action for an installation, but it does apply to property disposal as a U.S. Army action and the reuse of property by the community as an indirect effect of disposal.

To comply with NEPA, a disposal and reuse environmental assessment (EA) for DDMT is being prepared by the USACE, Mobile District. The EA process was initiated in April 1996. A scoping meeting was conducted on July 23, 1996, and a scoping report and description of proposed action and

alternatives is scheduled for completion in October 1996. A leasing EA was completed in October 1996 and has entered the public comment period. The final EA for disposal is expected to be signed in June 1997.

The EAs will evaluate several disposal and reuse alternatives in accordance with current Department of the Army (DA) policy on the preparation of U.S. Army disposal and reuse documents. This policy establishes a broad framework for the formulation of unencumbered and encumbered disposal alternatives and reuse of installation property by other (non-U.S. Army) parties. The three disposal alternatives being considered in the disposal and reuse EA are as follows:

- **Unencumbered Disposal Alternative**: Disposal of the property as unencumbered means that the U.S. Army would not impose conditions on it. For example, the property would be transferred free of U.S. Army easements or continuing environmental mitigation measures.

- **Encumbered Disposal Alternative:** The U.S. Army would dispose of the property with encumbrances. The encumbrances may result in development constraints for the new property owners. Possible encumbrances include existing or proposed utility or infrastructure easements or property reuse limitations because of the presence of environmental contamination undergoing long-term remediation. An encumbrance also might be required by an existing deed restriction.

- **Caretaker Alternative (No Action Alternative):** The U.S. Army would not dispose of the property under this alternative, but would maintain it indefinitely in caretaker status. Once the maintenance and other missions of DDMT have been transferred to other installations, the U.S. Army would maintain and preserve the vacated area. The property would be available for the U.S. Army to reuse if it should be needed.

The U.S. Army fully supports community planned reuse of DDMT facilities by the community. However, because the redevelopment plan for the installation property is not final, impacts of specific reuse actions cannot be addressed in the EA. The EA will therefore address a range of high, medium, and low reuse intensities. Once approved, the final MDRA redevelopment plan will be appended to the

final EA, and proposed reuses will be cross-referenced to the reuse scenarios addressed in the EA. The three reuse scenarios being considered in the disposal and reuse EA are as follows:

- **High-Intensity Reuse Scenario:** This scenario assumes that each BRAC parcel area would be used at its maximum feasible intensity. Under this scenario, more of the total acreage would be used for manufacturing and residential development and less would be used for parks, open space, and warehousing.

- **Medium-Intensity Reuse Scenario:** This scenario assumes that each area in the BRAC parcel would be used at a moderate level of intensity. This scenario most reflects the goals of the MDRA.

- **Low-Intensity Reuse Scenario:** This scenario assumes that each area would be used at the lowest intensity within a feasible range. Existing open space areas would largely be preserved as open spaces made into parks or devoted to other low-intensity uses. The reuse of warehouses would be maximized, because warehousing generally involves fewer vehicle trips and fewer employees than do residential or manufacturing uses.

2.1.4 Disposal/Reuse Progress

The disposal process at DDMT is under way, following disposal plan guidelines and in a manner consistent with currently proposed community reuse goals. To date, the following actions have occurred:

- Closure actions at DDMT began immediately after the BRAC 95 decision. The DLA requires that the DDMT closure action be completed by September 30, 1997. This is in response to congressional, state, and community interest in early reuse of the BRAC parcel facilities. To meet this deadline and to allow for final deactivation, DDMT missions will be realigned by September 30, 1997.

- Several administration buildings (to be named at a later date) will be retained for caretaker staff until the property at DDMT is available for transfer.

- A report of excess for the BRAC parcel has been prepared by the DA and has undergone several revisions.

- Federal screening to identify facility uses by other non-DOD entities was completed in March 1996.
- Homeless assistance screening is in progress and anticipated to be complete in December 1996.

2.2 RELATIONSHIP TO ENVIRONMENTAL PROGRAMS

Disposal and reuse activities at DDMT are intimately linked to environmental investigation, restoration, and compliance activities for two reasons:

- Federal property transfers to non-federal parties are governed by CERCLA Section 120(h)(3)(B)(i), Contents of Certain Deeds
- Residual contamination may remain on certain properties after remedial actions have been completed or put into place, thereby restricting or placing encumbrances on the future use of those properties

Section 120(h)(3)(B)(i) of CERCLA requires deeds for federal transfer of previously contaminated property to contain a covenant that all remedial actions necessary to protect human health and the environment have been taken. The 1992 CERFA amendment to CERCLA provided clarification to the phrase "has been taken." This clarification states that all remedial action has been taken if the construction and installation of an approved remedial design has been completed, and the remedy has been demonstrated to the Administrator to be operating properly and successfully. It further states that the carrying out of long-term pumping and treating or operation and maintenance after the remedy has been demonstrated to the Administrator to be operating properly and successfully does not preclude the transfer of the property. Thus, any required remedial and/or removal response actions must be selected and implemented for such contaminated properties before transfers to private parties can occur. Also, CERCLA requires that deeds for property on which a hazardous substance was stored for more than one year, released, or disposed include information on the type, quantity, and the time at which the storage or release occurred.

The requirement for complying with CERCLA Section 120(h), the possibility of residual contamination at the installation, and the remediation of the site according to future use are factored into the property disposal and reuse process at DDMT. This is accomplished in the following manner:

- Because DDMT has experienced releases of CERCLA hazardous substances, it is subsequently subject to CERCLA transfer restrictions as described above.

- The IRP at DDMT uses the investigative and restoration processes of the CERCLA remedial action program. These processes include the completion of an RI and risk assessment according to future land use (commercial). The draft redevelopment plan is being prepared by MDRA and the description of proposed action and alternatives for the disposal and reuse EA provide the current, best estimation of the future land use scenarios at DDMT.

- The DDMT is proceeding with the investigation phase of the IRP. The installation RI for OU-1 through OU-4 and the associated health risk assessment completed in 1990 evaluated human health and ecological impacts at each site. The baseline risk assessment considered human health and ecological impacts of current and potential on-site and off-site receptors. Future FSs for the depot will evaluate the effectiveness of remedial actions in mitigating risk according to the proposed reuses of the installation.

- The DLA has solicited and will continue to solicit input from the community on proposed reuse scenarios and redevelopment plan implementation through communication with MDRA and participation in the Restoration Advisory Board (RAB) process (see Section 3.5). Future additional risk assessments as part of the ongoing RI will consider the most current reuse planning.

- The presence of residual contamination at DDMT after closure will be considered in the development of real estate transfer documentation. The DLA anticipates that remediation of contaminated groundwater at DDMT may continue until 2024, well beyond the installation's specified closure date of September 30, 1997. The DOD will not transfer land until remediation is complete, or they will sell the land with a Statement of Condition, specifying that remedial activities are under way, providing the

expected time frame for completion, and placing limits on reuse of part of the land. Restrictions on development cannot be specified at this time without a detailed redevelopment plan. Easements will be established to ensure the access of the DOD and regulators to the property that has been excessed and disposed for remedial action, equipment operation and maintenance, and long-term monitoring.

The strategy and schedule for DDMT presented in this document are designed to streamline and expedite the necessary response actions associated with contaminated parcels identified at the installation, in order to facilitate the earliest possible disposal and reuse activities. Because of the need to differentiate between areas suitable for transfer and those that are not, the DDMT BCT has developed a map showing the environmental condition of property using data from the base-wide EBS (see text and figures in Section 3.4). This map presents contaminated areas and areas of no suspected contamination. Figure 2-1 relates environmental condition of property to disposal and reuse of the parcels. (Figure 2-1 is not included in this BCP because the redevelopment plan has not been completed. Figure 2-1 will be attached to Version 2 of the BCP after the redevelopment plan has been completed.)

The requirement for complying with CERCLA Section 120(h) and the possibility of residual contamination are two factors considered during DDMT property disposal and reuse. Table 2-1 summarizes information on DDMT parcels and provides an approximate timetable for transfer by deed of each parcel. The timetable for transfer of property by parcel was developed based on the MDRA priority for property transfer and an estimated schedule to clean up the parcel. The DDMT considers a parcel available for transfer on the date when cleanup or remediation is complete. The BCT will continue to update and refine the maps showing the environmental condition of property and property suitable for transfer for DDMT as data become available and as site restorations are completed.

Currently, DDMT plans to transfer BRAC parcels to MDRA through the economic development conveyance. Because this method of transfer is not from one federal agency to another, the transfer will be governed by CERCLA. Section 120(h)(3)(B)(i) of CERCLA requires deeds for federal transfer of previously contaminated property to contain a covenant that all remedial actions necessary to protect human health and the environment have been taken. This deed requirement applies only to property on which a hazardous substance was stored for one year or more or is known to have been disposed of or released. Thus, any required remedial actions and/or removal response actions must be

selected and implemented for such contaminated properties before transfer to a non-federal agency can occur.

2.3 PROPERTY TRANSFER METHODS

This section contains a brief description of planned or final disposal decisions that have been made or will be made in the disposal and reuse record of decision (ROD) for the parcels that have been previously described. The various transfer methods being used or considered in the disposal process at DDMT are described. These transfer methods were identified from U.S. Army BRAC disposal protocols established by Public Law 100-526, the Federal Property and Administration Services Act, the Surplus Property Act, the Federal Property Management Regulations, and the 1994 Defense Authorization Act. The status of each of the transfer methods is identified. Transfer methods that are not currently being considered but that could be used in future disposal planning actions at the installation also have been identified.

2.3.1 Federal Transfer of Property

Screening of the DDMT BRAC parcel for use by other federal agencies was completed in March 1996. No other federal agencies identified a need for the DDMT property.

2.3.2 No-Cost Public Benefit Conveyance

State or local government entities may obtain property at no cost or less than fair market value when sponsored by a federal agency for uses that would benefit the public (e.g., health and education, parks and recreation, wildlife conservation, or public health).

As of October 1996, no requests for public benefit conveyance have been received for DDMT property. However, informal expressions of interest for a nine-hole golf course and adjoining park area have been made.

2.3.3 Negotiated Sale

The U.S. Army may sell the property by negotiation to state or local agencies at fair market value. A sale could also be negotiated with private entities. As of October 1996, no negotiated sales have been initiated on any facilities or property at DDMT.

2.3.4 Widening of Public Highways

There is one road widening project associated with DDMT BRAC parcels. The city of Memphis has a project on Hayes Road (adjacent to Dunn Field) between Dunn Avenue and Person Road that is currently in the preplanning process. The objective of widening is to eliminate safety hazards but the project also may provide improved access to DDMT.

2.3.5 Donated Property

As of October 1996, no local governments have requested DDMT for the donation of facilities or property. Property may be transferred via public benefit conveyance at no cost (see Section 2.3.2 above).

2.3.6 Interim Leases

Predisposal use of facilities by a non-U.S. Army entity can be accomplished through the execution of leases, licenses, or permits. The Military Leasing Act of 1956 (10 United States Code §2667), as amended, permits the U.S. Army to implement interim leasing of excess facilities if it is in the public interest. Under this provision, the lease cannot exceed one year but may be renewed annually by the U.S. Army for up to five years. A long-term lease may be instituted if it would promote national defense or be in the public's interest. Prior to any leasing or permitting, the U.S. Army must complete a finding of suitability to lease, documenting that the facility is clean and safe to use. Leased properties may be transferred by deed to future owners when the property is disposed of.

To facilitate the reuse of surplus property, and in accordance with DA policy and redevelopment plan goals, the U.S. Army is pursuing interim leasing of facilities at DDMT. The U.S. Army has entered into negotiations with MDRA for a master lease. The U.S. Army and MDRA are interested in pursuing interim lease arrangements where possible.

2.3.7 Competitive Public Sale

Sale to the public would occur through either an invitation for bids or an auction. As of October 1996, no competitive public sale of facilities or property has been initiated at DDMT.

2.3.8 Economic Development Conveyance

The 1994 Defense Authorization Act provides for the conveyance of property to an LRA at or below fair market value using flexible payment terms for recoupment in advance or over time. The economic development conveyance is intended to promote economic development and job creation in the local community. To qualify for this conveyance, an LRA must submit a request to the DA describing its proposed economic development and job creation program. The DOD has recognized MDRA as the LRA for the DDMT BRAC parcel.

2.3.9 Caretaker of Property Until Disposal

As the realignment of the mission at DDMT is completed, utility systems not required for continued DDMT operations or interim lessees will be privatized or placed in an inactive caretaker status until the property is transferred to new owners. Army Regulation 210-17, "Inactivation of Installations," requires that "Inactive facilities and areas will be maintained to the extent necessary to ensure, as applicable, weather-tightness, structural soundness, protection against fire and erosion, conservation of natural resources, and the prevention of major deterioration..." with "the minimum required staffing to maintain an installation in a state of repair that maintains safety, security, and health standards."

TABLE 2-1
SUMMARY OF PARCEL REUSE
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

MDRA PARCEL	AREA (acres)	POTENTIAL REUSE DESIGNATION	PROJECTED TRANSFER DATE[a]	TRANSFER MECHANISM	RECIPIENT
1	15.58	TBD	March 1997	TBD	MDRA
2	0.58	TBD	March 1997	TBD	MDRA
2-184	1.8	TBD	March 1997	TBD	MDRA
3	41.58	TBD	February 1998	TBD	MDRA
4	6.66	TBD	February 1998	TBD	MDRA
5	1.99	TBD	February 1998	TBD	MDRA
6	12.8	TBD	January 1998	TBD	MDRA
7	4.3	TBD	February 1998	TBD	MDRA
8	17.6	TBD	January 1998	TBD	MDRA
9	17.5	TBD	February 1998	TBD	MDRA
10	20.15	TBD	February 1998	TBD	MDRA
11	13	TBD	February 1998	TBD	MDRA
12	4.5	TBD	January 1998	TBD	MDRA
13	9.43	TBD	March 1997	TBD	MDRA
14	10.51	TBD	March 1997	TBD	MDRA
15	47.81	TBD	March 1999	TBD	MDRA
16	8.3	TBD	February 1998	TBD	MDRA
17	9.29	TBD	March 1997	TBD	MDRA
18	6.6	TBD	March 1997	TBD	MDRA
19	2.81	TBD	March 1997	TBD	MDRA
19-469	0.22	TBD	February 1998	TBD	MDRA
20	42.36	TBD	March 1997	TBD	MDRA
21	48.83	TBD	March 1997	TBD	MDRA
22	1.24	TBD	March 1999	TBD	MDRA
23	27.18	TBD	August 1998	TBD	MDRA
24	18.5	TBD	March 1999	TBD	MDRA
25	18.2	TBD	March 1999	TBD	MDRA
26	11	TBD	March 1997	TBD	MDRA
27	10.7	TBD	August 1998	TBD	MDRA
28	12.31	TBD	August 1998	TBD	MDRA
29	30.54	TBD	August 1998	TBD	MDRA
30	9.77	TBD	February 1998	TBD	MDRA
31	23.7	TBD	August 1998	TBD	MDRA
32	10.5	TBD	February 1998	TBD	MDRA
33	40.24	TBD	March 1999	TBD	MDRA
34	6.7	TBD	March 1997	TBD	MDRA
35	9.57	TBD	March 1999	TBD	MDRA
36-CWM	8.28	TBD	March 2003	TBD	MDRA
36-HTW	59.74	TBD	March 2003	TBD	MDRA

Note:
MDRA: Memphis Depot Redevelopment Agency
TBD: To be determined

a. The projected transfer date is the date when cleanup or remediation of the parcel is expected to be complete and the parcel is ready to begin the transfer process.

FIGURE 2-1
POTENTIAL DISPOSAL AND REUSE MAP

to be included in Version 2 of the BCP

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TAB

3.0

3.0 INSTALLATION-WIDE ENVIRONMENTAL PROGRAM STATUS

This section summarizes the current status of environmental restoration projects and ongoing compliance activities at DDMT. It also summarizes the status of the cultural and natural resources program, community involvement to date, and the environmental condition and suitability for transfer of the BRAC parcel.

3.1 ENVIRONMENTAL PROGRAM STATUS

The Post Commander is responsible for establishing and maintaining all environmental programs, compliance programs, and remediation efforts at DDMT. These programs are executed by the DDMT Environmental Protection and Safety Office. Three principal U.S. Army components assist the Depot's effort: the CEHNC provides support in areas including RI/FS, remedial design, remedial action, and compliance programs; natural and cultural resource management programs are supported by the USACE, Fort Worth District; and the USACE, Mobile District, is conducting BRAC activities at the installation and provides support for remedial action, remedial design, and compliance. The DDMT is a National Priorities List site. Regulatory oversight for the IRP is shared by TDEC and EPA.

Environmental restoration programs at DDMT are currently conducted under the BRAC and non-BRAC IRP in compliance with DLA, DOD, state, and federal statutes and regulations and in accordance with a Federal Facility Agreement. Environmental compliance programs at DDMT are conducted in compliance with applicable DA and DOD regulations and state and federal regulatory programs, including those administered under the Clean Air Act, Clean Water Act, Safe Drinking Water Act; RCRA, Toxic Substances Control Act, and SARA.

An environmental restoration program has been in place at DDMT for approximately 15 years. An overview of some of the major milestones in the IRP and associated compliance programs for the installation is provided below.

- Several environmental assessments have been conducted at DDMT, and DDMT-wide initial installation assessments were completed in 1981.

- The DDMT has been listed as a National Priorities List site. A Federal Facility Agreement has been prepared for the depot.
- A RCRA facility assessment (RFA) completed in 1990 identified 49 solid waste management units and eight areas of concern.
- Multiple investigations have been completed or are ongoing at DDMT. Four potential CERCLA OUs have been designated installation-wide.
- Several early actions and interim actions have been completed at DDMT. They include pentachlorophenol- and petroleum-contaminated soil removals, tank removals, and soil remediation.
- The DDMT has instituted programs to ensure compliance with other environmental programs. The depot has an ongoing program to maintain USTs and aboveground storage tanks (ASTs) and to remediate former UST sites.
- In fiscal year 1995, RI/FS field sampling plans were developed for each OU (CH2M Hill 1995c, 1995d, 1995e, 1995f) and the Screening Sites (CH2M Hill 1995h), and a no-further-action report was prepared for 13 sites (CH2M Hill 1994).
- In fiscal year 1995, a final ROD was prepared for an interim remedial action for groundwater contamination at Dunn Field (CH2M Hill 1995g).
- In fiscal year 1995, the Generic Remedial Investigation/Feasibility Study Work Plan was prepared to indicate how the investigation and study would be accomplished; to investigate the sites that were not previously investigated; and to fill data gaps at previously investigated sites (CH2M Hill 1995b).

3.1.1 Restoration Sites

Past operations at DDMT have resulted in the generation of various types of contaminants and their disposal and/or release across the installation. Efforts related to these sites under the IRP are described in this section.

The DDMT has been placed on the National Priorities List and must fulfill requirements under CERCLA and the NCP. The remedial process under CERCLA and the NCP requires the preparation of an RI/FS to determine the nature and extent of contamination, to evaluate public health risks, and to screen potential remedial actions. The RI/FS process is being managed by CEHNC. To assist further investigations, representatives of DDMT, CEHNC, EPA, and TDEC divided the facility into four potential OUs, as shown on Figure 1-2 and listed below.

- OU-1: Dunn Field
- OU-2: Southwest Quadrant, Main Installation
- OU-3: Southeastern Watershed and Golf Course, Main Installation
- OU-4: North-Central Area, Main Installation

The following general criteria were used to define the OUs:

- Geographic proximity of sites
- Similar contaminants of concern previously identified
- Similar investigation methods
- Scope and complexity of investigation
- Results of previous site studies
- Potential for off-site migration and exposure
- Relative threat to the Memphis drinking water supply
- Suspected mobility of contaminants

In addition to the four OUs, sources of potential contamination at DDMT are further grouped into RI sites, proposed early removal (ER) sites, screening sites, proposed no further action (NFA) sites, and Chemical Warfare Management Plan (CWMP) sites.

Remedial investigation sites are those sites for which an RI/FS will be conducted to evaluate the nature and extent of contamination and the risk to human health and the environment and to screen potential cleanup actions. Detailed field sampling plans have been developed for these sites for each OU. These sites will be characterized based on sampling and analysis results (CH2M Hill 1995b).

The goal of the ER program at DDMT is to remove contamination at selected ER sites as soon as possible, thus expediting cleanup of potential sources of contamination. This concept uses an observational approach that includes a flexible design, in-process monitoring, and as-needed adjustments throughout the remediation process. Certain elements of information are needed to reasonably scope, specify, and identify contingencies for monitoring and controlling the work, no matter how flexible the design is. This essential design information must at least identify, to a reasonable degree, the location and size of the site, the scope of the work; the presence of obstructions, and special design and safety concerns for which the contractor must plan and bid (CH2M Hill 1995i).

Screening Sites are those sites where additional information is needed to determine if an RI or NFA determination is warranted. The screening sites identified in the RFA (A.T. Kearney, Inc. 1990) and the RI report (Law Environmental 1990b) are: (1) areas where hazardous materials were managed and where there is potential for contaminant release to have occurred; (2) minor waste disposal areas used during past operations; or (3) areas with less potential for contamination than sites placed in the OUs described above, based on historical records. A wide variety of sites are included in this category: stormwater drainage ditches, fuel storage areas, known and suspected spill areas, areas where hazardous substances were used and may have been released, and areas where pesticides have been applied (railroad tracks and vegetation).

Seventeen sites are proposed for NFA for one or more of the following reasons:

- Hazardous substances were never managed or disposed of at the site
- The site is not a threat for releases because of past waste management activities
- Previous sampling results have shown no observed contamination
- Extensive prior removal or remediation activities were conducted
- Current operational and structural features make NFA probable

A draft proposed NFA report has been prepared by DDMT (CH2M Hill 1994) for regulatory approval. This report documents the available information on these sites and the rationale for the proposed NFA determination, but has not yet received final regulatory approval.

There are four documented locations within Dunn Field where chemical warfare material (CWM) has been disposed of. The documented CWM sites of concern at Dunn Field are listed below:

- Mustard bomb decommissioning site (Site 24)
- Ashes and metals burial site (Site 9)
- Chemical Agent Identification Sets (CAISs) burial site (Site 1)
- Food burial site reported to contain CAISs (Site 86)

Because CWM was disposed of at Dunn Field at known and unknown locations, and because of the proximity of Dunn Field to residences, DDMT has requested assistance from agencies responsible for CWM investigation and disposition: (1) CEHNC; (2) the Program Manager for Chemical Demilitarization; and (3) the U.S. Army Technical Escort Unit.

These three agencies and DDMT have developed a strategy to evaluate the presence of CWM at the facility and to investigate sites where the potential for CWM exists (CH2M Hill 1995c). The strategy selected to accommodate both the CWM and the hazardous, toxic or radiological waste components of the project includes a three-phased approach. All three phases are proposed to begin simultaneously as a result of schedule efficiency and the need for ultimate removal of the CWM sites as a result of the facility's BRAC status. These three phases are described below.

1. Conduct an initial investigation focused on the known and suspected CWM sites at the facility. The purpose of the investigation is to evaluate the presence of and to delineate the nature and extent of potential CWM contamination at Dunn Field. These activities will be conducted by CEHNC.

2. Prepare a Site Safety submission for review by the Department of Health and Human Services. The CEHNC will prepare the Site Safety submission.

3. Conduct necessary CWM removal actions based on the results of the field investigation. Field monitoring and screening will be performed during the field activities, and appropriate control measures will be implemented to minimize the occurrence of releases of CWM.

The following sections list the potential contamination sites at DDMT by OU. Associated site numbers from previous reports, the designated MDRA parcel number, and the current disposition or grouping of the site (as an RI site, ER site, etc.) are included.

For purposes of this report, references to site numbers correspond to the RI/FS work plan site number (CH2M Hill 1995b).

OU-1: Dunn Field

Dunn Field, OU-1, is an open, unpaved area located north of the main installation and is separated from the installation by Dunn Road. Dunn Field is the only known and documented burial area on DDMT. Most of the potential contamination sites are associated with burial sites that may require similar investigation techniques. Operable Unit 1 includes the potential contamination sites shown on Table 3-1 and Figure 3-1.

Installation records indicate that various types and quantities of wastes were buried at numerous sites in the northwest quadrant of Dunn Field. Twenty-five sites have been identified where the burial of wastes has been documented by DDMT, documented in other environmental studies, or discovered during the RI field investigation (Law Environmental 1990b). Soil samples collected in the Dunn Field area during previous investigations indicated the presence of pesticides at concentrations up to 0.48 milligrams per kilogram (mg/kg) and polycyclic aromatic hydrocarbons (PAHs) at concentrations up to 220 mg/kg. Groundwater monitoring wells were installed in the uppermost (fluvial) aquifer in the area by the U.S. Army Environmental Hygiene Agency in 1982 and by Law Environmental during the RI conducted from 1989 through 1990. Groundwater monitoring data collected during the RI and presented in the RI report (Law Environmental 1990b) have shown levels of volatile organic compounds (VOCs) at concentrations up to 5.1 milligrams per liter (mg/L) and metals at concentrations up to 35 mg/L (including chromium, lead, and mercury) that suggest contamination has migrated to groundwater. The individual source or sources of contamination have not been determined.

During the 1990 RI, monitoring wells were installed in the Fluvial Aquifer and the Memphis Sand Aquifer. Contaminants of concern in groundwater collected from the Dunn Field monitoring wells screened in the Fluvial Aquifer include the following:

- Volatile organic compounds
  - Carbon tetrachloride
  - 1,2-Dichloroethylene
  - 1,1,2,2-Tetrachloroethane
  - 1,1-Dichloroethylene
  - Tetrachloroethylene
  - Trichloroethylene
- Metals
  - Arsenic
  - Barium
  - Chromium
  - Lead
  - Nickel

The contaminants of concern found in the Fluvial Aquifer beneath Dunn Field were detected at concentrations above the established maximum contaminant levels and maximum contaminant level goals over the course of three sampling efforts conducted in 1989, 1990, and 1992. Contaminants of concern in the Fluvial Aquifer have not been detected in the Memphis Sand Aquifer groundwater samples.

In 1990, as part of the RI/FS, a preliminary risk assessment was performed. Potential exposure points for contaminated groundwater sources from the Dunn Field area were identified as:

- Ingestion of groundwater through the public water supply
- Contact with potable water during bathing
- Inhalation of vapors from VOCs in potable water during household use

The Fluvial Aquifer, which is not used as a potable water supply, is the only aquifer where contaminants have been detected. However, locally the Fluvial Aquifer may be in hydrologic communication with the Memphis Sand Aquifer. This potential communication could provide a pathway for contaminants to migrate downward to the Memphis Sand Aquifer, which is the drinking water aquifer for the city of Memphis.

In 1993, an engineering design report was prepared for DDMT. The intent of the report was to meet all requirements of the engineering evaluation/cost analysis (EE/CA) under CERCLA and the NCP for a non-time critical removal. The report evaluated a variety of technologies previously presented in the 1990 RI/FS (Law Environmental 1990a, 1990b) that would treat contaminated groundwater in the Fluvial Aquifer to prevent human exposure.

In 1996, a final Record of Decision for the Interim Remedial Action of the Groundwater at Dunn Field (OU-1) was prepared for DDMT (CH2M Hill 1995g).

Because the contaminated groundwater beneath Dunn Field poses a potential threat to the drinking water aquifer, it is considered a possible threat to human health and the environment. Thus, the objective of the groundwater interim remedial action is to provide a quick response measure that will help prevent the possible contamination of the area's drinking water supply.

The major components of the selected interim remedial action for OU-1 include the following:

- Evaluation of aquifer characteristics that may include installation of a pump test well
- Installation of additional monitoring wells to locate the western edge of the groundwater plume
- Installation of recovery wells along the leading edge of the plume

- Obtaining a discharge permit for disposal of recovered groundwater to the T.E. Maxon Wastewater Treatment Plant publicly-owned treatment works or municipal sewer system

- Operation of the system of recovery wells until the risk associated with the contaminants is reduced to acceptable levels or until the final remedy is in place

- Chemical analysis to monitor the quality of the discharge in accordance with the City discharge permit requirements; the permit will include parameters to be monitored and frequency of monitoring

- Pretreatment of groundwater, if the water fails to meet discharge limitations established in the discharge permit

Follow-up activities include characterizing and monitoring the groundwater plume migration. As the plume continues to be characterized, subsequent action may be taken to provide long-term definitive protection, including remediation of source areas.

OU-2: Southwestern Quadrant, Main Installation

Operable Unit 2 is geographically located in the southwestern quadrant of the main installation area of DDMT and is characterized primarily as an industrial area where maintenance and repair activities have taken place. The OU-2 boundaries are based on the geographic proximity of potential contamination sites and the maintenance activities that occurred. Operable Unit 2 includes the potential contamination sites shown on Table 3-1 and Figure 3-2.

One soil boring (yielding three samples) and 15 surface soil samples were collected in OU-2 during previous investigations. These samples were collected in an effort to better characterize the former hazardous materials recoupment area, the maintenance shop, and the sandblasting/painting areas. In general, sample analysis detected the presence of pesticides (up to 7.4 mg/kg), PCBs (up to 10 mg/kg), and PAHs (up to 8.1 mg/kg) at the sandblasting/painting area; and pesticides (up to 0.052 mg/kg), solvents (up to 0.11 mg/kg), and PAHs (up to 18 mg/kg) in the area of the maintenance shop. Groundwater investigations in OU-2 have indicated the presence of solvents (up to 0.039 mg/L) and metals (up to 0.75 mg/L).

OU-3: Southeastern Watershed and Golf Course, Main Installation

The boundaries of OU-3 are based on its geographic location and a desire to encompass the entire southeastern watershed. Operable Unit 3 contains the only surface water bodies on DDMT, so it was practical to keep the majority of the sampling and analysis associated with surface water and sediments within the same OU. Operable Unit 3 includes the potential contamination sites shown on Table 3-1 and Figure 3-3.

In general, soil samples collected in OU-3 (seven surface samples) were insufficient to characterize individual sites or sources. Groundwater analysis in OU-3 detected VOCs (up to 0.01 mg/L) and metals (up to 1.96 mg/L). Surface water and sediment samples also were collected from Lake Danielson, the golf course pond, and from storm drainage ditches. Surface water samples collected in the drainageways generally indicated slightly higher levels of potential contaminants (pesticides up to 0.0022 mg/L) than did samples from either Lake Danielson or the golf course pond. Sediments collected from both Lake Danielson and the golf course pond indicated the presence of pesticides (up to 2.9 mg/kg) and PAHs (up to 2.4 mg/kg).

OU-4: North-Central Area, Main Installation

Operable Unit 4 is located in the north-central section of the main installation area at DDMT. The boundaries of OU-4 are based on the material storage activities that occurred and the central location of the area. In addition to the potential contamination site investigations being conducted at OU-4, an investigation of the potential communication between the Fluvial Aquifer and the Memphis Sand Aquifer is currently ongoing. Operable Unit 4 includes the potential contamination sites shown on Table 3-1 and Figure 3-4.

The most prominent feature of OU-4 is the former main hazardous materials storage building (Building 629), designated as Site 57. Pesticides (up to 59 mg/kg), PAHs (up to 280 mg/kg), and VOCs (up to 970 mg/kg) were detected in soil samples near Site 57 during the RI (Law Environmental 1990b). Operable Unit 4 also contains the former pentachlorophenol dip vat area sites (near Building 737). This area is now used for pesticide storage and hazardous materials storage. Remediation conducted during 1985 and 1986 at this site included the removal of the pentachlorophenol tank and surrounding soils.

Surface and subsurface soil samples collected and analyzed in 1990 revealed the presence of pesticides (up to 0.079 mg/kg) and solvents (up to 0.005 mg/kg). Surface and subsurface soil samples were also collected from areas where past spills had occurred. Sample results indicated the presence of PAHs (up to 17 mg/kg), pesticides (up to 5.9 mg/kg), and metals (up to 2,420 mg/kg). The results of groundwater samples collected in OU-4 indicated the presence of solvents (up to 0.12 mg/L), pesticides (up to 0.0021 mg/L), and metals (up to 0.91 mg/L).

3.1.2 Installation-Wide Source Discovery and Assessment Status

Several installation-wide assessments have been conducted to identify the presence of contamination and contamination sources at DDMT, as discussed in Section 3.1.1. Spill response sites are potential contamination sites where hazardous materials were spilled during handling, accidental spills occurred, or storage containers leaked. Table 3-2 summarizes the sites that were identified through a review of the Spill Response Checklists provided by DDMT personnel and in the database search report.

The status of most of these sites is addressed in Section 3.1.1. However, accidental spills or leaks of hazardous materials have occurred since the RFA was completed in 1990. The most recent assessments, on-site visual inspections and a records review completed in April 1996 were conducted as part of the BRAC EBS. The additional sources of potential contamination are listed in Table 3-3.

Several other installation-wide surveys related to environmental compliance programs have also been conducted at DDMT. These include asbestos, PCB, and radon surveys. The results of these surveys and the current status of these environmental programs are described in Section 3.2.

Bottom-up reviews conducted by the BCT as part of the BCP preparation process have not revealed any additional areas of concern. Should any new areas of concern be identified prior to the transfer of the property, they will be addressed according to the strategy described in Section 4.

3.2 COMPLIANCE PROGRAM STATUS

Compliance activities at DDMT are being conducted in coordination with environmental restoration activities being completed under the DDMT BRAC and non-BRAC IRP. General compliance activities address the management of USTs, hazardous materials, asbestos, PCBs, and air and water discharges.

Compliance-related remedial actions at DDMT include removal of USTs and remediation of friable asbestos.

The statutory/regulatory basis for IRP activities at DDMT is CERCLA. Compliance-related management and restoration activities are differentiated from CERCLA because they are regulated primarily under other statutory programs. These include RCRA Subtitles C, D, and I, the Clean Water Act, Clean Air Act, Toxic Substances Control Act, and NEPA.

Compliance actions at the installation can be divided into two categories: (1) current mission- and operational-related compliance projects and (2) closure-related compliance projects. Mission- and operational-related projects are those which have been or would be conducted for the normal operation of the installation and are unrelated to activities necessitated by property closure under BRAC. Conversely, closure-related compliance projects are those conducted specifically as a result of environmental compliance and restoration activities related to BRAC closure and property disposal.

Several compliance-related activities at DDMT have been completed in order to reduce or eliminate potential contamination at the installation. These actions involve UST removal/closure, PCB transformer removal, and asbestos abatement.

The DDMT has maintained various permits and registrations with federal, state, and local agencies for facilities within the BRAC parcel in compliance with environmental regulations. These include UST permits and hazardous waste generator activities, a stormwater permit, and air emission permits. These environmental permits and approval orders are still presently active at DDMT. As missions are transferred and permits and approval orders are no longer required, they will be closed out. No permits will be transferred to future tenants. The transfer of these permits will be addressed if desired by future tenants.

A more detailed description of the various environmental compliance programs being implemented for DDMT is provided in the following subsections.

3.2.1 Storage Tanks

Both USTs and ASTs at DDMT have historically been used to store petroleum products for heating purposes, vehicle and equipment fueling, and maintenance operations. Compliance and environmental restoration activities related to these storage tanks are described in this section.

USTs

The EPA has delegated the management of the RCRA UST program to the State of Tennessee. The TDEC, Division of Underground Storage Tanks, has primary responsibility for implementation of the state UST program. Two USTs have been documented on DDMT and are regulated under the TDEC program.

Tank fitness testing was performed on installation USTs in 1993. Based on results of tank tightness and associated piping tightness tests and a review of current and future mission requirements at the depot, all but two regulated USTs on DDMT were removed or closed in place. All soil contamination discovered during removal/closure of the tanks was removed.

A complete inventory of the USTs on DDMT is provided in Table 3-4. The table includes information on the location, size, contents, and status of each UST.

ASTs

The AST compliance programs at DDMT are conducted under federal requirements including 40 Code of Federal Regulations (CFR) Parts 110, 112, and 116, and Tennessee oil pollution prevention regulations.

There are three active and one inactive ASTs present on DDMT. The inactive ASTs are scheduled to be removed in fiscal year 1997. An inventory of the ASTs on the DDMT BRAC parcel is provided in Table 3-5. Information on tank size, contents, and status is provided in the table.

In compliance with 40 CFR Part 112 and TDEC oil pollution regulations, DDMT maintains a spill prevention, control, and countermeasures (SPCC) plan. The SPCC plan identifies the location of storage areas and outlines control measures to be taken in the event that a release should occur.

3.2.2 Hazardous Substance Management

Maintenance activities conducted on DDMT involve the management of a variety of hazardous substances. These substances include solvents, battery acid, paints, and thinners. Small amounts of pesticides, groundskeeping chemicals, boiler treatment chemicals, janitorial supplies, and other hazardous substances are also used at the Maintenance and Administration Area.

Hazardous materials present at DDMT are managed in compliance with federal requirements outlined in the Emergency Planning and Community Right-to-Know Act, Executive Order 12385, the SPCC requirements in 40 CFR Parts 110 and 112, Defense Logistics Agency memo (DLAM) 6050.1, and other applicable federal, state, and local regulations.

Extremely hazardous substances as specified in SARA, Title II, Section 302, are stored at DDMT. The DDMT does maintain sufficient quantities of hazardous chemicals to require reporting under SARA Title III, Section 312 (Tier reporting), and SARA Title III, Section 313 (Toxic Chemical Release Form R reporting).

The depot maintains material safety data sheets as required by the Occupational Safety and Health Administration (OSHA) for all hazardous chemicals on the installation. Spill response equipment is present at DDMT. The DDMT Environmental Protection and Safety Office coordinates hazardous materials training for applicable employees.

Use and storage of hazardous materials is decreasing as the depot realigns and mission operations and activities are discontinued. The DDMT has an ongoing close-out survey program established for installation facilities being vacated. Hazardous materials found abandoned during these close-out surveys are identified, and arrangements are made for the proper disposal of the materials in compliance with regulatory requirements.

3.2.3 Lead-based Paint

Lead-based paint (LBP) at DDMT is currently managed in accordance with the DOD memorandum entitled "Asbestos, Lead Paint, and Radon Policies at BRAC Properties", dated October 31, 1994. The DOD policy related to LBP at BRAC properties was developed to comply with Title X (The

Residential Lead-Based Paint Hazard Reduction Act of 1992) of Public Law 102-550. Title X applies to BRAC properties to be transferred after January 1, 1995. The DOD policy specifies the following:

- Target housing is defined as "any U.S. Army housing constructed before 1978 in which any child less than 6 years of age resides or is expected to reside."
- Target housing constructed after 1960 and before 1978 must be inspected for LBP and LBP hazards. The results of the inspection must be provided to prospective purchasers or transferees of the BRAC parcel, identifying the presence of LBP and LBP hazards on a surface-by-surface basis. In addition, prospective transferees must be provided a lead hazard information pamphlet and the contract for sale or lease must include a lead warning statement.
- Target housing constructed on or before 1960 must be inspected for LBP and LBP hazards, and such hazards must be abated. There is no federal LBP hazard abatement requirement for such property. The results of the LBP inspection and a description of the abatement measures taken must be provided to prospective purchasers or transferees of the BRAC parcel. Prospective transferees must also be provided with the lead hazard information pamphlet, and the contract for transfer must include a lead warning statement.

A comprehensive LBP survey has been conducted at the installation. The one location where abatement if required is in design for an ER action.

3.2.4 Hazardous Waste Management

Hazardous waste compliance programs at DDMT are conducted under DLAM 6050.1 and the federal requirements found in RCRA Subtitle C, 40 CFR 260 through 269, 40 CFR 117, 49 CFR 171 et seq., Department of Transportation regulations, and the Tennessee hazardous waste management rules. The EPA has delegated responsibility for the RCRA Subtitle C program to TDEC. The state program is administered by the TDEC Division of Solid Waste Management.

The DDMT is currently classified as a large quantity generator of hazardous waste (producer of 1,000 kilograms or more of hazardous waste or more than 1 kilogram of acutely hazardous waste per month). The DDMT operates under EPA identification number TN4210020570.

The DDMT's waste management practices are conducted in accordance with the installation hazardous waste management plan, which was last revised in January 1996. The plan identifies responsibilities and outlines operational requirements for the storage, disposal, treatment, and transportation of hazardous waste.

There are no over-90-day hazardous waste storage locations within DDMT property. Hazardous waste is accumulated at designated shop accumulation areas or at Building 319. Wastes are held for less than 90 days, then transported offsite for recycling/disposal via a DRMO-contracted licensed waste vendor.

Used oil is generated at DDMT. Used oil from vehicle maintenance operations is stored in 55-gallon drums at the POL materials storage location. The used oils are routinely collected for off-site disposal by an oil recycling contractor.

3.2.5 Solid Waste Management

Solid waste management compliance programs at DDMT are conducted under DLAM 6050.1 and the federal requirements found in 40 CFR 240-246 and 40 CFR 257-258, Department of Transportation regulations, and Tennessee state solid waste regulations.

Municipal solid waste currently generated at DDMT is collected and transported to the Browning-Ferris Industries North Shelby or South Shelby Sanitary Landfill for disposal.

3.2.6 Polychlorinated Biphenyls

The PCB management compliance programs at DDMT are conducted under DLAM 6050.1, the federal requirements found in 40 CFR 761, Department of Transportation regulations, and Tennessee PCB regulations. The PCB management practices at DDMT also are conducted in accordance with the installation's PCB management plan, last revised in January 1995.

In 1993, a PCB survey was performed to identify all regulated transformers located at DDMT. Appendix E provides a comprehensive inventory of these regulated transformers.

3.2.7 Asbestos

Asbestos-containing material (ACM) is regulated by the EPA, OSHA, and the Memphis/Shelby County Health Department. The ACM at DDMT BRAC facilities is also being managed in compliance with the DA guidance and the DOD memorandum entitled "Asbestos, Lead Paint, and Radon Policies at BRAC Properties," dated October 31, 1994.

Several asbestos surveys (The Pickering Firm, 1993a through c, 1994a through k) have been performed at DDMT. The surveys included the results for suspected ACM and recommendations for management based on the condition of the ACM.

The information reported in these surveys is summarized in Appendix E, and includes the MDRA parcel where the surveyed building is located; the building number (from either the Asbestos Identification Survey report or the separate facility listing); the facility use (as described in the Asbestos Information Survey report); the year of construction (obtained from a separate facility listing); the results of the survey; and the Asbestos Information Survey report documenting the results.

In Appendix E, buildings that had positive test results confirming the presence of ACM were given an "A," indicating ACM is present. Buildings for which test results or visual surveys indicated ACM was not present were given an "N." Buildings not included in the Asbestos Information Survey, but which are on the facility list, are included in the summary in Appendix E. They were designated with an "NA" if they were thought to no longer exist. If the date of construction for any building not surveyed was prior to 1985, an "A(P)" designation was given, indicating that the potential for ACM exists.

3.2.8 Radon

Based on the results of the radon testing conducted in 1995, radon levels in structures at DDMT are below the EPA action level; therefore, no further testing or abatement is planned. The results of the survey are provided in Appendix E.

3.2.9 RCRA Facilities

The RCRA units at DDMT are managed under the installation hazardous waste management program and IRP in accordance with DOD directives, CERCLA, and Tennessee hazardous waste regulations.

Specific investigation and restoration requirements for solid waste management units at DDMT are included in the CERCLA IRP process.

A complete description of the status of these IRP activities is provided in Section 3.1 of this plan. A description of RCRA hazardous waste management activities at DDMT is provided in Section 3.2.3.

3.2.10 Wastewater Discharges

Point source wastewater discharges generated at DDMT are regulated under the federal Water Pollution Control Act, Clean Water Act, and the National Pollutant Discharge Elimination System (NPDES) permit program (40 CFR Parts 122, 125, and 136), Tennessee wastewater discharge permit regulations, and the City of Memphis wastewater discharge agreement. Sanitary wastewater and domestic sewage are discharged to the City's facilities.

3.2.11 Oil/Water Separators

Three oil/water separators operate at DDMT. The oil/water separators are managed under the installation's SPCC program; in accordance with applicable federal regulations including Section 313(a) of the Clean Water Act and 40 CFR Parts 110, 112, and 122; Tennessee oil pollution prevention regulations; and DOD directives. The separators are cleaned regularly and the wastewater from the units is pumped and discharged to the city wastewater lagoon. The discharge from the unit is sampled regularly to ensure proper operation and compliance with regulatory requirements.

3.2.12 Pollution Prevention

Pollution prevention at DDMT is managed through the installation hazardous waste minimization and pollution prevention plan. The plan was developed in January 1992 in accordance with the pollution prevention requirements of Title 40 of RCRA, the Tennessee hazardous waste management rules, and DLAM 6050.1. Plan elements include source reduction through hazardous substance product substitution and conservation, operational changes, and the implementation of good operating practices such as loss prevention, waste stream segregation, and material handling improvements. Wastes currently collected for off-site recycling include used oil, batteries, old tires, paper, aluminum, and plastic.

3.2.13 Medical Waste

Medical wastes generated from storage of medical items are disposed of as special waste in the local sanitary landfill.

3.2.14 Unexploded Ordnance

The properties to be offered for reuse at DDMT have not been used regularly for the storage, maintenance, or demilitarization of explosive ordnance. There are three areas at DDMT that were identified as having potential concerns related to unexploded ordnance (UXO). Two areas were used as pistol ranges. One pistol range is located near the ninth hole of the golf course. The second pistol range is located in the Dunn Field area. The third area, an ordnance burn area, is also located in the Dunn Field area.

3.2.15 NEPA

To comply with NEPA, a leasing EA for the BRAC parcel at DDMT is being prepared by the USACE, Mobile District. The EA process was initiated in October 1995. A scoping meeting was conducted on July 23, 1996, and a scoping report and description of proposed action and alternatives is in progress. A more complete description of the disposal and reuse scoping process is provided in Section 2.1.

3.2.16 Air Emissions

The DDMT maintains air permits from the Memphis/Shelby County Health Department to operate three air emission sources in the DDMT BRAC parcel. These sources include two paint spray booths and one blast unit.

The three air emission sources are operated in compliance with EPA and City/County regulatory requirements. The air emission sources are equipped with all required air pollution control devices and are maintained and operated using good management practices. All air permits associated with the BRAC parcel at DDMT will be closed out following the completion of mission realignment in September 1997.

3.3 STATUS OF NATURAL AND CULTURAL RESOURCES

The following is a brief summary of natural and cultural resources at DDMT. For more information, refer to the leasing EA for DDMT, completed in October 1996.

3.3.1 Vegetation

The DDMT is highly developed. Very little native vegetation exists except as associated with Lake Danielson, the golf course pond, or with undisturbed areas at Dunn Field. In addition, landscaping programs have concentrated decorative plantings around Lake Danielson, the golf course, and the housing area.

3.3.2 Wildlife

Because DDMT is in a highly developed area it offers limited habitat. Ducks and geese have been observed at the golf course pond and Lake Danielson. Dunn Field is the only undisturbed open area on the site. Animals that have been observed at Dunn Field include squirrels, red foxes, quail, mourning doves, and turtles.

3.3.3 Wetlands

A wetland survey of DDMT was completed by the USACE, Memphis District in July 1996. Preliminary results indicate that there are no regulated wetlands on DDMT.

3.3.4 Designated Preservation Areas

There are no designated preservation areas at DDMT.

3.3.5 Rare, Threatened, and Endangered Species

No federally listed or proposed threatened or endangered species have been observed on the installation (Law Environmental 1990b, Harland Bartholomew & Associates, Inc. 1988).

3.3.6 Cultural and Historical Resources

Archaeological Resources

No archaeological sites are known to be located within the immediate vicinity of DDMT, although the area was occupied by a variety of Native American groups. However, two archaeological test trenches dug at the site of the new hazardous materials warehouse and recoupment facility (Building 835 and Building 865, respectively) revealed no items of archaeological significance.

Historical Resources

There are currently no sites or structures located on DDMT property that are listed on the National Register of Historic Places (Harland Bartholomew & Associates, Inc. 1988). However, the installation is currently under reevaluation for structures of possible historical significance, as many of its World War II-era buildings are becoming eligible for nomination to the National Register due to their age. It is not anticipated that any nominations will result from this reevaluation.

3.4 ENVIRONMENTAL CONDITION OF PROPERTY

During the EBS, DDMT was divided into parcels that represent the environmental condition of the property area. As defined in the EBS, a parcel is an area of BRAC property that can be segregated from its surrounding areas, based on the environmental condition of the property. The parcels and corresponding categorizations are identified on the environmental condition of property map (Figure 3-5). Areas containing or potentially containing non-CERCLA substances are identified and delineated separately with the letter "Q" as qualified parcels. Qualified parcels may be precluded from transfer or lease for unrestricted use and overlay all "environmental condition of property" categories (Categories 1 through 7).

The seven standard "environmental condition of property" categories, as defined in the CERFA guidance and the DOD BCP Guidebook (1993), are as follows:

Category 1. Areas where no storage for one year or longer, release, or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent properties). Additionally, an area where no evidence exists for the release, disposal, or migration of hazardous substances or petroleum products; however, the area has been used to store

less than reportable quantities of hazardous substances (40 CFR 302.4) or 600 or fewer gallons of petroleum products.

Category 2. Areas where only storage of hazardous substances in amounts exceeding their reportable quantity or petroleum products exceeding 600 gallons has occurred, but no release, disposal, or migration has occurred.

Category 3. Areas where storage, release, disposal, or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require removal or remedial action.

Category 4. Areas where storage, release, disposal, or migration of hazardous substances or petroleum products has occurred, and all removal or remedial actions to protect human health and the environment have been taken.

Category 5. Areas where storage, release, disposal, or migration of hazardous substances or petroleum products has occurred, and removal or remedial actions are under way, but all required actions have not yet been implemented.

Category 6. Areas where storage, release, disposal, or migration of hazardous substances or petroleum products has occurred, but required removal or remedial actions have not yet been initiated.

Category 7. Areas that are not evaluated or require additional evaluation.

Each parcel was given a number to which appropriate descriptive labels are attached. The numbers consist of a unique parcel identification number and an environmental condition of the property category number. The labels consist of a designation describing the type of contamination or storage, if applicable. The following designations are used to indicate the type of contamination or storage present in a parcel:

PS = Petroleum storage
PR = Petroleum release or disposal
HS = Hazardous substance storage
HR = Hazardous substance release or disposal

A one-acre grid coordinate system is overlaid on Figure 3-5 to facilitate the following parcel discussion by geographically locating the various parcels. Parcel boundaries were drawn using the best available information regarding the extent of contamination and do not follow map grid lines. Small point sources of contamination or storage, such as USTs, were delineated by circular 0.25-acre parcels centered on the source, as stipulated in DOD guidance. For consistency and to facilitate the summation of acreages, parcel acreages were calculated to two decimal places using the digitized map and AutoCad Release 13. This method is not meant to imply an accuracy to one one-hundredth of an acre.

Table 3-6 summarizes the BRAC parcel descriptions. The BRAC parcels in this table have been presented in order by CERFA category. A brief summary of the CERFA parcels is provided in the following sections.

3.4.1 Areas Where No Storage, Release, or Disposal Has Occurred

Woodward-Clyde's survey and subsequent parcelization of DDMT identified 38 parcels, totaling 6.2 acres, as uncontaminated, Category 1 parcels. These parcels are areas where there has been no documented storage of hazardous substances or petroleum products and no release, disposal, or migration from an adjacent property of hazardous substances or petroleum products. The designated Category 1 parcels and their locations on the environmental condition of property map (Figure 3-5) are summarized in Table 3-7.

3.4.2 Areas Where Only Storage Has Occurred

The Category 2 parcels listed below are areas where only storage of hazardous substances in amounts exceeding their reportable quantity or of petroleum products exceeding 600 gallons has occurred, but no release, disposal, or migration has occurred. A total of 4 parcels, totaling 10.8 acres, have been designated as Category 2.

Parcel Number and Label 13,4(2)HS

CERFA Map Location 31,17

This parcel is associated with proposed NFA Site 41, Building 210, an Administrative/Computer Center and General Purpose Warehouse. Records revealed that this building has been used as a

satellite drum accumulation facility (CH2M Hill 1995b). An interview revealed that a portion of this building, Bay 7, was used during the 1970s as a photographic laboratory. The interviewee also stated that, other than photographic chemicals, no hazardous substances have been stored in this building since 1969. There has been no documented release associated with this parcel, and no evidence was found of disposal or migration from an adjacent property of hazardous materials or petroleum products.

Parcel Number and Label 21.1(2)HS

CERFA Map Location 17,3

This parcel is associated with Building 690, which has been used to store hazardous materials before shipment. Screening Site 76 is located in the southeastern portion of this building. No previous sampling has been conducted at this site (CH2M Hill 1995h). There has been no documented release associated with this parcel, and no evidence was found of disposal or migration from an adjacent property of hazardous materials or petroleum products.

Parcel Number and Label 33.10(2)

CERFA Map Location 14,10

This parcel is associated with Building 753, a small storage facility. There has been storage of fire extinguisher chemicals and antifreeze, but no documented storage of petroleum products or hazardous substances.

Parcel Number and Label 33.11(2)

CERFA Map Location 14,9

This parcel is associated with an area outside Building 756. It is the site of a concrete vault 1,000-gallon diesel tank for the emergency generator at Building 756. The former (underground) tank at this location was removed in June 1994. Soil was tested for total petroleum hydrocarbons and found to be less than 20 parts per million (ppm). No remediation is necessary.

3.4.3 Areas Where Storage, Release, Disposal, or Migration Has Occurred, but No Remedial Action Is Required

The Category 3 parcels listed below are areas where storage, release, disposal, or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require

removal or remedial action. Three parcels, encompassing 3.4 acres, have been identified as Category 3.

Parcel Number and Label 4.4(3)PS/PR/HS/HR

CERFA Map Location 30,9

This parcel is associated with proposed NFA Sites 30 and 41, the satellite drum accumulation area and Safety Kleen unit at Building 260. The RCRA facility assessment visual inspection noted staining on the floor in the sign shop of this building (CH2M Hill 1995b; A.T. Kearney, Inc. 1990). Application of absorbent was sufficient to contain the spill, and no further remedial action was deemed necessary.

Parcel Number and Label 10.1(3)HR

CERFA Map Location 16,12

This parcel is associated with a 1-gallon hydraulic fluid spill that was reported on August 11, 1995, inside of Building 649, Section 5. In addition, leaking containers of paint, lube oil, insecticides, and other oil were reported on May 16, 1990, outside of Building 649 (DDMT 1992, 1995). The precise location of this spill is unknown. Application of absorbent was sufficient to contain the spill, and no further remedial action was deemed necessary.

Parcel Number and Label 20.1(3)PR

CERFA Map Location 21,5

This parcel is associated with a 1-gallon oil spill that was reported on November 3, 1995, at the north dock of Building 489, Section 4 (DDMT 1995). The precise location of the spill is unknown. Application of absorbent was sufficient to contain the spill, and no further remedial action was deemed necessary.

3.4.4 Areas Where Storage, Release, Disposal, or Migration Has Occurred and All Remedial Actions Have Been Taken

The Category 4 parcels listed below are areas where storage, release, disposal, or migration of hazardous substances or petroleum products has occurred, and all removal or remedial actions necessary to protect human health and environment have been taken. Nine parcels, encompassing 36.4 acres, have been designated as Category 4.

Parcel Number and Label 18.1(4)HS/HR

CERFA Map Location 17,8

This parcel is associated with Building 560. Two spills (5 gallons and 15 gallons) of aqueous film forming foam were reported on October 17, 1995 and November 14, 1995, respectively, inside Building 560, Section 3. The damaged containers were moved to the recoupment facility and absorbent was applied to the spill.

Parcel Number and Label 20.2(4)HS/HR

CERFA Map Location 17,6

This parcel is associated with Building 670. During the EBS visual inspection, significant corrosion was noted on the floor due to acid leaks at the charging station. A 1-gallon spill of hydraulic fluid was reported on August 30, 1995 inside Section 1 of this building (DDMT 1995). This release was not of sufficient quantity to warrant a removal or remedial action. In addition, a 10-gallon spill of battery electrolyte was reported on May 4, 1990 outside of Building 670 (DDMT 1992). Absorbent was applied to the spill, as documented in the spill report. No additional cleanup is necessary, per a site visit by the BCT.

Parcel Number and Label 20.3(4)HS/HR

CERFA Map Location 20,7

This parcel is associated with Building 470. Corrosion on the floor (acid leak) near the battery charging station was observed during the EBS visual inspection of this building.

Parcel Number and Label 20.4(4)HS/HR

CERFA Map Location 21,5

This parcel is associated with Building 489. Corrosion on the floor (acid leak) near the battery charging station was observed during the EBS visual inspection of this building.

Parcel Number and Label 21.2(4)PS/HS/HR

CERFA Map Location 23,3

This parcel is associated with proposed NFA Site 40 at Building 490, a general purpose warehouse. A 1-gallon spill of sulfuric acid/battery acid was reported on December 15, 1995 inside of Building 490, Section 5 (DDMT 1995). Application of absorbent was sufficient to contain the spill, and no further

remedial action was deemed necessary. Additionally, a visual inspection documented that petroleum products, microfiche developing chemicals, and Safety Kleen are stored inside this building.

Parcel Number and Label 21.3(4)HS/HR

CERFA Map Location 15,5

This parcel is associated with Screening Sites 75 and 78, Building 689 and a portion of the surrounding area. Eleven spills are documented from May 8, 1990 through November 16, 1995 inside and outside of Building 689. The materials spilled include nitric acid, corrosion-removing compound, hydraulic fluid, oil, and sulfuric acid (DDMT 1992, 1993, 1995). These releases were not of sufficient quantity to warrant a removal or remedial action. Building 689 historically stored alcohol, acetone, toluene, and hydrofluoric acid before transport. Screening Site 78 is located in the northern portion of this building. No previous sampling has been conducted at this site. Screening Site 75 is situated between Buildings 689 and 670. The area was not bermed and is adjacent to a storm sewer inlet. No previous sampling has been conducted at this site (CH2M Hill 1995h).

Parcel Number and Label 21.4(4)HS/HR

CERFA Map Location 15,4

This parcel is associated with Building 685. A visual inspection noted staining and potential contamination due to acid leaks from batteries in the fork lift area.

Parcel Number and Label 25.1(4)HS/HR

CERFA Map Location 9,4

This parcel is associated with Building S873, an open shed warehouse. Several spills of different types of materials have reportedly occurred inside of and adjacent to this building. Recorded spills inside of the building include:

- 60 gallons of tetrachloethylene reported on March 10, 1990
- 30 gallons of sulfuric acid reported on April 16, 1990
- 55 gallons of cleaning compound solvent reported on December 7, 1990
- 2 gallons of lube oil reported on March 9, 1991

- 2 gallons of hydraulic fluid reported on August 16, 1991
- Leaking 5-gallon drums of engine gas path cleaner reported on November 18, 1991
- 10 gallons of descaling compound reported on February 13, 1992
- Leaking 55-gallon drums of cleaning compound reported on July 21, 1993
- Leaking bottles of acid corrosive reported on November 29, 1993

Spills outside of the building include:

- 55 gallons of lube oil reported on March 2, 1992
- 55 gallons of fog oil reported on November 26, 1991

The contaminated material associated with these spills was removed, and no further removal or remedial actions were required (DDMT 1992, 1993). Additionally, the EBS visual inspection documented the storage of corrosives, chlorinated solvents, oils, lubricants, and greases inside of Building S873.

Parcel Number and Label 33.6(4)HR

CERFA Map Location 13,13

This parcel is associated with proposed NFA Site 44, the former wastewater treatment unit. In addition, a 50-gallon mineral oil (containing less than 1 ppm PCBs) spill was reported on November 9, 1995 outside of Building 737 (A.T. Kearney, Inc. 1990, DDMT 1993). Documented evidence indicates the contaminated material associated with this release has been removed, and no further removal or remedial actions are required.

3.4.5 Areas Where Storage, Release, Disposal, or Migration Has Occurred and Action is Under Way but Not Final

The Category 5 parcel listed below is associated with an area where storage, release, disposal, or migration of hazardous substances or petroleum products has occurred, and removal or remedial

actions are under way, but all required actions have not yet been implemented. The Category 5 parcel encompasses 2.0 acres.

Parcel Number and Label 24.1(5)HR

CERFA Map Location 10,3

This parcel is associated with RI Site 27, the southeastern corner of Building S873 and the gravel parking area to the east. Remediation of soil contamination from previous spills (the pesticides DDT, DDE, and aldrin) has been performed. However, additional surface soil sampling results indicate that VOCs, PAHs, pesticides, and metals are still present (CH2M Hill 1995d). Additional groundwater and soil sampling is proposed (CH2M Hill 1995d).

3.4.6 Areas Where Storage, Release, Disposal, or Migration Has Occurred, but Required Response Actions Have Not Been Taken

Currently, there are no designated Category 6 parcels within the BRAC property at DDMT.

3.4.7 Unevaluated Areas or Areas Requiring Additional Evaluation

The Category 7 parcels listed below are areas that have not been evaluated or require additional evaluation. One hundred and thirty-two parcels, encompassing 583.2 acres, have been designated as Category 7.

Parcel Number and Label 1.8(7)

CERFA Map Location 33,12

This parcel is associated with MDRA Parcel 1. At one time, housing units were located in the south parking lot in this parcel. These housing units were demolished, and the potential impacts from these units are unknown. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination. Additional evaluation is necessary to determine the environmental condition of this parcel.

In addition, this parcel is associated with two previously reported POL spills. A 4-gallon motor oil spill was reported on March 22, 1995, at the Gate 1 parking lot. In addition, a minor diesel spill was reported on October 28, 1993, in the street at Gate 1 (DDMT 1993, 1995). The precise locations of

the spills are unknown. Application of absorbent was sufficient to contain the spills, and no further remedial action was deemed necessary.

Parcel Number and Label 2.7(7)

CERFA Map Location 33,6

This parcel is associated with MDRA Parcel 2. This parcel contains housing units. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 3.5(7)

CERFA Map Location 29,4

This parcel is associated with MDRA Parcel 3. This parcel contains the golf course area, which has been sprayed with pesticides. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 3.6(7)

CERFA Map Location 26,6

This parcel is associated with RI Site 26 (Lake Danielson). It is located in the northwest corner of the golf course and receives stormwater runoff from the central portion of DDMT. Surface water samples detected the presence of DDT. Sediment samples detected DDT, chlordane, and metals (CH2M Hill 1995e). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 3.7(7)

CERFA Map Location 26,4

This parcel is associated with Screening Site 51, the Lake Danielson outlet ditch, which receives stormwater flow from surrounding areas and intermittent flow from the lake. Surface water samples SW-9 and SW-12 indicated the presence of pesticides and metals. A groundwater sample from MW-25 exhibited the presence of VOCs and metals (CH2M Hill 1995h). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 3.8(7)

CERFA Map Location 32,5

This parcel is associated with RI Site 25, the golf course pond, which receives surface water runoff from the golf course and the southeast portion of the installation. Sediment samples exhibited metals and pesticides (CH2M Hill 1995e). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 3.9(7)

CERFA Map Location 30,3

This parcel is associated with Screening Site 52, the golf course pond outlet ditch, which receives stormwater flow from surrounding areas and intermittent flow from the pond. Surface water samples SW-10 and SW-11 detected pesticides and metals. Surface soil sample SS-13 detected PAHs (CH2M Hill 1995h). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 3.10(7)

CERFA Map Location 30,6

This parcel is associated with the location of a former pistol range. A 1947 installation map shows a pistol range directly behind the current location of Building 271, near the ninth hole of the golf course (Chemical Systems Laboratory 1981; Office of Post Engineer DDMT 1947). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 3.11(7)

CERFA Map Location 30,6

This parcel is associated with Screening Site 69, which is within the golf course and was used to test flamethrower fuels. Firefighting techniques were also practiced at this site after ignition of the fuel. No previous sampling has been conducted at this site (CH2M Hill 1995b, 1995h). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 4.5(7)

CERFA Map Location 30,8

This parcel is associated with MDRA Parcel 4. This parcel contains shops and a motor pool. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the

potential for pesticide contamination. Additional evaluation is necessary to determine the environmental condition of this parcel.

In addition, this parcel is associated with three gasoline USTs (two 12,000-gallon capacity tanks and one 20,000-gallon capacity tank) that were located south of Building 257 but were removed in 1986. These tanks were replaced by one 18,000-gallon and one 20,000-gallon capacity gasoline USTs (The Pickering Firm 1993d; Facilities Engineering Division DDMT 1993). This parcel is also associated with a 5,000-gallon heating oil tank that was located outside of Building 253, but was removed in July of 1994 (The Pickering Firm 1993d; Facilities Engineering Division DDMT 1993). No documentation of previous sampling was found for this site. There have been no documented releases associated with these tanks, and no evidence was found of disposal or of migration from an adjacent property of hazardous substances or petroleum products.

Parcel Number and Label 4.6(7)

CERFA Map Location 29,9

This parcel is associated with Building 254 and a removed gasoline tank. A 5-gallon diesel spill was reported on March 20, 1995, from a tank outside the southwest corner of Building 254. This release was not of sufficient quantity to warrant a removal or remedial action (DDMT 1995). In addition, a 1,110-gallon gasoline tank that had been located outside of this building was removed in December 1989 (The Pickering Firm 1993d; Facilities Engineering Division DDMT 1993). A visual inspection of the building indicates that drums of motor oil and hydraulic fluid were leaking onto the concrete floor. An interview revealed that this building is used to store POL, antifreeze, and, occasionally fertilizer. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 4.7(7)

CERFA Map Location 28,10

This parcel is associated with Screening Site 67, Building 257, and the surrounding area. A 1- to 2-gallon gasoline spill was reported on April 20, 1990, outside of Building 257. Additional spills were reported on August 11, 1993 (leaking tank at gasoline station), and on August 31, 1993 (gasoline release from tank pressure tube). These releases were not of sufficient quantity to warrant a removal or remedial action. In addition, two 1,000-gallon gasoline ASTs are located at this building, and a 2,580-gallon gasoline tank was removed in December 1989. Since 1942, fuel dispensing and storage have been ongoing at Building 257 (DDMT 1992; CH2M Hill 1995h). Surface soil sample SS-25

exhibited PAHs, dieldrin, and metals. The interior of this building has been fumigated. No data exist to determine the impact of this fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 4.8(7)

CERFA Map Location 30,9

This parcel is associated with Screening Site 68, Building 263, which has been used as an attendants' room to dispense POL to vehicles since the 1940s. No previous sampling has been conducted at this site (CH2M Hill 1995h). The interior of this building has been fumigated. No data exist to determine the impact of this fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 4.9(7)

CERFA Map Location 29,8

This parcel is associated with RI Site 58, Pad 267, which is a concrete slab and was formerly the site of Building T-267, a pesticide shop. This building was used for storing and mixing pesticides and herbicides. Rinse water from pesticide and herbicide spraying operations was reportedly dumped on the ground near the facility (CH2M Hill 1995e). No previous sampling has been conducted at this site. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 4.10(7)

CERFA Map Location 31,7

This parcel is associated with RI Site 59, Building 273, which was used for mixing golf course pesticides and herbicides. Surface soil samples (SS-37 and SS-50) exhibited VOCs, PAHs, and pesticides in this area (CH2M Hill 1995e). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 4.11(7)

CERFA Map Location 29,9

This parcel is associated with Screening Site 66 and proposed NFA Site 40, Building 253, which has been used for storage of petroleum products (55-gallon drums of hydraulic oil), antifreeze, and Safety Kleen (The Pickering Firm 1993d; Facilities Engineering Division DDMT 1993; CH2M Hill 1995h).

The interior of this building has been fumigated. No data exist to determine the impact of this fumigation. A visual inspection found that this building has a floor drain that is connected to a sump. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 4.12(7)

CERFA Map Location 31,10

This parcel is associated with Building 251. A visual inspection noted a sump/waste oil tank located inside the building. No previous sampling has been conducted at this site. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 4.13(7)

CERFA Map Location 31,8

This parcel is associated with Building 265. A visual inspection noted a floor drain inside the building that is connected to the sanitary sewer. No previous sampling has been conducted at this site. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 5.1(7)

CERFA Map Location 29,7

This parcel is associated with MDRA Parcel 5. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 5.2(7)

CERFA Map Location 29,7

This parcel is associated with RI Site 48, the former PCB Transformer Area, including Building 274 (constructed after transformer storage ceased). Soil samples exhibited PAHs and DDT (and breakdown products). Groundwater sample MW-26 contained tetrachloroethane and carbon tetrachloride (CH2M Hill 1995b, 1995e). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 6.1(7)

CERFA Map Location 28,11

This parcel is associated with MDRA Parcel 6. This parcel contains storage facilities. In addition, based on an interview with DDMT personnel, the surface soil surrounding buildings and the railroad tracks at the installation has the potential for pesticide contamination. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 6.2(7)

CERFA Map Location 29,11

This parcel is associated with Building 250. A visual inspection noted staining and potential contamination as a result of acid leaks from batteries in the forklift area. This building may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 6.3(7)

CERFA Map Location 27,12

This parcel is associated with Building 349, which may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 6.4(7)

CERFA Map Location 26,11

This parcel is associated with Building 350. A visual inspection noted staining and potential contamination as a result of acid leaks from batteries in the forklift area. This building may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 7.1(7)

CERFA Map Location 29,13

This parcel is associated with MDRA Parcel 7. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 7.2(7)

CERFA Map Location 29,12

This parcel is associated with Screening Site 65, Building 249, which was formerly used as a storage facility for clothing treated with impregnate (XXCC-3), a chemical used as a preventive to the effects of chemical warfare agents on skin. No previous sampling has been conducted at this site. A battery acid spill was reported on April 15, 1993, at the north dock of this building. The precise location of the spill is unknown (CH2M Hill 1995h; DDMT 1993). This building may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 8.1(7)

CERFA Map Location 28,14

This parcel is associated with MDRA Parcel 8. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 8.2(7)

CERFA Map Location 29,15

This parcel is associated with Building 229, which may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 8.3(7)

CERFA Map Location 29,14

This parcel is associated with Building 230, which may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 8.4(7)

CERFA Map Location 26,15

This parcel is associated with Building 329, which may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 8.5(7)

CERFA Map Location 26,13

This parcel is associated with Building 330, which may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 9.1(7)

CERFA Map Location 23,13

This parcel is associated with MDRA Parcel 9. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 9.2(7)

CERFA Map Location 23,15

This parcel is associated with Building 429, which may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 9.3(7)

CERFA Map Location 23,13

This parcel is associated with Building 430. A visual inspection noted staining and potential contamination as a result of acid leaks from batteries in the forklift area. This building may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 9.4(7)

CERFA Map Location 23,12

This parcel is associated with Building 449, which may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 9.5(7)

CERFA Map Location 23,11

This parcel is associated with Building 450, which may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 10.2(7)

CERFA Map Location 18,11

This parcel is associated with MDRA Parcel 10. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 10.3(7)

CERFA Map Location 17,10

This parcel is associated with the location of a previously reported spill. A battery acid and hydraulic fluid spill were reported on March 18, 1993, between Buildings 550 and 650. The precise location of

the spill is unknown (DDMT 1993). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 10.4(7)
CERFA Map Location 20,12

This parcel is associated with Building 549, which may have been fumigated. A visual inspection noted that the west side of the building contains a fumigation chamber. No data exist to determine if the building was fumigated or the impacts of fumigation and the fumigation chamber. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 10.5(7)
CERFA Map Location 19,11

This parcel is associated with Building 550. A visual inspection noted staining and potential contamination as a result of acid leaks from batteries in the forklift area. This building may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 10.6(7)
CERFA Map Location 17,11

This parcel is associated with Building 650, which may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 11.1(7)
CERFA Map Location 18,14

This parcel is associated with MDRA Parcel 11. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 11.2(7)

CERFA Map Location 19,15

This parcel is associated with Building 529. A visual inspection noted staining and potential contamination as a result of acid leaks from batteries in the forklift area. In addition, antifreeze, firefighting foam, and photographic chemicals are stored in the west end of the building. This building may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 11.3(7)

CERFA Map Location 20,14

This parcel is associated with Building 530, which may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 11.4(7)

CERFA Map Location 16,13

This parcel is associated with Building 630, which may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 12.1(7)

CERFA Map Location 17,15

This parcel is associated with MDRA Parcel 12. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 12.2(7)

CERFA Map Location 16,15

This parcel is associated with RI Site 57, Building 629, a former hazardous materials storage building (DDT, herbicides, solvents, oxidizers, and toxic/corrosive materials). A 6-gallon nitric acid spill was

reported on April 23, 1990, inside Building 629, Section 1. Additional past spills inside of this building include an unknown amount of hydrofluoric acid. Surface soil samples SS-10, SS-11, SS-42, and SS-43 exhibited PAHs, pesticides, VOCs, and metals. This building may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation (CH2M Hill 1995f; DDMT 1992). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 13.5(7)

CERFA Map Location 33,16

This parcel is associated with MDRA Parcel 13. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 14.2(7)

CERFA Map Location 33,17

This parcel is associated with MDRA Parcel 14. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

In addition, this parcel is associated with a 12,000-gallon heating oil tank that was located outside of Building 209 but was removed in July of 1994 (The Pickering Firm 1993d). There has been no documented release associated with this tank, and no evidence was found of disposal or of migration from an adjacent property of hazardous substances or petroleum products.

Parcel Number and Label 15.2(7)

CERFA Map Location 26,18

This parcel is associated with Screening Site 35, Building S308, which was used to store hazardous waste and batteries. Surface soil sample SS-4 exhibited PAHs, dieldrin, and metals (CH2M Hill 1995h). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 15.3(7)

CERFA Map Location 26,16

This parcel is associated with Screening Site 74, Building 319, which contains flammables and toxics. In addition, a xylene spill was reported on November 18, 1991, inside of Building 319, Section 4. Absorbent was applied to the spill. No previous sampling has been conducted at this site (DDMT 1992; CH2M Hill 1995h). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 15.4(7)

CERFA Map Location 14,18

This parcel is associated with Screening Site 79, adjacent to Building S702. Fuels and miscellaneous liquids are stored in the vicinity of Building S702. No previous sampling has been conducted at this site (CH2M Hill 1995h). Additional soil sampling has been proposed to evaluate the presence of a contaminant release at this site.

Parcel Number and Label 15.5(7)

CERFA Map Location 23,18

This parcel is associated with four Screening Sites. These sites consist of concrete (Site 36) and gravel (Site 37) hazardous waste storage pads, hazardous materials drum storage (Site 38), and lubricant container storage (Site 39). Surface soil sample SS-5 detected PAHs, dieldrin, and metals (CH2M Hill 1995h). Additional soil sampling has been proposed to evaluate the presence of a contaminant release at these sites.

Parcel Number and Label 15.6(7)

CERFA Map Location 18,17

This parcel is associated with MDRA Parcel 15, which consists of Open Storage Yards X09, Y10, and Y50 and includes three Screening Sites. The DRMO East Stormwater Runoff Canal (Site 54) and the DRMO North Stormwater Runoff Canal (Site 55) are canals that collect stormwater runoff from the DRMO Yard and other DDMT facilities. No previous sampling has been conducted at these sites (CH2M Hill 1995h). Screening Site 72 (Property Disposal Office Yard) is associated with an area that was treated with waste oil for dust control. Other soil and groundwater samples from within this parcel detected metals, pesticides, and methylene chloride (CH2M Hill 1995h). During the EBS visual

inspection of this area, spills of a dark liquid were observed on the concrete pad (Real Property 88015) located south of Building 702 and west of Building 629. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

In addition, this parcel is associated with a 4,000-gallon heating oil tank that was located outside of Building 319 but was removed in July of 1994 (The Pickering Firm 1993d). There has been no documented release associated with this tank, and no evidence was found of disposal or of migration from an adjacent property of hazardous substances or petroleum products.

This parcel is also associated with a 30-gallon solvent spill south of Building 309 that was reported on December 2, 1991. The precise location of the spill is unknown. The contaminated soils associated with this release have been removed, and no further removal or remedial actions are required (DDMT 1992).

Parcel Number and Label 16.1(7)

CERFA Map Location 21,9

This parcel is associated with MDRA Parcel 16. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 16.2(7)

CERFA Map Location 17,10

This parcel is associated with Building 559, which may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 17.2(7)

CERFA Map Location 22,9

This parcel is associated with MDRA Parcel 17. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

In addition, this parcel is associated with the following tanks:

- A 12,000-gallon and a 500-gallon fuel oil tank that were located at Building 359 and were closed in place in July 1994 and September 1995, respectively (The Pickering Firm 1993d)
- A 1,000-gallon fuel oil tank and a 500-gallon diesel tank that were located at Building 359 but were removed in 1993 (The Pickering Firm 1993d; Facilities Engineering Division DDMT 1993)
- A 12,000-gallon and a 500-gallon fuel oil tank that were located at Building 359, but were removed in 1993 (The Pickering Firm 1993d; Facilities Engineering Division DDMT 1993)

There have been no documented releases associated with these tanks, and no evidence was found of disposal or of migration from an adjacent property of hazardous substances or petroleum products.

Parcel Number and Label 17.3(7)

CERFA Map Location 25,9

This parcel is associated with proposed NFA Site 49, Building 359. A sulfuric acid spill was reported on August 27, 1993, in Section 2 of this building (DDMT 1993). This building is used for storage of medical materials, sodium chloride, and petroleum products. An out-of-service incinerator is also located in this building. An interview revealed that this building was fumigated. No data exist to determine the impact of this fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 18.2(7)

CERFA Map Location 19,8

This parcel is associated with MDRA Parcel 18. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 19.1(7)

CERFA Map Location 21,8

This parcel is associated with MDRA Parcel 19. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

In addition, this parcel is associated with a 1,000-gallon oil/water separator that is located at Building S465 (The Pickering Firm 1993d). There has been no documented release associated with this oil/water separator, and no evidence was found of disposal or migration from an adjacent property of hazardous substances or petroleum products.

Parcel Number and Label 19.2(7)

CERFA Map Location 22,7

This parcel is associated with Building S465. A vehicle wash rack was observed inside the building during the EBS visual inspection. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 19.3(7)

CERFA Map Location 22,8

This parcel is associated with proposed NFA Sites 40 and 41 at Building 469, which is used for storage of sulfuric acid, hydraulic fluid, and lubrication oil. In addition, according to an interview, a PCB spill

took place in this building that has not been investigated. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 20.5(7)

CERFA Map Location 19,6

This parcel is associated with MDRA Parcel 20. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 20.6(7)

CERFA Map Location 20,4

This parcel is associated with the location of a sulfuric acid spill that was reported on June 10, 1993 between Buildings 489 and 490 (DDMT 1993). The precise location of the spill, the action taken, and the quantity of the spill are unknown. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 21.5(7)

CERFA Map Location 19,3

This parcel is associated with MDRA Parcel 21. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 22.1(7)

CERFA Map Location 18,4

This parcel is associated with MDRA Parcel 22. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 22.2(7)

CERFA Map Location 17,4

This parcel is associated with Screening Site 77, which is a battery recharge area located between Buildings 689 and 690. No previous sampling has been conducted at this site (CH2M Hill 1995h). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 23.6(7)

CERFA Map Location 12,2

This parcel is associated with the eastern portion of MDRA Parcel 23, which contains grassed areas. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 23.7(7)

CERFA Map Location 11,5

This parcel is associated with Building 783, which is part of Screening Site 82. This building was previously designated for the storage of flammable items and ordnance material and is the location of the former DDMT recoupment facility. No previous sampling has been conducted at this site (CH2M Hill 1995h). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 23.8(7)

CERFA Map Location 11,3

This parcel is associated with Building 793, which is part of Screening Site 82. Building 793 was previously designated for the storage of flammable items and ordnance material and is the location of the former DDMT recoupment facility. No previous sampling has been conducted at this site (CH2M Hill 1995h). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 23.9(7)

CERFA Map Location 4,2

This parcel is associated with the location of a gasoline spill that was reported on September 13, 1993 outside of Building S995. The precise location of the spill, the action taken, and the quantity of the

spill are unknown (DDMT 1993). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 23.10(7)

CERFA Map Location 8,2

This parcel is associated with open storage area X01. According to an interview with DDMT personnel, this is the site of a former lake. The sediments are possibly contaminated with PCBs and pesticide/herbicide residues. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 23.11(7)

CERFA Map Location 6,2

This parcel is associated with the western portion of MDRA Parcel 23. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 24.2(7)

CERFA Map Location 11,6

This parcel is associated with area X03, which was used for storage of flammable materials in 55-gallon drums until 1988. The area then became steel storage. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 24.3(7)

CERFA Map Location 11,7

This parcel is associated with RI Site 34 and proposed NFA Sites 30, 40, and 41 at Buildings 770 and T771. The EBS visual inspection noted that hazardous materials (antifreeze, paint, solvents, Safety Kleen) and petroleum products are stored in Building 770. Several spills have been reported for this area: an oil spill was reported on August 23, 1993, outside Building 770 (northeast corner); a 50-gallon spill of PCB-containing liquid was reported on July 9, 1990; and a 55-gallon spill of petroleum

was reported on November 7, 1991 outside Building 770 (west side). Reportedly, the contaminated material associated with these releases was removed, and no further removal or remedial actions are required (DDMT 1992; 1993). Several tanks have been removed (The Pickering Firm 1993d; Facilities Engineering Division DDMT 1993), including:

- An 11,155-gallon diesel tank removed in July 1994
- An 11,155-gallon fuel oil tank removed in July 1994
- A 10,000-gallon fuel oil tank removed in July 1994
- A 440-gallon gasoline tank removed in December 1989
- Two 1,000-gallon used motor oil tanks removed in December 1989

Building 770 has an oil/water separator that is pumped out quarterly and a floor drain. Surface soil samples (SS-38 and SS-39) detected PAHs, VOCs, pesticides, and metals (CH2M Hill 1995d). The EBS visual inspection noted oil staining on the floor of Building T771. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 25.2(7)

CERFA Map Location 8,7

This parcel is associated with MDRA Parcel 25. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding buildings and railroad tracks at the installation has the potential for pesticide contamination. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

In addition, this parcel is associated with a 1,000-gallon heating oil tank that was located outside of Building 875 and was closed in place in July of 1994 (The Pickering Firm 1993d). There has been no documented release associated with this tank, and no evidence was found of disposal or of migration from an adjacent property of hazardous substances or petroleum products.

Parcel Number and Label 26.1(7)

CERFA Map Location 6,9

This parcel is associated with MDRA Parcel 26. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding buildings and railroad tracks at the installation has the potential for pesticide contamination. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 26.2(7)

CERFA Map Location 6,4

This parcel is associated with an oil-fired generator at Building S970, Section 6. The EBS visual inspection noted that oil has leaked onto the concrete pad. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 27.1(7)

CERFA Map Location 4,9

This parcel is associated with MDRA Parcel 27. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding buildings and railroad tracks at the installation has the potential for pesticide contamination. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 27.2(7)

CERFA Map Location 4,4

This parcel is associated with Screening Site 84, Building 972. The EBS visual inspection noted that flammables, solvents, and waste oil are stored in Building 972. No previous sampling has been conducted for this site. In addition, oil stained areas were observed in the building. This building may have been fumigated. No data exist to determine if the building was fumigated or the impact of fumigation (CH2M Hill 1995h). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 28.1(7)

CERFA Map Location 2,7

This parcel is associated with MDRA Parcel 28, which contains open storage area X04. Based on an interview with DDMT personnel, the open storage areas have the potential for hazardous materials to have been released. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 28.2(7)

CERFA Map Location 3,5

This parcel is associated with Screening Site 89, Building 1089, and the immediate surrounding area. Building 1089 was used to store acids. A groundwater sample from MW-21 detected VOCs and metals (CH2M Hill 1995b, 1995h). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 29.2(7)

CERFA Map Location 4,18

This parcel is associated with MDRA Parcel 29, which contains open storage areas X27 and X30. Based on an interview with DDMT personnel, the open storage areas have the potential for hazardous materials to have been released. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

In addition, this parcel is associated with a 1.25-gallon hydraulic fluid spill that was reported on September 12, 1995 in the street. The spill reportedly spread north, through Gate 15, and across Dunn Avenue (DDMT 1995). The precise location of the spill is unknown. Application of absorbent was sufficient to contain the spill, and no further remedial action was deemed necessary.

Parcel Number and Label 29.3(7)

CERFA Map Location 2,11

This parcel is associated with Screening Site 56, the west stormwater drainage canal that collects the stormwater runoff from the pentachlorophenol tank area and the western portion of the main

installation. Surface water samples SW-2 and SW-14 detected 2-butanone and metals (CH2M Hill 1995b). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 30.1(7)

CERFA Map Location 4,14

This parcel is associated with Building 925, a special purpose warehouse. An interview revealed that prior to the construction of this building, the area was used for drum storage. At first, drums were stored within an earthen berm, but this was replaced with a concrete berm. A visual inspection noted that this building is currently used for drum storage of flammable and hazardous materials. Stored materials included acetone, methly ethyl ketone, methanol, and ethanol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 30.2(7)

CERFA Map Location 4,13

This parcel is associated with proposed NFA Site 53, a spill between Buildings 925 and P949 of 325 gallons of flammable solvents. The spill occurred on January 19, 1988. The material associated with the spill was removed. However, additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 30.3(7)

CERFA Map Location 4,15

This parcel is associated with MDRA Parcel 30, which contains open storage area X23. Based on an interview with DDMT personnel, the open storage areas have the potential for hazardous materials to have been released. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 30.4(7)

CERFA Map Location 4,11

This parcel is associated with Building P949, which stores hazardous materials. An interview revealed that this building was fumigated. No data exist to determine the impact of fumigation. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 30.5(7)

CERFA Map Location 4,10

This parcel is associated with Screening Site 83, which is adjacent to the south side of Building P949. This location was apparently used for outside spray painting and sandblasting, and some dried paint residues remain. Surface soil sample SS-20 exhibited metals, pesticides, VOCs, and semivolatile organic compounds (SVOCs) (CH2M Hill 1995h). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 31.1(7)

CERFA Map Location 6,13

This parcel is associated with MDRA Parcel 31, which contains open storage areas X17, X19, X20, and X21. Based on an interview with DDMT personnel, the open storage areas have the potential for hazardous materials to have been released. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 32.1(7)

CERFA Map Location 9,14

This parcel is associated with MDRA Parcel 32, which contains open storage areas X02, X13, and X15. Based on an interview with DDMT personnel, the open storage areas have the potential for hazardous materials to have been released. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 32.2(7)

CERFA Map Location 9,13

This parcel is associated with Building 835. Thirteen spills were reported inside Building 835 from March 9, 1991, to May 26, 1995. Materials spilled included battery acid, hydrochloric acid, sulfuric acid, herbicide, muriatic acid, and transmission fluid. These releases were not of sufficient quantity to warrant a removal or remedial action. A spill of lube oil and engine oil was reported on August 23, 1993 outside Building 835. The actual location, the action taken, and the quantity of the spill are unknown. This building was fumigated. No data exist to determine the impact of fumigation (DDMT

1992, 1993, 1995). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 32.3(7)

CERFA Map Location 9,10

This parcel is associated with Screening Site 28, Building 865, the Recoup Area Building, which is a hazardous materials and waste handling area used to transfer materials from damaged or leaking containers into undamaged containers. The site includes the entire building. No previous sampling has been performed for the site. A small fenced-in area is located on the southwest side of Building 865. This area contained various drums (5-, 10-, 15-, and 55-gallon) of old chemicals (oil, methyl ethyl ketone, isopropanol), some with protruding rusting tops (CH2M Hill 1995h). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 33.7(7)

CERFA Map Location 13,7

This parcel is associated with Screening Site 81, Building 765, which contains a fuel oil AST. No previous sampling has been performed for the site (CH2M Hill 1995h). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 33.8(7)

CERFA Map Location 10,10

This parcel is associated with Building S863. The EBS visual inspection noted considerable oil stains on the concrete floor of Building S863. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 33.9(7)

CERFA Map Location 12,14

This parcel is associated with Screening Sites 42, 43, 46, and 80, which include storage areas X05, X06, X07, X08, X10, X11, and X12. These areas formerly contained drums with flammable contents. The pentachlorophenol dip vat (Site 42) and UST (Site 43) near Building 737 were remediated. Building 737 is currently used for storing and mixing pesticides. The former pentachlorophenol pallet drying area is Site 46. Building 720 (Site 80) was used for dispensing fuel and cleaners. Surface soil

sample SS-24 detected VOCs, PAHs, DDT, and metals. Soil boring STB-4 detected 2-butanone (CH2M Hill 1995b, CH2M Hill 1995h). Additional evaluation is necessary to determine the environmental condition of this parcel.

In addition, this parcel is associated with a 12,000-gallon diesel AST that is located at Building 720 (Facilities Engineering Division DDMT 1993; CH2M Hill 1995h). This parcel is also associated with a 1,000-gallon diesel fuel tank that was located outside of Building 756 but was removed in July 1994 (The Pickering Firm 1993d). There have been no documented releases associated with these tanks, and no evidence was found of disposal or of migration from an adjacent property of hazardous substances or petroleum products.

Parcel Number and Label 34.2(7)

CERFA Map Location 24,7

This parcel is associated with MDRA Parcel 34. This parcel contains storage facilities. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 35.1(7)

CERFA Map Location 3,3

This parcel is associated with Building S1090, a paint storage igloo. The EBS visual inspection documented the storage of paint thinner, lubricating oil, P-19 preservation oil, and corrosion prevention compound inside this building. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 35.2(7)

CERFA Map Location 3,5

This parcel is associated with three proposed ER sites: Site 88 is an old concrete grease rack and storage area for POL located at former Building 1085; Site 29 was a UST associated with the grease rack that was removed in 1988; Site 87 (Building 1084) was once used for storage of DDT and other

pesticides (CH2M Hill 1995i). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 35.3(7)

CERFA Map Location 3,5

This parcel is associated with proposed NFA Site 30 at Building 1086, which was used to store hazardous materials from 1959 through 1983 and 1984. The EBS visual inspection noted that this building has a sump. The building is currently a spray paint booth. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 35.4(7)

CERFA Map Location 3,3

This parcel is associated with RI Site 32, which is next to Building 1088, and Screening Sites 31 and 33. Building 1087 (Screening Site 31) is the former location of a spray paint booth used to conduct major stock primer and enamel spray painting operations. Screening Site 33 is an open-sided, metal roof shed with a gravel floor adjacent to Building 1088, which was historically used to store 55-gallon drums containing spent sandblasting material. Surface soil samples detected toluene, PAHs, pesticides, PCBs, metals, and VOCs. A groundwater sample from MW-22 contained VOCs, SVOCs, and metals (CH2M Hill 1995d, 1995h). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 35.5(7)

CERFA Map Location 2,2

This parcel is associated with MDRA Parcel 35. This parcel contains storage facilities and shops. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.1(7)

CERFA Map Location 30,9

This parcel is associated with proposed ER Site 2. A 7-pound jug of ammonia hydroxide and a 1-gallon bottle of acetic acid were buried at this location. Existing data are not adequate to assess if a

release has occurred (CH2M Hill 1995j). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.2(7)

CERFA Map Location 30,9

This parcel is associated with proposed ER Site 3. Three thousand quarts of unknown chemicals and 5 cubic feet of orthotoluidine dihydrochloride are buried here. Existing data are not adequate to assess if a release has occurred (CH2M Hill 1995j). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.3(7)

CERFA Map Location 30,9

This parcel is associated with proposed ER Sites 4 and 4.1. Forty-five 55-gallon drums of discarded oil, grease, paints, and thinner are buried in these two adjacent trenches. Existing data are not adequate to assess if a release has occurred (CH2M Hill 1995j). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.4(7)

CERFA Map Location 30,9

This parcel is associated with proposed ER Site 5. Three cubic feet of methyl bromide are buried in an unidentified container or containers. Existing data are not adequate to assess if a release has occurred (CH2M Hill 1995j). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.5(7)

CERFA Map Location 30,8

This parcel is associated with proposed ER Site 7. Approximately 1,700 quart bottles of nitric acid are buried here. Existing data are not adequate to assess if a release has occurred (CH2M Hill 1995j). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.6(7)

CERFA Map Location 30,8

This parcel is associated with proposed ER Site 8. Approximately 3,768 one-gallon cans of methyl bromide are buried at a depth of approximately 7 feet. Existing data are not adequate to assess if a release has occurred (CH2M Hill 1995j). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.7(7)

CERFA Map Location 31,9

This parcel is associated with proposed ER Site 11. Eleven gallons, in 1,433 one-ounce bottles, of trichloroacetic acid are buried at a depth of approximately 6 feet. Existing data are not adequate to assess if a release has occurred (CH2M Hill 1995j). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.8(7)

CERFA Map Location 27,8

This parcel is associated with proposed ER Sites 12 and 12.1. Thirty pallets of discarded acid containers are buried in three locations to a depth of approximately 8 feet. Existing data are not adequate to assess if a release has occurred (CH2M Hill 1995j). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.9(7)

CERFA Map Location 28,8

This parcel is associated with proposed ER Site 13. Approximately 32 cubic yards of mixed chemicals and acids and 8,100 pounds of unnamed solids were buried at a depth of approximately 8 feet. Existing data are not adequate to assess if a release has occurred (CH2M Hill 1995j). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.10(7)

CERFA Map Location 28,8

This parcel is associated with proposed ER Sites 16 and 16.1. Unknown amounts of an unnamed acid were buried at these sites. Existing data are not adequate to assess if a release has occurred (CH2M Hill 1995j). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.11(7)

CERFA Map Location 28,8

This parcel is associated with proposed ER Site 17. An unknown amount of chemicals and medical supplies was buried at this site. Existing data are not adequate to assess if a release has occurred (CH2M Hill 1995j). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.12(7)

CERFA Map Location 23,11

This parcel is associated with proposed ER Site 62. It contains one above-grade bauxite pile. Existing data are not adequate to assess if a release has occurred (CH2M Hill 1995i). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.13(7)

CERFA Map Location 27,11

This parcel is associated with proposed ER Site 62. It contains two above-grade bauxite piles. Existing data are not adequate to assess if a release has occurred (CH2M Hill 1995i). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.14(7)

CERFA Map Location 31,11

This parcel is associated with proposed ER Sites 60 and 85. ER Site 60 is a former pistol range and impact area, and ER Site 85 is Building 1184. Building 1184 was previously used as a range shed and is now used for temporary pesticide storage. Existing data are not adequate to assess if a release has occurred (CH2M Hill 1995i). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.15(7)

CERFA Map Location 29,10

This parcel is associated with the fluvial aquifer groundwater contamination identified at Dunn Field. An interim remedial action addressing the contamination has been proposed (CH2M Hill 1995g). In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides,

and waste oil containing pentachlorophenol. Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.16(7)

CERFA Map Location 29,9

This parcel is associated with CWMP Site 1. Nine CAISs (containing mustard gas and lewisite) were buried at this site. Existing data are not adequate to assess whether a release has occurred (CH2M Hill 1995c). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.17(7)

CERFA Map Location 30,9

This parcel is associated with CWMP Site 9. Ashes and metals from the former burn site, Screening Site 64, were buried here. Existing data are not adequate to assess if a release has occurred (CH2M Hill 1995c). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.18(7)

CERFA Map Location 28,9

This parcel is associated with a portion of CWMP Site 86. Food items with expired shelf lives and, reportedly, CAISs were buried here. Existing data are not adequate to assess if a release has occurred (CH2M Hill 1995c). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.19(7)

CERFA Map Location 28,9

This parcel is associated with a portion of CWMP Site 86. Food items with expired shelf lives and, reportedly, CAISs were buried here. Existing data are not adequate to assess if a release has occurred (CH2M Hill 1995c). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.20(7)

CERFA Map Location 31,9

This parcel is associated with RI Site 6. There were 40,037 units of eye ointment buried here in 1955. No data exist to assess if a release has occurred (CH2M Hill 1995c). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.21(7)

CERFA Map Location 30,8

This parcel is associated with RI Site 10. This site was discovered during the installation of monitoring well 10. Charred debris was encountered. No data exist to assess what was buried at the site or if a release has occurred (CH2M Hill 1995c). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.22(7)

CERFA Map Location 28,8

This parcel is associated with RI Site 14. This is a municipal waste burial site that reportedly contains paper, food, and other unnamed materials. No data exist to assess if a release has occurred (CH2M Hill 1995c). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.23(7)

CERFA Map Location 28,8

This parcel is associated with RI Sites 15, 15.1, and 15.2. Records indicate that one pallet each of sodium and sodium phosphate containers and an unknown quantity of sodium, sodium phosphate, acid, chlorinated lime, and medical supplies were buried here in 1970. No data exist to assess if a release has occurred (CH2M Hill 1995c). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.24(7)

CERFA Map Location 28,11

This parcel is associated with Screening Site 19. This site was used for the disposal of sanitary wastes, construction debris, smoke pots, and tear gas canisters from 1955 to 1960. No sampling data have been collected for this site (A.T. Kearney, Inc. 1990). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.25(7)

CERFA Map Location 30,10

This parcel is associated with Screening Site 20. Reportedly, asphalt and roofing gravel were dumped in a surface fill at this location until 1981, when the debris was removed. Existing data are not

adequate to assess if a release has occurred (A.T. Kearney, Inc. 1990). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.26(7)

CERFA Map Location 31,13

This parcel is associated with Screening Site 21. It is reported that XXCC-3 impregnate is buried here in two trenches at unknown depths. No data exist to assess if a release has occurred (A.T. Kearney, Inc. 1990). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.27(7)

CERFA Map Location 31,12

This parcel is associated with Screening Site 50. This site has a concrete-lined drainage ditch that collects stormwater runoff from surrounding areas. Surface water samples have been collected (during stormwater runoff); however, not enough data exist to assess the impact from this site (A.T. Kearney, Inc. 1990). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.28(7)

CERFA Map Location 30,9

This parcel is associated with Screening Site 61. This site is a drain that was installed in the mid-1950s and is used for stormwater conveyance. No data exist to assess if a release has occurred (A.T. Kearney, Inc. 1990).

Parcel Number and Label 36.29(7)

CERFA Map Location 23,9

This parcel is associated with CWMP Site 24 and Screening Site 64. This area is a current fluorspar storage area that historically was a bauxite storage area and mustard gas, smoke pot, and cyanide grenades and ordnance burn area (1946). No data exist to assess if a release has occurred (A.T. Kearney, Inc. 1990; CH2M Hill 1995c). Additional evaluation is necessary to determine the environmental condition of this parcel.

Parcel Number and Label 36.30(7)

CERFA Map Location 28,12

This parcel is associated with Dunn Field, excluding the areas that were previously parcelized. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol. No sampling has been performed in this area to confirm the absence of contamination. Additional evaluation is necessary to determine the environmental condition of this parcel.

3.4.8 Qualified Parcels

In determining the qualified parcels, Woodward-Clyde observed the following guidelines:

- If a complete asbestos survey has not been conducted, then buildings constructed prior to 1985 were assumed to contain ACM. An "A(P)" for the possible presence of asbestos was used to qualify the parcel.
- If a complete LBP survey has not been conducted, then buildings constructed prior to 1978 were assumed to contain LBP. An "L(P)" for the possible presence of LBP was used to qualify the parcel.
- Parcels were qualified for ACM, LBP, PCBs, radon, and radiological sources based on information gathered through records reviews, interviews, and visual inspections.
- Areas used as firing ranges and impact areas have the potential to contain UXO and ammunition components (e.g., metal casings from small arms). An "X(P)" for the possible presence of UXO and ammunition components was used to qualify these areas.

There are 138 parcels, totaling approximately 188 acres, that were identified as qualified parcels as described in Table 3-8. When a qualified parcel is associated with a building/facility, the acreage presented corresponds to the footprint of the building/facility. The qualified parcels are labeled as follows on Table 3-8:

Parcel - Building Number or Area Q - Qualifier

For example, 1.1-1Q-A/L(P) represents Parcel 1.1, Building 1, and asbestos and possible LBP qualifiers. These labels do not appear in Figure 3-5; however, the coordinates of the qualified parcels on these figures is provided in Table 3-8.

3.4.9 Suitability of Installation Property for Transfer by Deed

Superfund Amendments and Reauthorization Act Title 1, Section 120 to CERCLA addresses the transfer of federal property on which any hazardous substance was stored during any one-year period or was released or disposed of. Section 120 also requires any deed for the transfer of such federal property to contain, to the extent such information is available from a complete search of agency files, the following information:

- A notice of the type and quantity of any hazardous substance storage, release, or disposal
- Notice of the time at which such storage, release, or disposal took place
- A description of what, if any, remedial action has occurred
- A covenant warranting that appropriate remedial action will be taken

Under SARA Title 1, Section 120 to CERCLA, those parcels which are Category 1, 2, 3, 4, or 5 (if the remedy in place has been approved by the Administrator) meet the CERCLA criterion of being suitable for transfer to a non-federal entity. Category 6 and 7 properties, which may involve releases of hazardous substances as defined by CERCLA, cannot be transferred to a non-federal entity under CERCLA until environmental restoration is initiated. The categorization process also provides valuable information regarding which property is available for unrestricted reuse because it has no environmental restrictions (Category 1 through 4), and which property is undergoing remedial action and may therefore have property reuse restrictions (Category 5).

The DDMT has parcels totaling approximately 56.8 acres that have been classified as CERFA Category 1 through 4. These parcels, described in Sections 3.4.1 through 3.4.4, are suitable for immediate transfer to a non-federal entity according to CERCLA. The remaining approximately 585.2 acres of DDMT, discussed in Sections 3.4.5 through 3.4.7, have been classified as CERFA Category 5

through 7 parcels. Category 6 and 7 parcels cannot be transferred to a non-federal entity under CERCLA until environmental restoration is initiated. Category 5 parcels may be transferred but not until the remedy is in place.

Although not regulated by SARA Title 1, Section 120, non-CERCLA substances delineating qualified parcels also affect the suitability of BRAC property for transfer. The DOD has prepared guidance for dealing with the transfer of qualified parcels, stating that issues relating to the presence of non-CERCLA substances, such as asbestos, LBP, and UXO, will be fully addressed prior to transfer of the property.

3.5 STATUS OF COMMUNITY INVOLVEMENT

Community involvement activities occurring at DDMT include activities relating to BRAC, the IRP, and the environmental compliance program. These activities include:

- **Information Repositories.** Information repositories are places where documents and information pertaining to the facility are stored and made available for public inspection and copying. The DDMT has established information repositories at the Memphis/Shelby County Public Library (Main Branch and Cherokee Branch), and the Memphis/Shelby County Health Department. The repositories contain information about environmental activities at DDMT.

- **Administrative Record.** An administrative record has been established for DDMT in accordance with CERCLA requirements. The administrative record is maintained by DDMT personnel.

- **Technical Review Committee.** A technical review committee (TRC) was formed to provide review and to comment on DDMT's actions related to releases or threatened releases of hazardous substances at the installation. The TRC meetings serve as working sessions of the involved U.S. Army, EPA, and TDEC remedial project managers to discuss progress and scheduling of investigations and cleanup actions. The TRC evolved into the RAB.

- **Restoration Advisory Board.** To promote increased public involvement and enable continued flow of information, concerns, and needs between the community and

DDMT, a RAB has been established for the BRAC IRP disposal and reuse planning at the installation. At DDMT, the RAB includes representatives of city and county mayors, city council members, county commissioners, the Memphis/Shelby County Health Department, Memphis Light, Gas, and Water, EPA, TDEC, local environmental groups, concerned citizens, and DDMT personnel. The RAB holds monthly meetings to discuss IRP and BRAC issues. The public is encouraged to attend these meetings.

- **Community Relations Plan.** A draft final Community Relations Plan (April 1994) was prepared for the installation. The Community Relations Plan identifies issues of community concern and proposes site-specific activities to address these concerns.

TABLE 3-1
POTENTIAL CONTAMINATION SITES ASSOCIATED WITH OPERABLE UNITS
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

RI/FS WORK PLAN[a] SITE NUMBER	RFA REPORT[b] SITE NUMBER	RI REPORT[c] SITE NUMBER	MDRA PARCEL NUMBER	DESCRIPTION	CURRENT DISPOSITION OF SITE
Operable Unit 1: Dunn Field					
1	1	1	36	Mustard and Lewisite Training Sets (9 sets) Burial Site (1955)	CWMP
2	2	2	36	Ammonia Hydroxide (7 pounds) and Acetic Acid (1 gallon) Burial (1955)	Proposed ER
3	3	3	36	Mixed Chemical Burial Site (orthotoluidine dihydrochloride) (1955)	Proposed ER
4	4	4	36	POL Burial Site (thirteen 55-gallon drums of oil, grease, and paint)	Proposed ER
4.1	No Site Designation	5	36	POL Burial Site (thirty-two 55-gallon drums of oil, grease, and thinner) (1955)	Proposed ER
5	5	6	36	Methyl Bromide Burial Site A (3 cubic feet) (1955)	Proposed ER
6	6	7	36	40,037 units ointment (eye) Burial Site (1955)	RI
7	7	8	36	Nitric Acid Burial Site (1,700 quart bottles) (1954)	Proposed ER
8	8	9	36	Methyl Bromide Burial Site B (3,768 1-gallon cans) (1954)	Proposed ER
9	9	10	36	Ashes and Metal Burial Site (burning pit refuse) (1955)	CWMP
10	10	74	36	Solid Waste Burial Site (near MW-10) (metal, glass, trash, etc.)	RI
11	11	11	36	Trichloroacetic Acid Burial (1,433 1-ounce bottles) (1965)	RI
12	12	12	36	Sulfuric and Hydrochloric Acid Burial (1967)	RI
13	13	13	36	Mixed Chemical Burial (Acid, 900 pounds; unnamed solids, 8,100 pounds)	Proposed ER
14	14	75	36	Municipal Waste Burial Site B (near MW-12) (food, paper products)	RI
15	15	14	36	Sodium Burial Sites (1968)	RI
15.1	No Site Designation	15	36	Sodium Phosphate Burial (1968)	RI
15.2	No Site Designation	33	36	14 Burial Pits: Na_3PO_4, sodium, acid, medical supplies, and chlorinated lime	RI
16	16	16	36	Unknown Acid Burial Site (1969)	RI
16.1	No Site Designation	18	36	Acid, date unknown	RI
17	17	17	36	Mixed Chemical Burial Site C (1969)	Proposed ER
18	18	No Site Designation	36	Plane Crash Residue (Dunn Field)	Proposed NFA
19	19	21	36	Former Tear Gas Canister Burn Site (Dunn Field)	Screening
20	20	20	36	Probable Asphalt Burial Site (Dunn Field)	Screening
21	21	22	36	XXCC-3 Burial Site (Dunn Field)	Screening

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TABLE 3-1
POTENTIAL CONTAMINATION SITES ASSOCIATED WITH OPERABLE UNITS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

RI/FS WORK PLAN[a] SITE NUMBER	RFA REPORT[b] SITE NUMBER	RI REPORT[c] SITE NUMBER	MDRA PARCEL NUMBER	DESCRIPTION	CURRENT DISPOSITION OF SITE
22	22	19	36	Hardware Burial Site (nuts and bolts) (Dunn Field)	Proposed NFA
23	23	30	36	Construction Debris and Food Burial Site (Dunn Field)	Proposed NFA
24	24	31	36	Former Burn Site (1946)	CWMP
50	Area of Concern A	23	36	Dunn Field Northeastern Quadrant Drainage Ditch	Screening
60	No Site Designation	24	36	Pistol Range Impact Area/Bullet Stop	Screening
61	No Site Designation	26	36	Buried Drain Pipe (Northwestern Quadrant of Dunn Field)	Screening
62	No Site Designation	27	36	Bauxite Storage (Northeastern Quadrant of Dunn Field)	Screening
63	No Site Designation	28	36	Fluorspar Storage (Southeastern Quadrant of Dunn Field)	Proposed NFA
64	No Site Designation	32	36	Bauxite Storage (Southwestern Quadrant of Dunn Field) (1942 to 1972)	Screening
85	No Site Designation	25	36	Old Pistol Range Building 1184/Temporary Pesticide Storage	Proposed ER
86	No Site Designation	29	36	Food Supplies (Dunn Field), possible CWM test kits	CWMP
Operable Unit 2: Southwestern Quadrant, Main Installation					
27	27	60	25	Former Recoupment Area (Building S873)	RI
29	29	66	35	Former Underground Waste Oil Storage Tank	Proposed ER
30	30	No Site Designation	24	Paint Spray Booths (2 of 3 total; Buildings 770 and 1086)	Proposed NFA
31	31	No Site Designation	35	Former Paint Spray Booth (Building 1087)	Screening
32	32	67	35	Sandblasting Waste Accumulation Area	RI
33	33	No Site Designation	35	Sandblasting Waste Drum Storage Area (metal shed south of Building 1088)	Screening
34	34	58	24	Building 770 Underground Oil Storage Tanks	RI
40	40	No Site Designation	24	Safety Kleen Units - 5 of 9 total (all located in Building 770)	Proposed NFA
41	41	No Site Designation	24	Satellite Drum Accumulation Areas - 2 of 4 total (vicinity Building 770)	Proposed NFA
47	47	No Site Designation	23	Former Contaminated Soil Drum Storage Area (300 feet west of Building 689; removed 1988)	Proposed NFA
71	No Site Designation	No Site Designation	Multiple	Herbicide (All railroad tracks) (used to clear tracks)	Screening
82	No Site Designation	59	23	Flammables (Buildings 783 and 793)	Screening

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TABLE 3-1
POTENTIAL CONTAMINATION SITES ASSOCIATED WITH OPERABLE UNITS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

RI/FS WORK PLAN[a] SITE NUMBER	RFA REPORT[b] SITE NUMBER	RI REPORT[c] SITE NUMBER	MDRA PARCEL NUMBER	DESCRIPTION	CURRENT DISPOSITION OF SITE
84	No Site Designation	63	27	Flammables, Solvents, Waste Oil, etc. (Building 972)	Screening
87	No Site Designation	64	35	DDT, banned pesticides (Building 1084)	Proposed ER
88	No Site Designation	65	35	POL (Building 1085)	Proposed ER
89	No Site Designation	68	28	Acids (Building 1089)	RI
Operable Unit 3: Southeastern Watershed And Golf Course, Main Installation					
25	25	42	3	Golf Course Pond	RI
26	26	43	3	Lake Danielson	RI
30	30	No Site Designation	4	Paint Spray Booths (1 of 3 total - Building 260)	Proposed NFA
40	40	No Site Designation	4, 19, and 21	Safety Kleen Units - 4 of 9 total units (Buildings 253, 469, 490, and 689)	Proposed NFA
41	41	No Site Designation	4 and 19	Satellite Drum Accumulation Areas - 2 of 4 total areas (Buildings 260 and 469)	Proposed NFA
48	48	39	5	Former PCB Transformer Storage Area	RI
49	49	46	17	Medical Waste Storage Area	Proposed NFA
51	Area of Concern B	No Site Designation	3	Lake Danielson Outlet Ditch	Screening
52	Area of Concern C	No Site Designation	3	Golf Course Pond Outlet Ditch	Screening
58	No Site Designation	38	4	Pesticides, Herbicides (Pad 267)	RI
59	No Site Designation	40	4	Pesticides, Cleaners (Building 273)	RI
65	No Site Designation	34	7	XXCC-3 (Building 249)	Screening
66	No Site Designation	35	4	POL (Building 253)	Screening
67	No Site Designation	36	4	MOGAS (Building 273)	Screening
68	No Site Designation	37	4	POL (Building 263) (20 by 40 feet)	Screening
69	No Site Designation	41	3	2,4-D, M2A1, and M4 Flamethrower Liquid Fuels (surface application)	Screening

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TABLE 3-1
POTENTIAL CONTAMINATION SITES ASSOCIATED WITH OPERABLE UNITS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

RI/FS WORK PLAN[a] SITE NUMBER	RFA REPORT[b] SITE NUMBER	RI REPORT[c] SITE NUMBER	MDRA PARCEL NUMBER	DESCRIPTION	CURRENT DISPOSITION OF SITE
73	No Site Designation	73	Multiple	2,4-Dichlorophenoxyacetic Acid (all grassed areas)	Screening
75	No Site Designation	50	21	Unknown Wastes near Building 689	Screening
76	No Site Designation	51	21	Unknown Wastes near Building 690	Screening
77	No Site Designation	52	22	Unknown Wastes near Buildings 689 and 690	Screening
78	No Site Designation	53	21	Alcohol, Acetone, Toluene, Naphtha; Hydrofluoric Acid Spill	Screening
Operable Unit 4: North-Central Area, Main Installation					
28	28	No Site Designation	32	Recoupment Area (Building 865)	Screening
35	35	46	15	DRMO Building S308 - Hazardous Waste Storage	Screening
36	36	No Site Designation	15	DRMO Hazardous Waste Concrete Storage Pad	Screening
37	37	No Site Designation	15	DRMO Hazardous Waste Gravel Storage Pad	Screening
38	38	No Site Designation	15	DRMO Damaged/Empty Hazardous Materials Drum Storage Area	Screening
39	39	No Site Designation	15	DRMO Damaged/Empty Lubricant Container Area	Screening
41	41	No Site Designation	13	Satellite Drum Accumulation Area (1 of 5 total - Building 210)	Proposed NFA
42	42	56	33	Former pentachlorophenol Dip Vat Area	Screening
43	43	56	33	Former Underground pentachlorophenol Tank Area	Screening
44	44	56	33	Former Wastewater Treatment Unit Area	Proposed NFA
45	45	56	33	Former Contaminated Soil Staging Area	Proposed NFA
46	46	56	33	Former pentachlorophenol Pallet Drying Area	Screening
53	Area of Concern D	61 and 62	30	X-25 Flammable Solvents Storage Area (near Building 925)	Proposed NFA
54	Area of Concern E	No Site Designation	15	Main Installation - DRMO East Stormwater Runoff Canal	Screening
55	Area of Concern F	No Site Designation	15	Main Installation - DRMO North Stormwater Runoff Canal	Screening
56	Area of Concern G	No Site Designation	29	Main Installation - West Stormwater Drainage Canal	Screening
57	Area of Concern H	49	12	Building 629 Spill Area	RI
70	No Site Designation	No Site Designation	Multiple	POL, Various Chemical Leaks (railroad tracks 1, 2, 3, 4, 5, and 6)	Screening
71	No Site Designation	No Site Designation	Multiple	Herbicide (all railroad tracks) (used to clear tracks)	Screening

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TABLE 3-1
POTENTIAL CONTAMINATION SITES ASSOCIATED WITH OPERABLE UNITS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

RI/FS WORK PLAN[a] SITE NUMBER	RFA REPORT[b] SITE NUMBER	RI REPORT[c] SITE NUMBER	MDRA PARCEL NUMBER	DESCRIPTION	CURRENT DISPOSITION OF SITE
72	No Site Designation	No Site Designation	15	Waste Oil (DRMO yard) (surface application for dust control)	Screening
73	No Site Designation	73	Multiple	2,4-Dichlorophenoxyacetic Acid (all grassed areas)	Screening
74	No Site Designation	45	15	Flammables, Toxics (West End - Building 319)	Screening
79	No Site Designation	54	15	Fuels, Miscellaneous Liquids, Wood, and Paper (Vicinity S702)	Screening
80	No Site Designation	55	33	Fuel and Cleaners Dispensing (Building 720)	Screening
81	No Site Designation	57	33	Fuel Oil (Building 765)	Screening
83	No Site Designation	69	30	Disposal of Dried Paint Residues - South of Building P949	Screening

Notes:

2,4-D 2,4-Dichlorophenoxyacetic acid
CWM: Chemical Warfare material
CWMP: Chemical Warfare Management Plan
DDT: 4,4'-Dichlorodiphenyltrichloroethane
DRMO: Defense and Reutilization Marketing Office
ER: Early removal
MDRA: Memphis Depot Redevelopment Agency
MOGAS: Motor gasoline
Na: Sodium
NFA: No further action
PCB: Polychlorinated biphenyl
PO_4: Phosphate
POL: Petroleum, oil, and lubricants
RFA: RCRA facility assessment
RI/FS: Remedial investigation/feasibility study
RI: Remedial investigation

a. Generic Remedial Investigation/Feasibility Study Work Plan
b. RCRA Facilities Assessment Report
c. Remedial Investigation Draft Final Report for U.S. Army Corps of Engineers, Huntsville Division

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TABLE 3-2
SPILL RESPONSE SUMMARY
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

BUILDING	DATE	SPILLED MATERIAL	QUANTITY (gallons)	INSIDE/ OUTSIDE	LOCATION/COMMENTS	ACTION TAKEN
44	4/7/95	Hydraulic fluid	Unknown - damaged forklift, assume small quantity	Unknown	Section 3 - west side dock	Absorbent applied. Product to recoup for disposal.
210	10/8/93	Thread cutting oil	Unknown	Unknown	Southside in semi-trailer	EBS records review did not provide this information.
249	4/15/93	Battery acid	Unknown	Unknown	North dock - overnight transport trailer, batteries turned over	EBS records review did not provide this information.
251	1/30/95	Oil	0.5	Outside	West end	Absorbent applied. Product to recoup for disposal.
254	3/20/95	Diesel	5	Outside	Southwest corner (tank)	Absorbed by soak-up pads and disposed of by spill team.
257	4/20/90	Gasoline	1-2	Outside	Gas station - gasoline from tank leaked into a hole dug to seal the building foundation	Soil was excavated and taken to Dunn Field to aerate.
257	8/11/93	Leaking tank	Unknown	Unknown	Gas station	EBS records review did not provide this information.
309	3/26/91	Dielectric fluid (non-PCB)	Unknown	Outside	Leaking transformer west of Building 309 in DRMO yard	Absorbed by soak-up pads and disposed of by spill team.
309	12/2/91	Cleaning compound solvent	30	Outside	On B Street, southwest of Building 309	Absorbent applied. Contaminated material excavated and placed into 55-gallon drums. Drums taken to recoup for disposal.
319	11/18/91	Xylenes - corrosion prevention compound	Unknown	Inside	Section 4	EBS records review did not provide this information.
359	8/27/93	Sulfuric acid	Unknown	Inside	Section 2 - charging station, battery boiled over	EBS records review did not provide this information.
489	6/10/93	Sulfuric acid	Unknown	Outside	Section 5 - outside between Buildings 489 and 490, stock selector turned over on gravel drive	EBS records review did not provide this information.
489	11/3/95	80w90 oil	1	Outside	Section 4 - north dock	Absorbed by soak-up pads and disposed of by spill team.
490	12/15/95	Sulfuric acid battery acid	1	Inside	Section 5 - southwest side	Neutralized spill and applied absorbent pads. Disposed of materials in accordance with applicable regulations.
529	8/10/93	Hydraulic fluid	Unknown	Unknown	South dock- forklift hose busted	EBS records review did not provide this information.
529	8/11/93	Hydraulic fluid	Unknown	Unknown	North dock - new greydog busted hose	EBS records review did not provide this information.

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TABLE 3-2
SPILL RESPONSE SUMMARY
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

BUILDING	DATE	SPILLED MATERIAL	QUANTITY (gallons)	INSIDE/ OUTSIDE	LOCATION/COMMENTS	ACTION TAKEN
560	12/10/93	Sulfuric acid	Unknown	Inside	Section 3 - battery fell off charger	EBS records review did not provide this information.
560	10/17/95	Aqueous film forming foam	5	Inside	Section 3 - west side wall	Absorbent applied. Product to recoup for disposal.
560	11/14/95	Aqueous film forming foam	.15	Inside	Section 3 - cargo door 10	Absorbed by soak-up pads and disposed of by spill team.
629	4/23/90	Nitric acid	6	Inside	Section 1	Neutralized spill and applied absorbent pads. Disposed of materials in accordance with applicable regulations.
649	5/16/90	Paint, lube oil, insecticide, other oil	Unknown	Outside	Leaking containers near the east end dumpster	Absorbent applied. Product to recoup for disposal.
649	8/11/95	Hydraulic fluid	1	Inside	Section 5 - southwest and northwest corner	Absorbent applied. Product to recoup for disposal.
650	3/18/93	Battery acid, hydraulic fluid	Unknown	Outside	South corner in street	EBS records review did not provide this information.
670	5/4/90	Battery electrolyte	10	Outside	6th Street and Building 670	Absorbent applied. Product to recoup for disposal.
670	8/30/95	Hydraulic fluid	1	Inside	Section 1 - north side aisle	Absorbed by soak-up pads and disposed of by spill team.
685	4/16/92	Sulfuric acid and water	3	Inside	Battery charging station	Neutralized spill and applied absorbent pads. Disposed of materials in accordance with applicable regulations.
689	5/8/90	Nitric acid	1 pint	Inside	Section 5 - "Hot House"	EBS records review did not provide this information.
689	1/6/91	Corrosion removing compound	2	Outside	Section 5 - door 8	Absorbent applied. Product to recoup for disposal.
689	2/13/92	Hydraulic fluid	2	Inside	Section 4 - north dock	Absorbed by soak-up pads and disposed of by spill team.
689	1/11/93	Odor only	NA	Inside	Section 5 - inside trailer at door 5	EBS records review did not provide this information.
689	3/12/93	Odor only from week-old spill	NA	Inside	Section 5 - inside trailer at door 1	EBS records review did not provide this information.
689	1/17/95	Oil	2.5	Outside	Section 3 - backdoor	Absorbent applied. Product to recoup for disposal.
689	8/15/95	Hydraulic fluid	2	Outside	Section 5 - cargo door 8	Absorbent applied. Product to recoup for disposal.

TABLE 3-2
SPILL RESPONSE SUMMARY
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

BUILDING	DATE	SPILLED MATERIAL	QUANTITY (gallons)	INSIDE/ OUTSIDE	LOCATION/COMMENTS	ACTION TAKEN
689	10/12/95	Sulfuric acid	1	Inside	Section 5 - southwest side at personnel door 34	Neutralized spill and applied absorbent pads. Disposed of materials in accordance with applicable regulations.
689	11/6/95	Hydraulic fluid	2	Outside	Section 5 - west dock roll on roll off door 8	Absorbed by soak-up pads and disposed of by spill team.
689	11/15/95	Hydraulic fluid NSN 9150-00-111-6256	1.25	Inside	Section 3 - southwest corner	Absorbed by soak-up pads and disposed of by spill team.
689	11/16/95	Hydraulic fluid	0.3	Inside	Northeast corner	Absorbed by soak-up pads and disposed of by spill team.
737	11/9/95	Mineral oil <1ppm PCB	50	Outside	West side	Use front-end loader to drum contaminated gravel and dirt. Drained transformer into 55-gallon drums. Repalletized transformer.
770	7/9/90	PCBs (>50 ppm, <500 ppm)	50	Outside	West side, 14.5 cubic yards of contaminated soil excavated. Confirmatory samples taken.	Absorbent applied. Contaminated material excavated and placed into 55-gallon drums. Drums taken to recoup for disposal.
770	11/8/91	Petroleum	Unknown	Outside	55-gallon drum ruptured on the west side	Absorbent applied. Contaminated material excavated and placed into 55-gallon drums. Drums taken to recoup for disposal.
770	8/23/93	Lube and engine oil	Unknown	Outside	Northeast corner - load fell off truck in road	EBS records review did not provide this information.
835	3/9/91	Battery acid	9	Inside	Section 3	Absorbent applied. Product to recoup for disposal.
835	6/25/91	Hydrochloric acid	5	Inside	Section 4 - R84 dock area	Neutralized spill and applied absorbent pads. Disposed of materials in accordance with applicable regulations.
835	7/1/91	Ammonium hydroxide	6	Inside	Section 2	Neutralized spill with gracial acetic acid. Absorbed with sorbent pillows and disposed of pillows in accordance with applicable regulations.
835	10/2/91	Sulfuric acid	15	Inside	Section 3 - corrosive section	Neutralized spill and applied absorbent pads. Disposed of materials in accordance with applicable regulations.

TABLE 3-2
SPILL RESPONSE SUMMARY
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

BUILDING	DATE	SPILLED MATERIAL	QUANTITY (gallons)	INSIDE/ OUTSIDE	LOCATION/COMMENTS	ACTION TAKEN
835	11/19/91	Battery fluid acid	6	Inside	Section 3	Neutralized spill and applied absorbent pads. Disposed of materials in accordance with applicable regulations.
835	11/19/91	Sulfuric acid	5	Inside	Section 4	Neutralized spill and applied absorbent pads. Disposed of materials in accordance with applicable regulations.
835	3/17/92	Muriatic acid	1.5	Inside	Section 3	Neutralized spill and applied absorbent pads. Disposed of materials in accordance with applicable regulations.
835	2/22/93	Resin	Glass bottle broken	Inside	Section 3 - packing area	EBS records review did not provide this information.
835	5/3/93	Battery acid	Unknown	Unknown	West dock - inside truck trailer	EBS records review did not provide this information.
835	5/5/93	Microbiocide	Unknown	Inside	Section 6 - poison section	EBS records review did not provide this information.
835	6/28/93	Oxidizer	Unknown	Inside	Section 2 - oxidizer section	EBS records review did not provide this information.
835	7/27/93	Herbicide	Unknown	Inside	Section 6 - poison herbicide socks busted	EBS records review did not provide this information.
835	8/20/93	Sulfuric acid	Unknown	Inside	Section 3 - corrosive section	EBS records review did not provide this information.
835	8/23/93	Lube and engine oil	Unknown	Outside	Southwest of Building 835 in street - fell off of same truck as 770 spill	EBS records review did not provide this information.
835	10/1/93	Hydrofluoric acid	Unknown	Inside	Section 3 - corrosive section	EBS records review did not provide this information.
835	10/19/93	Muriatic acid	Unknown	Inside	Section 3 - corrosive section	EBS records review did not provide this information.
835	12/1/93	Oil puddle on floor	Unknown	Inside	Section 1 - false alarm sprinkler head busted	EBS records review did not provide this information.
835	5/26/95	Transmission fluid	10	Outside	Section 4 - west side	Absorbent applied. Product to recoup for disposal.
860	3/17/92	Lube oil	Unknown?	Inside	North side	Absorbent applied. Product to recoup for disposal.
873	3/10/90	Tetrachloroethylene	60	Inside/Outside	Section 2 and outside - west onto gravel	Absorbent applied. Contaminated material excavated and placed into 55-gallon drums. Drums taken to recoup for disposal.
873	4/16/90	Sulfuric acid	30	Inside	Section 1 - recoupment	Swollen drums pumped and neutralized.

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TABLE 3-2
SPILL RESPONSE SUMMARY
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

BUILDING	DATE	SPILLED MATERIAL	QUANTITY (gallons)	INSIDE/ OUTSIDE	LOCATION/COMMENTS	ACTION TAKEN
873	12/7/90	Cleaning compound solvent	55	Inside	Section 1 - east side	Absorbent applied. Product to recoup for disposal.
873	3/9/91	Lube oil	25	Inside	Section 2	Absorbent applied. Product to recoup for disposal.
873	8/16/91	Hydraulic fluid	2	Outside	Section 1	Absorbent applied. Product to recoup for disposal.
873	11/18/91	Engine gas path cleaner	Leaking 5-gallon drums	Inside	Section 6	EBS records review did not provide this information.
873	11/26/91	Fog oil	55	Outside	Section 7 - west side	Absorbent applied. Contaminated material excavated and placed into 55-gallon drums. Drums taken to recoup for disposal.
873	11/26/91	Cleaning compound solvent	18	Outside	Section 3	Absorbent applied. Contaminated material excavated and placed into 55-gallon drums. Drums taken to recoup for disposal.
873	2/13/92	Descaling compound	10	Inside	Section 6 - loading dock	Absorbed by soak-up pads and disposed of by spill team.
873	3/2/92	Lube oil	55	Outside	Section 7 - southwest corner, open shed	Absorbent applied. Contaminated material excavated and placed into 55-gallon drums. Drums taken to recoup for disposal.
873	7/21/93	Cleaning compound	Unknown	Inside	Section 5 - corrosive drums corroded	EBS records review did not provide this information.
873	11/29/93	Acid	Unknown	Inside	Section 6 - leaking bottles	EBS records review did not provide this information.
873	18/91/91 [*sic*]	Cleaning compound solvent	Leaky containers repacked	Inside	Section 1 - dated incorrectly on spill form	Absorbent applied. Product to recoup for disposal.
875	3/6/93	Malathion	Leaking 55-gallon drum	Outside	In south gravel area - inside roadway trailer	EBS records review did not provide this information.
875	12/6/95	Oil/lubricate	.25-.50	Outside	East side on 15th Street	Absorbent applied. Product to recoup for disposal.
972	10/5/93	Hydraulic fluid	Unknown	Outside	On the road to Building 770	EBS records review did not provide this information.
972	3/14/95	Diesel	Unknown	Unknown	West side	Absorbent applied. Product to recoup for disposal.
254	8/31/93	Gasoline	Unknown	Unknown	Main tank spewed gas out of pressure tube	EBS records review did not provide this information.

TABLE 3-2
SPILL RESPONSE SUMMARY
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

BUILDING	DATE	SPILLED MATERIAL	QUANTITY (gallons)	INSIDE/ OUTSIDE	LOCATION/COMMENTS	ACTION TAKEN
Gate 1	10/28/93	Diesel fuel	Unknown	Outside	Gate 1 in street	EBS records review did not provide this information.
Gate 1	3/22/95	Motor oil	.4	Outside	DDMT Gate 1 parking lot	Absorbent applied. Product to recoup for disposal.
Street	9/12/95	Hydraulic fluid	1.25	Outside	A Street and 11th Street - north through Gate 15 to Dunn Field	Absorbed by soak-up pads and disposed of by spill team.
X20	5/7/90	Cleaning compound solvent	Unknown	Outside	12 leaking drums near 19th and B Streets	Absorbent applied. Contaminated material excavated and placed into 55-gallon drums. Drums taken to recoup for disposal.

Notes:
DDMT: Defense Distribution Depot Memphis, Tennessee
DRMO: Defense Reutilization and Marketing Office
EBS: Environmental baseline survey
PCB: Polychlorinated biphenyl
ppm: Parts per million

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TABLE 3-3
SOURCES OF POTENTIAL CONTAMINATION
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

FACILITY/PROPERTY	MDRA PARCEL NUMBER	FACILITY USE	SOURCE OF POTENTIAL CONTAMINATION
Building 229	8	Storage	Potential fumigation
Building 250	6	Storage	Acid leaks/staining, fumigation
Building 251	4	Storage	Waste oil tank
Building 253, Motor Pool and Motor Pool Bay Main Office	4	Light industrial	Hydraulic oil storage area (potential), potential fumigation, floor drain/sump
Building 257, Service Station	4	Light industrial	Gasoline dispensing area (potential)
Building 265	4	Light industrial	Storage of maintenance chemicals
Building S308	15	Storage	Hazardous waste and battery storage
Building 319, Alcohol Storage	15	Storage	Storage of alcohol
Building 330	8	Storage	Potential fumigation
Building 349	6	Storage	Potential fumigation
Building 350, Warehouse	6	Storage	Discoloration on floor from acid in battery charger area
Building 359	17	Storage	Building was fumigated
Building 429	9	Storage	Potential fumigation
Building 430	9	Storage	Potential fumigation, acid leaks
Building 449	9	Storage	Potential fumigation
Building 450	9	Storage	Potential fumigation
Buildings S465 and S469, Steam Shed and Electromotive Repair Shop	19	Light industrial	PCB spill area, waste oil and lubricating oil storage (55-gallon drums) (potential)
Building 470	20	Storage	Acid leak
Building 489	20	Storage	Acid leak
Building 490, Receiving Area	21	Distribution	Former storage of two 100-gallon dip tanks of P19 (light oil) (potential)
Building 529	11	Storage	Potential fumigation
Building 530	11	Storage	Potential fumigation
Building 549, Warehouse	10	Storage	Fumigation chamber (methyl bromide) in west end of building
Building 550	10	Storage	Potential fumigation
Building 630	11	Storage	Potential fumigation
Building 650	10	Storage	Potential fumigation
Building S702	15	Unused	Fuel/miscellaneous liquid storage
Building 720, Repair Shop	33	Light industrial	Diesel dispensing area (potential)
Building S737, Pest Control Shop	33	Pest control	Storage and mixing of pesticides and herbicides in the building, storage of aluminum phosphide waste outside of the building
Building 770, Facility Equipment Maintenance Shop	24	Light and heavy industrial	POL drum storage area, fork lift waste station, and residue from sandblasting and painting (potential)
Building 835, Hazardous Materials Mission Stock	32	Storage	Storage of hazardous materials (potential)
Building S863	33	Storage	Oil stains
Building 865	32	Storage	Drum storage area (Hazardous materials repouring operations)

TABLE 3-3
SOURCES OF POTENTIAL CONTAMINATION (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

FACILITY/PROPERTY	MDRA PARCEL NUMBER	FACILITY USE	SOURCE OF POTENTIAL CONTAMINATION
Building S873	25	Storage	Hazardous materials storage, leaking drums
Building P949, Port of Mode	30	Light industrial	Concrete pad outside, spray painting operation (potential)
Building S970	26	Storage	Oil leak
Building S972	27	Storage	Oil stained areas, potential fumigation
Building 1086, Paint Booth	35	Light industrial	Former hazardous materials storage and potential for paint residue, sump
Building S1090	35	Storage	POL storage
Area X01	23	Storage	Possible PCB and herbicide/ pesticide residue contamination
Area X02, Petroleum 55-gallon drum storage	24	Light industrial	Storage of petroleum products (potential)
Area X03, Steel Storage Yard	24	Light industrial	Storage of unknown materials
Storage Areas X17, X19, X20, X21, and X23	31	Storage	Storage of unknown materials

Notes:
MDRA: Memphis Depot Redevelopment Agency
PCB: Polychlorinated biphenyl
POL: Petroleum, oil, and lubricants

TABLE 3-4
UNDERGROUND STORAGE TANK SUMMARY
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

STUDY AREA NO.	LOCATION	YEAR INSTALLED	SIZE (gals)/ TYPE	SUBSTANCE STORED	STATUS	FUTURE ACTIONS
4	Building 253, north side	1952	5,000/NA	Heating oil	Removed July 1996; may or may not be UST	NA
4	Building 254, northwest side	NA	1,100/NA	Gasoline	Removed December 1989	NA
4	Building 257	1942	12,000/NA	Gasoline	Removed 1986; replaced with 18,000- and 20,000-gallon tanks	NA
4	Building 257	1942	12,000/NA	Gasoline	Removed 1986; replaced with 18,000- and 20,000-gallon tanks	NA
4	Building 257	1951	20,000/NA	Gasoline	Removed 1986; replaced with 18,000- and 20,000-gallon tanks	NA
4	Building 257, south side	1984	18,000/NA	Gasoline	Active	TBD
4	Building 257, south side	1984	20,000/NA	Gasoline	Active	TBD
4	Building 257, west side	1951	2,580/NA	Gasoline	Removed December 1989	NA
8	Building 209, north side	NA	NA/NA	Fuel oil	Tank was not found during the EBS; may or may not be UST	TBD
14	Building 209, north side	1942	12,000/NA	Heating oil	Removed July 1994	NA
14	Building 209, north side	1942	500/NA	Heating oil	Removed July 1995	NA
14	Building 209, north side	1942	500/NA	Blower blow-down water	Removed July 1995	NA
15	Building 319, north side	1988	4,000/NA	Heating oil	Removed July 1994	NA
17	Building 359, north side	1942	12,000/NA	Heating oil	Closed in place July 1994	NA
17	Building 359, north side	1942	500/NA	Heating oil	Closed in place September 1995	NA
17	Building 359, north side	1942	500/NA	Blower blow-down water	Closed in place July 1994; may or may not be UST	NA
17	Building 359/4	1979	1,000/NA	Heating oil	Removed 1993	NA
17	Building 359/4	1942	500/NA	Diesel Fuel	Removed 1993	NA
24	Building 770, east side	1951	10,000/NA	Heating oil	Removed July 1994	NA
24	Building 770, west side	NA	440/NA	Gasoline	Removed December 1989; may or may not be UST	NA
24	Building 770, west side	1951	1,000/NA	Used motor oil	Removed December 1989; may or may not be UST	NA
24	Building 770, west side	1951	1,000/NA	Used motor oil	Removed December 1989; may or may not be UST	NA
25	Building 875, east side	1950	1,000/NA	Heating oil	Closed in place July 1994	NA
33	Building 737, south side	1942	12,000/NA	Pentachlorophenol and dioxin	Removed September 1985	NA

TABLE 3-4
UNDERGROUND STORAGE TANK SUMMARY (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

STUDY AREA NO.	LOCATION	YEAR INSTALLED	SIZE (gals)/ TYPE	SUBSTANCE STORED	STATUS	FUTURE ACTIONS
33	Building 737, west side	1986	1,000/NA	Rodenticide pesticide/herbicide insecticide rinsate	Closed in place September 1995	NA
33	Building 754	1956	200/NA	Gasoline	Removed January 1986	NA
33	Building 756, west side	1987	1,000/NA	Diesel fuel	Removed July 1994	NA
35	Building 1085, east side	1942	1,000/NA	Waste oil	Tank not found during 1988 survey; may or may not be UST	NA
35	Building S1085	1950	100/NA	Hydraulic fluid	Closed in place July 1995	NA

Notes:
EBS: Environmental baseline survey
NA: Not applicable
TBD: To be determined
UST: Underground storage tank

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TABLE 3-5
ABOVEGROUND STORAGE TANK SUMMARY
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

STUDY AREA NO.	LOCATION	YEAR INSTALLED	SIZE (gals)/ TYPE	SUBSTANCE STORED	STATUS	FUTURE ACTIONS
4	Building 257	1992	1,000/NA	Gasoline	Active	Removal proposed 1998
4	Building 257	1992	1,000/NA	Diesel fuel	Active	Removal proposed 1998
24	Building 770	1951	11,155/NA	Diesel fuel	Removed July 1994	NA
24	Building 770	1951	11,155/NA	Fuel oil	Removed July 1994	NA
33	Building 720, south west	1993	1,000/NA	Used motor oil	Inactive	Removal proposed 1997
33	Building 756	1994	1,000/NA	Diesel fuel	Active	Removal proposed 1998

Notes:
NA: Not applicable
TBD: To be determined

TABLE 3-6
BRAC PARCEL DESCRIPTIONS
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

PARCEL NUMBER AND LABEL[a]	LOCATION (x, y coordinates)	APPROXIMATE SIZE[b] (acres)	FACILITY	BASIS	REMEDIATION/ MITIGATION
Environmental Condition Category 1					
1.1(1)	32,10	0.01	Gate 1	This parcel is associated with Gate 1. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
1.2(1)	32,13	0.01	Gate 2	This parcel is associated with Gate 2. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
1.3(1)	Building not on Figure 5-1	<0.01	Building 129	This parcel is associated with Building 129. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
1.4(1)	Building not on Figure 5-1	<0.01	Building 139	This parcel is associated with Building 139. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
1.5(1)	34,12	0.31	Building 144	This parcel is associated with Building 144. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
1.6(1)	Building not on Figure 5-1	0.02	Building S145	This parcel is associated with Building S145. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
1.7(1)	Building not on Figure 5-1	<0.01	Building 155	This parcel is associated with Building 155. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
2.1(1)	34,6	0.11	Building 176	This parcel is associated with Building 176. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
2.2(1)	Building not on Figure 5-1	0.03	Building S178	This parcel is associated with Building S178. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
2.3(1)	34,5	0.11	Building 179	This parcel is associated with Building 179. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
2.4(1)	34,5	0.11	Building 181	This parcel is associated with Building 181. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
2.5(1)	Building not on Figure 5-1	0.11	Building S183	This parcel is associated with Building S183. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
2.6(1)	34,4	0.11	Building 184	This parcel is associated with Building 184. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
3.1(1)	32,2	0.01	Building 193	This parcel is associated with Building 193. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.

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TABLE 3-6
BRAC PARCEL DESCRIPTIONS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

PARCEL NUMBER AND LABEL[a]	LOCATION (x, y coordinates)	APPROXIMATE SIZE[b] (acres)	FACILITY	BASIS	REMEDIATION/ MITIGATION
3.2(1)	31,2	0.10	Building 195	This parcel is associated with Building 195. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
3.3(1)	31,2	0.02	Building 196	This parcel is associated with Building 196. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
3.4(1)	31,2	0.01	Building 198	This parcel is associated with Building 198. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
4.1(1)	30,10	0.19	Building 252	This parcel is associated with Building 252. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
4.2(1)	31,7	0.33	Building 270	This parcel is associated with Building 270. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
4.3(1)	31,7	0.03	Building 271	This parcel is associated with Building 271. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
13.1(1)	33,16	<0.01	Gate 23	This parcel is associated with Gate 23. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
13.2(1)	Building not on Figure 5-1	<0.01	Gate 24	This parcel is associated with Gate 24. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
13.3(1)	32,16	<0.01	Gate 25	This parcel is associated with Gate 25. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
14.1(1)	27,19	<0.01	Gate 22	This parcel is associated with Gate 22. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
15.1(1)	10,18	<0.01	Gate 15	This parcel is associated with Gate 15. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
17.1(1)	22,10	0.09	Building 459	This parcel is associated with Building 459. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
23.1(1)	19,2	<0.01	Gate 7	This parcel is associated with Gate 7. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
23.2(1)	Building not on Figure 5-1	0.02	Gate 8	This parcel is associated with Gate 8. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
23.3(1)	11,4	0.12	Building 787	This parcel is associated with Building 787. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.

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TABLE 3-6
BRAC PARCEL DESCRIPTIONS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

PARCEL NUMBER AND LABEL[a]	LOCATION (X, Y coordinates)	APPROXIMATE SIZE[b] (acres)	FACILITY	BASIS	REMEDIATION/ MITIGATION
23.4(1)	Building not on Figure 5-1	0.01	Building 795	This parcel is associated with Building 795. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
23.5(1)	5,2	0.18	Building S995	This parcel is associated with Building S995. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
29.1(1)	3,10	0.01	Gate 9	This parcel is associated with Gate 9. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
33.1(1)	13,16	0.01	Building 727	This parcel is associated with Building 727. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
33.2(1)	14,10	0.05	Building 754	This parcel is associated with Building 754. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
33.3(1)	14,10	0.01	Building 755	This parcel is associated with Building 755. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
33.4(1)	14,9	0.06	Building 756	This parcel is associated with Building 756. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
33.5(1)	11,10	0.02	Building T860	This parcel is associated with Building T860. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
34.1(1)	24,8	4.0	Building 360	This parcel is associated with Building 360. This building was recently constructed and has not been used for storage. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
Environmental Condition Category 2					
13.4(2)HS	31,17	5.5	Building 210	Satellite drum accumulation, Building 210. Old photographic developing lab in bay 7 of Building 210.	Proposed NFA Site 41. No remediation is necessary.
21.1(2)HS	17,3	5.0	Building 690	Building 690 has been used to store hazardous materials before shipment. The site is located in the southeastern portion of this building. No previous sampling for the site.	Screening Site 76 - Surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release.
33.10(2)	14,10	0.01	Building 753	This parcel is associated with Building 753. There has been no documented storage of hazardous substances or petroleum products; nor has there been release or migration from an adjacent property of hazardous substances or petroleum products.	No remediation is necessary.
33.11(2)	14,9	0.25	Building 756	This parcel is associated with an area outside Building 756. The original tank supplying the emergency generator was removed in June 1994. Soil was sampled for TPH and found to be less than 20 ppm.	No remediation is necessary.
Environmental Condition Category 3					
4.4(3)PS/PR/IIS/IIR	30,9	0.15	Building 260	Satellite drum accumulation area and Safety Kleen unit at Building 260. The RCRA Facility Assessment visual inspection noted staining on the floor in the sign shop of this building.	Proposed NFA Sites 30 and 41

TABLE 3-6
BRAC PARCEL DESCRIPTIONS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

PARCEL NUMBER AND LABEL*	LOCATION (x, y coordinates)	APPROXIMATE SIZE* (acres)	FACILITY	BASIS	REMEDIATION/ MITIGATION
10.1(3)HR	16,12	2.8	Building 649	A 1-gallon hydraulic fluid spill was reported on August 11, 1995 inside Building 649, Section 5. In addition, leaking containers of paint/lube oil/insecticide and other oil were reported on May 16, 1990 outside Building 649. The precise location of these spills is unknown.	Absorbent was applied to the spills.
20.1(3)PR	21,5	0.46	Building 489	A 1-gallon oil spill was reported on November 3, 1995 at the north dock of Building 489, Section 4. The precise location of the spill is unknown.	Absorbent was applied to the spill.
Environmental Condition Category 4					
18.1(4)HS/HR	17,8	4.0	Building 560	Building 560 has two drop inlets inside the building that lead to the storm drainage system. In addition, two spills (5 gallons and 15 gallons) of aqueous film forming foam were reported on October 17, 1995 and November 14, 1995 inside Building 560, Section 3.	The damaged containers were moved to the recoupment facility and absorbent was applied to the spill.
20.2(4)HS/HR	17,6	5.0	Building 670	Significant corrosion on floor observed during visual inspection due to acid leaks at charging station. In addition, a 1-gallon spill of hydraulic fluid was reported on August 30, 1995 inside Building 670, Section 1. In addition, a 10-gallon spill of battery electrolyte was reported on May 4, 1990 outside of Building 670. The precise location of the outside spill is unknown.	Absorbent was applied to the spills.
20.3(4)HS/HR	20,7	5.0	Building 470	Building 470 has corrosion on the floor (acid leak) near the battery charging station.	In accordance with decisions made at July 18, 1996 BCT meeting, this parcel will be investigated, and remediated if necessary, prior to transfer.
20.4(4)HS/HR	21,5	5.0	Building 489	Building 489 has corrosion on the floor (acid leak) near the battery charging station.	In accordance with decisions made at July 18, 1996 BCT meeting, this parcel will be investigated, and remediated if necessary, prior to transfer.
21.2(4)PS/HS/HR	23,3	5.0	Building 490	A 1-gallon spill of sulfuric acid/battery acid was reported on December 15, 1995 inside Building 490, Section 5. Petroleum products, microfiche developing chemicals, and Safety Kleen are stored in Building 490.	Spill was neutralized and containerized for disposal. Proposed NFA Site 40 (Safety Kleen Unit only).
21.3(4)HS/HR	15,5	5.2	Building 689	Eleven spills are documented from May 8, 1990 through November 16, 1995 inside and outside of Building 689. The materials spilled include nitric acid, corrosion removing compound, hydraulic fluid, oil, and sulfuric acid. Building 689 historically stored alcohol, acetone, toluene, and hydrofluoric acid before transport. Site 78 is located in the northern portion of this building. No previous sampling for the site. Site 75 is situated between Buildings 689 and 670. The area was not bermed and is adjacent to a storm sewer inlet. No previous sampling for the site.	Absorbent was applied to all spills. Screening Sites 75 and 78 - Surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release.
21.4(4)HS/HR	15,4	0.73	Building 685	Potential contamination due to acid leaks from batteries in the fork lift area at Building 685. Staining observed.	In accordance with decisions made at July 18, 1996 BCT meeting, this parcel will be investigated, and remediated if necessary, prior to transfer.
25.1(4)HS/HR	9,4	6.2	Building S873	Spills recorded on November 18, 1991 (5-gallon drums of engine gas path cleaner), February 13, 1992 (10 gallons descaling compound), July 21, 1993 (leaking 55-gallon drums of cleaning compound), and November 29, 1993 (leaking bottles of acid corrosive) for Building S873, Sections 5 and 6; March 10, 1990 (60 gallons tetrachloroethylene), April 16, 1990 (30 gallons sulfuric acid), December 7, 1990 (55 gallons cleaning compound solvent), March 9, 1991 (2 gallons lube oil), and August 16, 1991 (2 gallons hydraulic fluid) for Building 873, Sections 1 and 2. A 55-gallon lube oil spill was recorded on March 2, 1992 and a 55-gallon fog oil spill was recorded on November 26, 1991 outside of Building S873, Section 7 near the southwest corner open shed. Storage of hazardous materials in Building 873.	Absorbent was applied to all spills. Contaminated materials were excavated and disposed.
33.6(4)HR	13,13	0.25	Outside Building 737	Former Wastewater Treatment Unit. In addition, 50-gallon mineral oil (<1 ppm PCB) spill was reported on November 9, 1993 outside of Building 737.	Proposed NFA Site 44. Contaminated material was excavated and disposed.

TABLE 3-6
BRAC PARCEL DESCRIPTIONS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

PARCEL NUMBER AND LABEL*	LOCATION (x, y coordinates)	APPROXIMATE SIZE** (acres)	FACILITY	BASIS	REMEDIATION/ MITIGATION
Environmental Condition Category 5					
24.1(5)HR	10,3	2	Outside Building S873	This site includes the southeastern corner of Building S873 and the gravel parking area to the east. Remediation of soil contamination from previous spills (DDT, DDE, and aldrin) complete. Surface soil samples detected VOCs, PAHs, pesticides, and metals.	RI Site 27 (Former Recoupment Area, Building S873) - Additional groundwater, surface soil, and subsurface soil sampling proposed to assess the vertical and horizontal extent of soil contamination.
Environmental Condition Category 7					
1.8(7)	33,12	15.2	Buildings 143, 146, 147, and surrounding area	This parcel is associated with MDRA Parcel 1. Both the North and South Parking Lots in this parcel are the location of former housing units. These housing units were demolished and the potential impacts from these units are unknown. Additionally, based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination. A 4-gallon motor oil spill was reported on March 22, 1995 for the Gate 1 parking lot. In addition, a diesel spill was reported on October 28, 1993 in the street at Gate 1. The precise location of the spills are unknown.	This parcel requires additional evaluation.
2.7(7)	33,6	1.8	Area surrounding buildings in MDRA Parcel 2	This parcel is associated with MDRA Parcel 2. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
3.5(7)	29,4	36.3	Buildings 188, 189, 192, 194, 197, and area surrounding buildings in MDRA Parcel 3	This parcel is associated with MDRA Parcel 3. Based on an interview with DDMT personnel, the surface soil in the Golf Course Area has the potential for pesticide contamination.	This parcel requires additional evaluation.
3.6(7)	26,6	3.4	Lake Danielson	Lake Danielson is located in the northwest corner of the Golf Course and receives stormwater runoff from the central portion of DDMT. Surface water samples detected DDT and sediment samples detected chlordane and metals.	RI Site 26 (Lake Danielson) - Additional surface water sampling proposed to determine the source of sediment contamination.
3.7(7)	26,4	0.30	Lake Danielson Outlet Ditch	Lake Danielson outlet ditch receives stormwater flow from surrounding areas and intermittent flow from the lake. Surface water samples SW-9 and SW-12 detected pesticides and metals. Groundwater sample from MW-25 detected VOCs and metals.	Screening Site 51 - Surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release, and surface water and sediment sampling proposed to evaluate the presence of surface water and sediment contamination.
3.8(7)	32,5	0.23	Golf Course Pond	Golf Course Pond receives surface water runoff from the golf course and southeast portion of the installation. Sediment samples detected metals, DDT, and pesticides.	RI Site 25 (Golf Course Pond) - Additional surface water sampling proposed to determine the source of sediment contamination.
3.9(7)	30,3	0.19	Golf Course Pond Outlet Ditch	Golf Course Pond outlet ditch receives stormwater flow from surrounding areas and intermittent flow from the pond. Surface water samples SW-10 and SW-11 detected pesticides and metals. Surface soil sample SS-13 detected PAHs.	Screening Site 52 - Surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release, and surface water and sediment sampling proposed to evaluate the presence of surface water and sediment contamination.

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TABLE 3-6
BRAC PARCEL DESCRIPTIONS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

PARCEL NUMBER AND LABEL[a]	LOCATION (x, y coordinates)	APPROXIMATE SIZE[b] (acres)	FACILITY	BASIS	REMEDIATION/ MITIGATION
3.10(7)	30,6	0.25	9th Hole, Golf Course	A 1947 installation map shows a pistol range directly behind where Building 271 now stands, near the 9th hole of the golf course.	This parcel requires additional evaluation.
3.11(7)	30,6	0.77	Area within Golf Course	This area is within the Golf Course and was used to test flamethrower fuels. Firefighting techniques were also practiced at this site after ignition of the fuel. No previous sampling for this site.	Screening Site 69 - Surface soil sampling proposed to evaluate the presence of a contaminant release.
4.5(7)	30,8	3.2	Buildings T256, T261, and area surrounding buildings in MDRA Parcel 4	This parcel is associated with MDRA Parcel 4. Based on an interview with DDMT personnel, the surface soil surrounding buildings at the installation has the potential for pesticide contamination. Two 12,000-gallon and one 20,000-gallon gasoline USTs were removed in 1986 south of Building 257. These tanks were replaced by one 18,000-gallon and one 20,000-gallon gasoline UST. A 5,000-gallon heating oil tank was removed in July 1994 outside of Building 253.	This parcel requires additional evaluation.
4.6(7)	29,9	0.25	Building 254	Leaking drums and ground staining observed inside Building 254 during a visual inspection. In addition, a 5-gallon diesel spill was reported on March 20, 1995 from a tank outside the southwest corner of Building 254. A 1,110-gallon gasoline tank was removed December 1989 outside of this building. The EBS visual inspection noted that POLs and antifreeze are stored in this building.	Absorbent was applied to the spill.
4.7(7)	28,10	0.25	Building 257	Building 257 was fumigated. No data exist to determine the impact of fumigation. Several spills are reported for this building, including: one 2-gallon gasoline spill reported on April 20, 1990 outside of Building 257; leaking tank at gasoline station reported on August 11, 1993; and gasoline release from tank pressure tube reported on August 31, 1993. In addition, fuel dispensing and storage have been ongoing at Building 257 since 1942 (two 1,000-gallon gasoline ASTs are located at this building and a 2,580-gallon gasoline tank was removed December 1989). Surface soil sample SS-25 detected PAHs, dieldrin, and metals.	Screening Site 67 - Additional surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release. Contaminated soil from the spills was excavated and disposed.
4.8(7)	30,9	0.02	Building 263	Building 263 has been used as attendants' room for the dispensing of POL to vehicles since the 1940s. No previous sampling for this site. In addition, this building was fumigated. No data exist to determine the impact of the fumigation.	Screening Site 68 - Surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release.
4.9(7)	29,8	1.4	Pad 267	Pad 267 is a concrete slab, the site of the former pesticide shop (Building T-267). This building was used for storage/mixing of pesticides/herbicides. Rinse water from pesticide/herbicide spraying operation was reportedly dumped on the ground near the facility. No previous sampling for this site.	RI Site 58 (Pad 267) - Surface soil samples proposed to assess the presence of soil contamination.
4.10(7)	31,7	0.26	Building 273	Building 273 was used for mixing golf course pesticides and herbicides. Surface soil samples (SS-37 and SS-50) detected VOCs, PAHs, and pesticides.	RI Site 59 (Building 273) - Additional surface soil and subsurface soil sampling proposed to assess the vertical and horizontal extent of soil contamination.
4.11(7)	29,9	0.22	Building 253	Storage of petroleum products (55-gallon drums of hydraulic oil), antifreeze, and a Safety Kleen unit at Building 253. No previous sampling for this site. In addition, this building was fumigated. No data exist to determine the impact of the fumigation. This building has a floor drain that is connected to a sump.	Screening Site 66 - Surface soil sampling proposed to evaluate the presence of a contaminant release. Proposed NFA Site 40 - Safety Kleen unit only.
4.12(7)	31,10	0.18	Building 251	Building 251 has a sump/waste oil tank located in the building. No previous sampling for this site.	This parcel requires additional evaluation.
4.13(7)	31,8	0.18	Building 265	Building 265 has a floor drain that is connected to the sanitary sewer. No previous sampling for this site.	This parcel requires additional evaluation.
5.1(7)	29,7	0.49	Building T272 and area surrounding buildings in MDRA Parcel 5	This parcel is associated with MDRA Parcel 5. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.

TABLE 3-6
BRAC PARCEL DESCRIPTIONS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

PARCEL NUMBER AND LABEL[a]	LOCATION (x, y coordinates)	APPROXIMATE SIZE[b] (acres)	FACILITY	BASIS	REMEDIATION/ MITIGATION
5.2(7)	29,7	1.5	Building 274 and area surrounding the building	This site is the former PCB Transformer Area including Building 274 (was constructed after transformer storage ceased). Soil samples detected PAHs and DDT (and breakdown products). Groundwater sample in MW-26 detected tetrachloroethane and carbon tetrachloride.	RI Site 48 (Former PCB Transformer Area) - Additional surface soil and groundwater sampling proposed to assess the horizontal extent of potential soil contamination.
6.1(7)	28,11	4.4	Area surrounding buildings in MDRA Parcel 6	This parcel is associated with MDRA Parcel 6. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
6.2(7)	29,11	2.8	Building 250	Potential contamination due to acid leaks from batteries in the fork lift area at Building 250. Staining observed. This building may have been fumigated. No data exist to determine if building was fumigated or the impact of the fumigation.	This parcel requires additional evaluation.
6.3(7)	27,12	2.8	Building 349	Building 349 may have been fumigated. No data exist to determine if building was fumigated or the impact of the fumigation.	This parcel requires additional evaluation.
6.4(7)	26,11	2.8	Building 350	Potential contamination due to acid leaks from batteries in the fork lift area at Building 350. Staining observed. This building may have been fumigated. No data exist to determine if building was fumigated or the impact of the fumigation.	This parcel requires additional evaluation.
7.1(7)	29,13	1.5	Area surrounding buildings in MDRA Parcel 7	This parcel is associated with MDRA Parcel 7. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
7.2(7)	29,12	2.8	Building 249	Building 249 was formerly used as a storage facility for clothing treated with impregnate (XXCC-3), a chemical used as a preventive to the effects of chemical warfare agents on skin. No previous sampling for this site. A battery acid spill was reported on April 15, 1993 at Building 249, north dock. The precise location of the spill is unknown. This building may have been fumigated. No data exist to determine if building was fumigated or the impact of the fumigation	Screening Site 65 - Surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release. Action taken and quantity of spill unknown.
8.1(7)	28,14	6.4	Area surrounding buildings in MDRA Parcel 8	This parcel is associated with MDRA Parcel 8. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
8.2(7)	29,15	2.8	Building 229	Building 229 may have been fumigated. No data exist to determine if building was fumigated or the impact of the fumigation.	This parcel requires additional evaluation.
8.3(7)	29,14	2.8	Building 230	Building 230 may have been fumigated. No data exist to determine if building was fumigated or the impact of the fumigation.	This parcel requires additional evaluation.
8.4(7)	26,15	2.8	Building 329	Building 329 may have been fumigated. No data exist to determine if building was fumigated or the impact of the fumigation.	This parcel requires additional evaluation.
8.5(7)	26,13	2.8	Building 330	Building 330 may have been fumigated. No data exist to determine if building was fumigated or the impact of the fumigation.	This parcel requires additional evaluation.
9.1(7)	23,13	6.3	Area surrounding buildings in MDRA Parcel 9	This parcel is associated with MDRA Parcel 9. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
9.2(7)	23,15	2.8	Building 429	Building 429 may have been fumigated. No data exist to determine if building was fumigated or the impact of the fumigation.	This parcel requires additional evaluation.

TABLE 3-6
BRAC PARCEL DESCRIPTIONS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

PARCEL NUMBER AND LABEL[a]	LOCATION (x, y coordinates)	APPROXIMATE SIZE[b] (acres)	FACILITY	BASIS	REMEDIATION/ MITIGATION
9.3(7)	23,13	2.8	Building 430	Potential contamination due to acid leaks from batteries in the fork lift area at Building 430. Staining observed. This building may have been fumigated. No data exist to determine if building was fumigated or the impact of the fumigation.	This parcel requires additional evaluation.
9.4(7)	23,12	2.8	Building 449	Building 449 may have been fumigated. No data exist to determine if building was fumigated or the impact of the fumigation.	This parcel requires additional evaluation.
9.5(7)	23,11	2.8	Building 450	Building 450 may have been fumigated. No data exist to determine if building was fumigated or the impact of the fumigation.	This parcel requires additional evaluation.
10.2(7)	18,11	8.7	Area surrounding buildings in MDRA Parcel 10	This parcel is associated with MDRA Parcel 10. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
10.3(7)	17,10	0.25	Between Buildings 550 and 630	A battery acid and hydraulic fluid spill were reported on March 18, 1993 between Buildings 550 and 630. The precise location of the spill is unknown.	Action taken and quantity of spill unknown.
10.4(7)	20,12	2.8	Building 549	Potential fumigation contamination at Building 549. The west side of the building contains a fumigation chamber.	This parcel requires additional evaluation.
10.5(7)	19,11	2.8	Building 550	Potential contamination due to acid leaks from batteries in the fork lift area at Building 550. Staining observed. This building may have been fumigated. No data exist to determine if building was fumigated or the impact of the fumigation.	This parcel requires additional evaluation.
10.6(7)	17,11	2.8	Building 650	Building 650 may have been fumigated. No data exist to determine if building was fumigated or the impact of the fumigation.	This parcel requires additional evaluation.
11.1(7)	18,14	4.6	Area surrounding buildings in MDRA Parcel 11	This parcel is associated with MDRA Parcel 11. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
11.2(7)	19,15	2.8	Building 529	Potential contamination due to acid leaks from batteries in the fork lift area at Building 529. Staining observed. Antifreeze, firefighting foam, and photographic chemicals stored in the west end of the building. This building may have been fumigated. No data exist to determine if building was fumigated or the impact of the fumigation.	This parcel requires additional evaluation.
11.3(7)	20,14	2.8	Building 530	Building 530 may have been fumigated. No data exist to determine if building was fumigated or the impact of the fumigation.	This parcel requires additional evaluation.
11.4(7)	16,13	2.8	Building 630	Building 630 may have been fumigated. No data exist to determine if building was fumigated or the impact of the fumigation.	This parcel requires additional evaluation.
12.1(7)	17,15	1.7	Area surrounding buildings in MDRA Parcel 12	This parcel is associated with MDRA Parcel 12. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
12.2(7)	16,15	2.8	Building 629	Former hazardous materials storage building (DDT, herbicides, solvents, oxidizers, and toxic/corrosive materials). A 6-gallon nitric acid spill was reported on April 23, 1990 inside Building 629, Section 1. Past spills include an unknown amount of hydrofluoric acid. SS-10, SS-11, SS-42, and SS-43 detected PAHs, pesticides, VOCs, and metals. This building may have been fumigated. No data exist to determine if building was fumigated or the impact of fumigation.	RI Site 57 (Building 629 spill area) - Additional shallow subsurface soil and groundwater sampling proposed to assess the vertical and horizontal extent of soil contamination. Spill neutralized with sodium bicarbonate.

TABLE 3-6
BRAC PARCEL DESCRIPTIONS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

PARCEL NUMBER AND LABEL[a]	LOCATION (x, y coordinates)	APPROXIMATE SIZE[b] (acres)	FACILITY	BASIS	REMEDIATION/ MITIGATION
13.5(7)	33,16	3.9	Building 211 and area surrounding buildings in MDRA Parcel 13	This parcel is associated with MDRA Parcel 13. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
14.2(7)	33,17	10.5	Building S209 and area surrounding buildings in MDRA Parcel 14	This parcel is associated with MDRA Parcel 14. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination. A 12,000-gallon heating oil tank was removed in July 1994 outside of Building 209.	This parcel requires additional evaluation.
15.2(7)	26,18	0.01	Building S308	Hazardous waste and batteries are stored at Building S308. Surface soil sample SS-4 detected PAHs, dieldrin, and metals.	Screening Site 35 - Additional surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release.
15.3(7)	26,16	0.41	Building 319	Building 319 contains flammables and toxics. No previous sampling for the site. In addition, a xylene spill was reported on November 18, 1991 inside Building 319, Section 4.	Screening Site 74 - Surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release. Absorbent was applied to the spill.
15.4(7)	14,18	0.28	Building S702	Fuels/miscellaneous liquids stored in the vicinity of Building S702. Site 79 is located adjacent to Building S702. No previous sampling for the site.	Screening Site 79 - Surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release.
15.5(7)	23,18	3.3	Area in MDRA Parcel 15	Concrete (Site 36) and gravel (Site 37) hazardous waste storage pads, hazardous materials drum storage (Site 38), and lubricant container storage (Site 39). Surface soil sample SS-5 detected PAHs, dieldrin, and metals.	Screening Sites 36, 37, 38, and 39 - Additional surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release.
15.6(7)	18,17	43.8	Buildings 301, 304, 305, 306, 307, S309, T416, T417, 701, and surrounding areas	This BRAC parcel is associated with MDRA Parcel 15. This parcel contains open storage areas X09, Y10, and Y50. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Historically, waste oil containing PCP was used for dust control in these areas. This parcel also contains the following concerns: • DRMO East Stormwater Runoff Canal (Site 54) is a canal that collects the stormwater runoff from the DRMO yard and other DDMT facilities. No previous sampling for the site. • DRMO North Stormwater Runoff Canal (Site 55) is a canal that collects the stormwater runoff from the DRMO yard and other DDMT facilities. No previous sampling for the site. • Waste oil used for dust control at PDO Yard (Site 72). • Surface and subsurface soil and groundwater samples detected metals, pesticides, and methylene chloride. • Spills of dark liquid were observed on the concrete pad (real property 88015) south of Building 702 and west of Building 629. • A 4,000-gallon heating oil tank was removed in July 1994 outside of Building 319. • A 30-gallon spill of solvent was reported on December 2, 1991, south of Building 309. The precise location of the spill is unknown.	Screening Sites 54, 55, and 72 - Surface soil, subsurface soil, surface water, and sediment sampling proposed to evaluate the presence of a contaminant release.
16.1(7)	21,9	2.8	Area surrounding buildings in MDRA Parcel 16	This parcel is associated with MDRA Parcel 16. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.

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TABLE 3-6
BRAC PARCEL DESCRIPTIONS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

PARCEL NUMBER AND LABEL[a]	LOCATION (x, y coordinates)	APPROXIMATE SIZE[b] (acres)	FACILITY	BASIS	REMEDIATION/ MITIGATION
16.2(7)	17,10	5.5	Building S559	Building S559 may have been fumigated. No data exist to determine if building was fumigated or the impact of the fumigation.	This parcel requires additional evaluation.
17.2(7)	22,9	3.7	Area surrounding buildings in MDRA Parcel 17	This BRAC parcel is associated with MDRA Parcel 17. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination. A 12,000-gallon and 500-gallon fuel oil tank were closed in place in July 1994 and September 1995, respectively, at Building 359. A 1,000-gallon fuel oil and 500-gallon diesel tank were removed in 1993 at Building 359. A 12,000-gallon and 500-gallon fuel oil tank were removed in 1993 at Building 359.	This parcel requires additional evaluation.
17.3(7)	25,9	5.5	Building 359	A sulfuric acid spill was reported on August 27, 1993 inside Building 359, Section 2. This building is used for storage of medical waste, sodium chloride, and petroleum products. An out of service incinerator is located in this building. This building was fumigated. No data exist to determine the impact of the fumigation.	Proposed NFA Site 49 - Action taken and quantity of spill unknown.
18.2(7)	19,8	2.6	Area surrounding buildings in MDRA Parcel 18	This parcel is associated with MDRA Parcel 18. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
19.1(7)	21,8	2.8	Buildings T467, S468, and area surrounding buildings in MDRA Parcel 19	This parcel is associated with MDRA Parcel 19. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination. A 1,000-gallon oil/water separator is located at Building S465.	This parcel requires additional evaluation.
19.2(7)	22,7	0.01	Building S465	Petroleum products are stored at Building S465. In addition, this building contains a vehicle wash.	This parcel requires additional evaluation.
19.3(7)	22,8	0.22	Building S469	Storage of sulfuric acid, hydraulic fluid, waste oil, and lubrication oil at Building S469. In addition, according to an interview, a PCB spill that has not been investigated took place in this building.	Proposed NFA Sites 40 (Safety Kleen units) and 41(satellite drums)
20.5(7)	19,6	26.5	Area surrounding buildings in MDRA Parcel 20	This parcel is associated with MDRA Parcel 20. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
20.6(7)	20,4	0.40	Between Buildings 489 and 490	A sulfuric acid spill was reported on June 10, 1993 between Buildings 489 and 490. The precise location of the spill is unknown.	Action taken and quantity of spill unknown.
21.5(7)	19,3	32.9	Area surrounding buildings in MDRA Parcel 21	This parcel is associated with MDRA Parcel 21. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
22.1(7)	18,4	0.66	Area surrounding buildings in MDRA Parcel 22	This parcel is associated with MDRA Parcel 22. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
22.2(7)	17,4	0.58	Between Buildings 689 and 690	A battery recoupment area exists between Buildings 689 and 690. No previous sampling for the site.	Screening Site 77 - Surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release.

TABLE 3-6
BRAC PARCEL DESCRIPTIONS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

PARCEL NUMBER AND LABEL[a]	LOCATION (x, y coordinates)	APPROXIMATE SIZE[b] (acres)	FACILITY	BASIS	REMEDIATION/ MITIGATION
23.6(7)	12,2	20.6	Area surrounding buildings in the eastern portion of MDRA Parcel 23	This parcel is associated with the eastern portion of MDRA Parcel 23. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination	This parcel requires additional evaluation.
23.7(7)	11,5	0.05	Building 783	Building 783 was previously designated for the storage of flammable items and ordnance material and is the location of the former DDMT recoupment facility. No previous sampling has been conducted for this site.	Screening Site 82 - Surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release.
23.8(7)	11,3	0.04	Building 793	Building 793 was previously designated for the storage of flammable items and ordnance material and is the location of the former DDMT recoupment facility. No previous sampling has been conducted for this site.	Screening Site 82 - Surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release.
23.9(7)	4,2	0.25	Outside Building S995	A gasoline spill was reported on September 13, 1993 outside of Building S995. The precise location of the spill is unknown.	Action taken and quantity of spill unknown.
23.10(7)	8,2	2.6	Area X01	Area X01 used to be a lake. The sediments are possibly contaminated with PCB and pesticide/herbicide residues.	This parcel requires additional evaluation.
23.11(7)	6,2	3.3	Area surrounding buildings in the western portion of MDRA Parcel 23	This parcel is associated with the western portion of MDRA Parcel 23. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
24.2(7)	11,6	12.6	Area X03	This parcel is associated with MDRA Parcel 24. This parcel is comprised of area X03, which was used for storage of flammable materials in 55-gallon drums until 1988. The area then became steel storage. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
24.3(7)	11,7	3.9	Buildings 770, T771, and area surrounding these buildings	Hazardous materials (antifreeze, paint, solvents, Safety Kleen) and petroleum products were stored in Building 770. Surface soil samples (SS-38 and SS-39) detected PAHs, VOCs, pesticides, and metals. Several spills were reported for Building 770 including: an oil spill was reported on August 23, 1993 outside of Building 770 (northeast corner); a 50-gallon spill of PCB-containing liquid was reported on July 9, 1990; and a 55-gallon spill of petroleum was reported on November 7, 1991 outside of Building 770 (west side). Several tanks have been removed at this building, including: an 11,155-gallon diesel tank removed in July 1994; an 11,155-gallon fuel oil tank removed in July 1994; a 10,000-gallon fuel oil tank removed in July 1994; a 440-gallon gasoline tank removed in December 1989; and two 1,000-gallon used motor oil tanks removed in December 1989. Building 770 has an oil/water separator that is pumped out quarterly, and a floor drain. Oil staining observed on the floor of Building T771.	RI Site 34 (west of Building 770) - Additional surface soil and subsurface soil sampling proposed to assess the vertical and horizontal extent of soil contamination. NFA Sites 30 (paint spray booth), 40 (Safety Kleen Unit only), 41(satellite drum area). Action taken and quantity of spill unknown. Contaminated materials from tank removal were excavated and disposed.
25.2(7)	8,7	12	Building S875 and area surrounding buildings in MDRA Parcel 25	This parcel is associated with MDRA Parcel 25. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination. A 1,000-gallon heating oil tank was closed in place in July 1994 outside Building 875.	This parcel requires additional evaluation.
26.1(7)	6,9	4.7	Building 889 and area surrounding buildings in MDRA Parcel 26	This parcel is associated with MDRA Parcel 26. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.

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TABLE 3-6
BRAC PARCEL DESCRIPTIONS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

PARCEL NUMBER AND LABEL[a]	LOCATION (X, Y coordinates)	APPROXIMATE SIZE[b] (acres)	FACILITY	BASIS	REMEDIATION/ MITIGATION
26.2(7)	6,4	6.3	Building S970	An oil fired generator that has leaked oil onto the concrete pad was observed at Building S970, Section 6.	This parcel requires additional evaluation.
27.1(7)	4,9	4.4	Area surrounding buildings in MDRA Parcel 27	This parcel is associated with MDRA Parcel 27. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
27.2(7)	4,4	6.3	Building S972	Flammables, solvents, waste oil storage in Building S972. No previous sampling conducted for this site. In addition, oil stained areas were observed in the building during a visual inspection. This building may have been fumigated. No data exist to determine if the building was fumigated or the impact of the fumigation.	Screening Site 84 - Surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release.
28.1(7)	2,7	11.4	Area X04	This parcel is associated with MDRA Parcel 28. This parcel contains open storage area X04. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
28.2(7)	3,5	0.91	Building 1089	Building 1089 was used to store acids. The site includes the building and immediate surrounding area. Soil samples not collected previously for this site. Groundwater sample from MW-21 detected VOCs and metals.	Screening Site 89 - Surface and subsurface soil sampling proposed to assess the vertical and horizontal extent of soil contamination.
29.2(7)	4,18	30.4	Areas X27 and X30, Buildings 801, 802, and 804	This parcel is associated with MDRA Parcel 29. This parcel contains open storage areas X27 and X30. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination. A 1.25-gallon hydraulic fluid spill was reported on September 12, 1995 in the street. The spill was spread north out Gate 15 and across Dunn Avenue. The precise location of the spill is unknown.	This parcel requires additional evaluation.
29.3(7)	2,11	0.13	West Storm Drainage Canal	Main Installation, West Storm Water Drainage Canal collects the stormwater runoff from the PCP tank area and the western portion of the main installation. Surface water samples SW-2 and SW-14 detected 2-butanone and metals.	Screening Site 56 - Surface soil, subsurface soil, additional surface water, and sediment sampling proposed to evaluate the presence of a contaminant release.
30.1(7)	4,14	1.4	Building 925	Hazardous materials (acetone, methyl ethyl ketone, methanol, ethanol) storage in Building 925. In the past, petroleum products were also stored in this building in 55-gallon drums.	This parcel requires additional evaluation.
30.2(7)	4,13	0.42	Between Buildings 925 and P949	Historical drums were stored with an earthen berm only. X-25 flammable solvents storage between Buildings 925 and P949. A 325-gallon spill of X-25 was reported on January 19, 1988 in the concrete-bermed POL storage area.	Proposed NFA Site 53- Material associated with the spill was removed. This parcel requires additional evaluation.
30.3(7)	4,15	6.0	Area surrounding buildings in MDRA Parcel 30	This parcel is associated with MDRA Parcel 30. This parcel contains open storage area X23. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
30.4(7)	4,11	1.4	Building P949	Hazardous material storage in Building P949. This building was fumigated. No data exist to determine the impact of the fumigation.	This parcel requires additional evaluation.
30.5(7)	4,10	0.55	Adjacent to the south side of Building P949	Site 83 is adjacent to the south side of Building P949. This location was apparently used to dispose of dried paint residues. Surface soil sample SS-20 detected metals, pesticides, VOCs, and SVOCs.	Screening Site 83 - Additional surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release.

TABLE 3-6
BRAC PARCEL DESCRIPTIONS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

PARCEL NUMBER AND LABEL[a]	LOCATION (x, y coordinates)	APPROXIMATE SIZE[b] (acres)	FACILITY	BASIS	REMEDIATION/ MITIGATION
31.1(7)	6,13	23.7	Building 910 and area surrounding buildings in MDRA Parcel 31	This parcel is associated with MDRA Parcel 31. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
32.1(7)	9,14	6.8	Areas X02, X13, and X15	This parcel is associated with MDRA Parcel 32. This parcel contains open storage areas X02, X13, and X15. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
32.2(7)	9,13	3.6	Building 835	Thirteen spills were reported from March 9, 1991 to May 26, 1995 for Building 835. Materials spilled include battery acid, hydrochloric acid, sulfuric acid, herbicide, muratic acid, and transmission fluid. A spill of lube oil and engine oil was reported August 23, 1993 outside of Building 835. The precise location of the spill is unknown. This building was fumigated. No data exist to determine the impact of the fumigation.	Absorbent applied to all spills.
32.3(7)	9,10	0.10	Building 865	Building 865, the Recoup Area Building, is a hazardous materials and waste handling area used to transfer materials from damaged or leaking containers into undamaged containers. The site includes the entire building. No previous sampling for the site. A small fenced in area was observed on the southwest side of Building 865. This area contained various drums (5-, 10-, 15-, and 55-gallon) of old chemicals (oil, methyl ethyl ketone, isopropanol), some with protruding rusting tops.	Screening Site 28 - Surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release.
33.7(7)	13,8	0.15	Building 765	Building 765 contains a fuel oil AST. No previous sampling for the site.	Screening Site 81 - Surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release.
33.8(7)	10,10	0.03	Building S863	Considerable oil stains were observed on the concrete floor of Building S863.	This parcel requires additional evaluation.
33.9(7)	12,14	39.4	Areas X05, X06, X07, X08, X10, X11, and X12 Buildings S737, 720, and 717	This parcel is associated with MDRA Parcel 33. This parcel contains open storage areas X05, X06, X07, X08, X10, X11, and X12. Storage area X11 has drums with flammables. The PCP dip vat (Site 42) and UST (Site 43) near Building S737 were remediated. Building S737 is currently used for storing/mixing pesticides. The former PCP pallet drying area is Site 46. Building 720 (Site 80) was used for dispensing fuels and cleaners. Surface soil sample SS-24 detected VOCs, PAHs, DDT, and metals. Soil boring STB-4 detected 2-butanone. This parcel contains railroad tracks (east rail yard) that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. A 12,000-gallon diesel AST and a 1,000-gallon used motor oil tank are located at Building 720. A 1,000-gallon diesel fuel tank was removed in July 1994 outside Building 756.	Screening Sites 42, 43, 46, and 80 - Additional surface and subsurface soil sampling proposed to evaluate the presence of a contaminant release. At Sites 42 and 43, liquid PCP source was removed, and 602 cubic yards of contaminated soil were excavated and disposed of.
34.2(7)	24,7	2.7	Area surrounding buildings in MDRA Parcel 34	This parcel is associated with MDRA Parcel 34. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticides contamination.	This parcel requires additional evaluation.
35.1(7)	3,3	0.02	Building S1090	Storage at Building S1090 of paint thinner, lubricating oil, P-19 preservation oil, and corrosion preservation compound.	This parcel requires additional evaluation.
35.2(7)	3,5	0.43	Building 1084 and area surrounding this building	Site 88 is an old concrete grease rack and storage area for POL at Building 1085 (removed). Site 29 was a UST associated with the grease rack (removed 1988). Site 87 (Building T1084) was once used for storage of DDT/other pesticides.	Proposed Early Removal Sites 29, 87, 88 - Require additional evaluation.
35.3(7)	3,5	0.22	Building 1086	Building 1086 was used to store hazardous materials from 1959 through 1983/1984, and this building has a sump.	Proposed NFA Site 30 (paint spray booths)

TABLE 3-6
BRAC PARCEL DESCRIPTIONS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

PARCEL NUMBER AND LABEL[a]	LOCATION (x, y coordinates)	APPROXIMATE SIZE[b] (acres)	FACILITY	BASIS	REMEDIATION/ MITIGATION
35.4(7)	3,3	4.9	Buildings 1087 and 1088	RI Site 32 is next to Building 1088. Former location of spray paint booth in Building 1087 (Site 31) used to conduct major stock primer and enamel spray painting operations. Open-sided, metal roof shed (Site 33) with a gravel floor adjacent to Building 1088, which was historically used to store 55-gallon drums containing spent sandblasting material. Surface soil samples detected toluene, PAHs, pesticides, PCBs, metals, and VOCs. Groundwater sample from MW-22 detected VOCs, SVOCs, and metals.	RI Site 32 (Sandblasting Waste Accumulation Area) - Additional groundwater, surface soil, and subsurface soil sampling proposed to assess the horizontal and vertical extent of soil contamination. Screening Sites 31 and 33 - Additional surface and subsurface soil sampling proposed to evaluate the presence and extent of contamination.
35.5(7)	2,2	4	Buildings T1084, S1091, and area surrounding buildings in MDRA Parcel 35	This parcel is associated with MDRA Parcel 35. Based on an interview with DDMT personnel, the surface soil surrounding the buildings at the installation has the potential for pesticide contamination.	This parcel requires additional evaluation.
36.1(7)	30,9	<0.01	Dunn Field	A seven-pound jug of ammonia hydroxide and a one-gallon bottle of acetic acid were buried here. Existing data is not adequate to assess if a release has occurred.	Proposed Early Removal Site 2 - Require additional evaluation.
36.2(7)	30,9	0.01	Dunn Field	Three thousand quarts of unknown chemicals and five cubic feet of orthotoluidine dihydrochloride are buried here. Existing data is not adequate to assess if a release has occurred.	Proposed Early Removal Site 3 - Require additional evaluation.
36.3(7)	30,9	0.02	Dunn Field	Forty-five 55-gallon drums of discarded oil, grease, paints, and thinner are buried in these two adjacent trenches. Existing data is not adequate to assess if a release has occurred.	Proposed Early Removal Sites 4 and 4.1 - Require additional evaluation.
36.4(7)	30,9	<0.01	Dunn Field	Three cubic feet of methyl bromide are buried here in an unidentified container or containers. Existing data is not adequate to assess if a release has occurred.	Proposed Early Removal Site 5 - Require additional evaluation.
36.5(7)	30,8	<0.01	Dunn Field	1,700 quart bottles of nitric acid are buried here. Existing data is not adequate to assess if a release has occurred.	Proposed Early Removal Site 7 - Require additional evaluation.
36.6(7)	30,8	<0.01	Dunn Field	3,768 one-gallon cans of methyl bromide are buried to a depth of seven feet. Existing data is not adequate to assess if a release has occurred.	Proposed Early Removal Site 8 - Require additional evaluation.
36.7(7)	31,9	<0.01	Dunn Field	1,433 one-ounce bottles of trichloroacetic acid are buried at a depth of six feet. Existing data is not adequate to assess if a release has occurred.	Proposed Early Removal Site 11 - Require additional evaluation.
36.8(7)	27,8	0.06	Dunn Field	Thirty pallets of discarded acid containers are buried at these three locations at a depth of eight feet. Existing data is not adequate to assess if a release has occurred.	Proposed Early Removal Sites 12 and 12.1 - Require additional evaluation.
36.9(7)	28,8	0.01	Dunn Field	32 cubic yards of mixed chemicals and acids and 8,100 pounds of unnamed solids were buried at a depth of eight feet. Existing data is not adequate to assess if a release has occurred.	Proposed Early Removal Site 13 - Require additional evaluation.
36.10(7)	28,8	<0.01	Dunn Field	These sites contain unknown amounts of unnamed acid. Existing data is not adequate to assess if a release has occurred.	Proposed Early Removal Sites 16 and 16.1 - Require additional evaluation.
36.11(7)	28,8	<0.01	Dunn Field	An unknown amount of chemicals and medical supplies were buried. Existing data is not adequate to assess if a release has occurred.	Proposed Early Removal Site 17 - Require additional evaluation.
36.12(7)	23,11	0.92	Dunn Field	This site contains one above-grade covered bauxite pile. Existing data is not adequate to assess if a release has occurred.	Proposed Early Removal Site 62 - Require additional evaluation.
36.13(7)	27,11	3.3	Dunn Field	This site contains two above-grade covered bauxite piles. Existing data is not adequate to assess if a release has occurred.	Proposed Early Removal Site 62 - Require additional evaluation.
36.14(7)	31,11	0.33	Dunn Field	This site is a former pistol range and impact area and includes Building 1184 (Site 85). The building is now used for temporary pesticide storage. Existing data is not adequate to assess if a release has occurred.	Proposed Early Removal Sites 60 and 85 - Require additional evaluation.

TABLE 3-6
BRAC PARCEL DESCRIPTIONS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

PARCEL NUMBER AND LABEL[a]	LOCATION (x, y coordinates)	APPROXIMATE SIZE[b] (acres)	FACILITY	BASIS	REMEDIATION/ MITIGATION
36.15(7)	29,10	11.7	Dunn Field	Groundwater contamination is documented. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Sampling is recommended for the railroad tracks in this parcel.	Remedial action has been suggested in the Record of Decision, but not yet implemented. Additional evaluation is required.
36.16(7)	29,9	0.08	Dunn Field	Nine sets of CAIS (containing mustard gas and lewisite) were buried. Existing data is not adequate to assess if a release has occurred.	Chemical Warfare Management Plan Site 1 - Conduct an investigation of potential chemical warfare materials, prepare a site safety submission, then conduct remediation.
36.17(7)	30,9	0.07	Dunn Field	Ashes and metals from the former burn site (Screening Site 64) were buried here. Existing data is not adequate to assess if a release has occurred.	Chemical Warfare Management Plan Site 9 - Conduct an investigation of potential chemical warfare materials, prepare a site safety submission, then conduct remediation.
36.18(7)	28,9	0.61	Dunn Field	Food items with expired shelf life were buried here. Reportedly, CAIS sets were also buried here. Existing data is not adequate to assess if a release has occurred.	Chemical Warfare Management Plan Site 86 - Conduct an investigation of potential chemical warfare materials, prepare a site safety submission, then conduct remediation.
36.19(7)	28,9	0.02	Dunn Field	Food items with expired shelf life were buried here. Reportedly, CAIS sets were also buried here. Existing data is not adequate to assess if a release has occurred.	Chemical Warfare Management Plan Site 86 - Conduct an investigation of potential chemical warfare materials, prepare a site safety submission, then conduct remediation.
36.20(7)	31,9	0.01	Dunn Field	40,037 units of eye ointment were buried here in 1955. No data exist to assess if a release has occurred.	Remedial Action Site 6 - Surface and subsurface sampling proposed to assess the presence of a contaminant release.
36.21(7)	30,8	0.07	Dunn Field	This site was discovered during the installation of monitoring well 10. Charred debris was encountered. No data exist to assess the materials buried at the site or if a release has occurred.	Remedial Action Site 10 - Surface and subsurface soil and groundwater sampling proposed to assess the presence of a contaminant release.
36.22(7)	28,8	0.01	Dunn Field	This municipal waste burial site reportedly contains paper, food, and other unnamed materials. No data exist to assess if a release has occurred.	Remedial Action Site 14 - Surface and subsurface soil and groundwater sampling proposed to assess the presence of a contaminant release.
36.23(7)	28,8	0.08	Dunn Field	Records indicate that one pallet each of sodium and sodium phosphate containers, and an unknown quantity of sodium, sodium phosphate, acid, chlorinated lime, and medical supplies were buried here in 1970. No data exist to assess if a release has occurred.	Remedial Action Sites 15, 15.1, and 15.2 - Surface and subsurface soil and groundwater sampling proposed to assess the presence of a contaminant release.
36.24(7)	28,11	0.08	Dunn Field	This site was used for the disposal of sanitary wastes, construction debris, smoke pots, and tear gas canisters from 1955 to 1960. No sampling data have been collected for this site.	Screening Site 19 - Surface and subsurface soil sampling proposed to assess the presence of a contaminant release.

TABLE 3-6
BRAC PARCEL DESCRIPTIONS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

PARCEL NUMBER AND LABEL[a]	LOCATION (x, y coordinates)	APPROXIMATE SIZE[b] (acres)	FACILITY	BASIS	REMEDIATION/ MITIGATION
36.25(7)	30,10	0.34	Dunn Field	Reportedly, asphalt and roofing gravel were dumped in a surface fill at this location until 1981 when the debris was removed. Existing data is not adequate to assess if a release has occurred.	Screening Site 20 - Surface and subsurface soil sampling proposed to assess the presence of a contaminant release.
36.26(7)	31,13	0.51	Dunn Field	This site consists of two trenches with unknown depths. It is reported that XXCC-3 impregnate is buried here. No data exist to assess if a release has occurred.	Screening Site 21 - Surface and subsurface soil sampling proposed to assess the presence of a contaminant release.
36.27(7)	31,12	0.21	Dunn Field	This concrete-lined drainage ditch collects stormwater runoff from surrounding areas. Surface water samples have been collected (during stormwater runoff); however, not enough data exist to assess the impact from this site.	Screening Site 50 - Surface and subsurface soil and stormwater sampling proposed to assess the presence of a contaminant release.
36.28(7)	30,9	0.11	Dunn Field	This drain was installed in the mid-1950s and is used for stormwater conveyance. No data exist to assess if a release has occurred.	Screening Site 61 - Surface and subsurface soil sampling proposed to assess the presence of a contaminant release.
36.29(7)	23,9	7.5	Dunn Field	This area is a current fluorspar storage area that historically was a bauxite storage area, and mustard gas, smoke pot, cyanide grenades and ordnance burn area (1946). No data exist to assess if a release has occurred.	CWMP Site 24 and Screening Site 64 - Surface water and sediment sampling proposed to assess the presence of a contaminant release.
36.30(7)	28,12	41.9	Dunn Field, Buildings 1104, 1145, 1146, and 1185	This parcel is associated with Dunn Field excluding the areas that were previously parcelized. This parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. Previous sampling has not been performed in this area to confirm the absence of contamination.	This parcel requires additional evaluation.

Notes:

AST: Aboveground storage tank
BRAC: Base Realignment and Closure
CAIS: Chemical Agent Identification Sets
DDE: 4,4'-Dichlorodiphenyltrichloroethene
DDMT: Defense Distribution Depot Memphis, Tennessee
DDT: 4,4'-Dichlorodiphenyltrichloroethane
DRMO: Defense Reutilization and Marketing Office
EBS: Environmental baseline survey
MDRA: Memphis Depot Redevelopment Agency
NFA: No further action
PAH: Polycyclic aromatic hydrocarbon
PCB: Polychlorinated biphenyl
PCP: Pentachlorophenol
POL: Petroleum, oil, and lubricant
ppm: parts per million
PDO: Property Disposal Office
RCRA: Resource Conservation and Recovery Act
RI: Remedial investigation
SVOC: Semivolatile organic compounds
TPH: Total petroleum hydrocarbons
UST: Underground storage tank
VOC: Volatile organic compounds

a. Parcel label definitions are as follows:
PS: Petroleum storage
PR: Petroleum release or disposal
HS: Hazardous substance storage
HR: Hazardous substance release or disposal

Qualified parcel label definitions are as follows:
A: Asbestos containing material
P: Polychlorinated biphenyls
R: Radon
X: UXO and/or ordnance fragments
RD: Radionuclides
(P): Possible (unverified)

b. Acreage figures are approximate; they have been calculated using AutoCad Release 13.

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TABLE 3-7
UNCONTAMINATED CATEGORY 1 PARCELS
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

PARCEL NUMBER AND LABEL	MAP LOCATION	MDRA PARCEL	BUILDING NUMBER
1.1(1)	32,10	1	1
1.2(1)	32,13	1	2
1.3(1)	NA	1	129
1.4(1)	NA	1	139
1.5(1)	34,12	1	144
1.6(1)	NA	1	145
1.7(1)	NA	1	155
2.1(1)	34,6	2	176
2.2(1)	NA	2	178
2.3(1)	34,5	2	179
2.4(1)	34,5	2	181
2.5(1)	NA	2	183
2.6(1)	34,4	2	184
3.1(1)	32,2	3	193
3.2(1)	31,2	3	195
3.3(1)	31,2	3	196
3.4(1)	31,2	3	198
4.1(1)	30,0	4	252
4.2(1)	31,7	4	270
4.3(1)	31,7	4	271
13.1(1)	33,16	13	23
13.2(1)	NA	13	24
13.3(1)	32,16	13	25
14.1(1)	27,19	14	22
15.1(1)	10,18	15	15
17.1(1)	22,10	17	459
23.1(1)	19,2	23	7
23.2(1)	13,2	23	8
23.3(1)	11,4	23	787
23.4(1)	NA	23	795
23.5(1)	5,2	23	S995
29.1(1)	3,10	29	9
33.1(1)	13,16	33	727
33.2(1)	14,10	33	754
33.3(1)	14,10	33	755
33.4(1)	14,9	33	756
33.5(1)	11,10	33	860
34.1(1)	24,8	34	360

Note:
MDRA: Memphis Depot Redevelopment Agency

TABLE 3-8
QUALIFIED PARCEL DESCRIPTIONS
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

QUALIFIED PARCEL NUMBER AND LABEL[1]	LOCATION (X, y coordinates)	APPROXIMATE SIZE[2] (acres)	BUILDING NUMBER	BASIS	REMEDIATION/ MITIGATION
1.1-1Q-A/L(P)	32,10	0.01	1	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
1.2-2Q-A/L(P)	32,13	0.01	2	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
1.3-129Q-A(P)	33,12	<0.01	129	ACM possible based on the year of construction.	No current mitigation.
1.4-139Q-A/L(P)	33,12	<0.01	139	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
1.5-144Q-A/L(P)	33,12	0.31	144	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
1.6-S145Q-A/L(P)	33,12	0.02	S145	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
1.7-155Q-A/L(P)	33,12	<0.01	155	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
2.1-176Q-A/L	33,6	0.11	176	ACM and LBP present; confirmed by previous sampling and testing.	No current mitigation.
2.2-S178Q-A/L(P)	33,6	0.03	S178	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
2.3-179Q-A/L	33,5	0.11	S179	ACM and LBP present; confirmed by previous sampling and testing.	No current mitigation.
2.4-181Q-A/L	33,5	0.11	181	ACM and LBP present; confirmed by previous sampling and testing.	No current mitigation.
2.5-S183Q-A/L(P)	33,5	0.11	S183	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.

TABLE 3-8
QUALIFIED PARCEL DESCRIPTIONS
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

QUALIFIED PARCEL NUMBER AND LABEL[a]	LOCATION (x, y coordinates)	APPROXIMATE SIZE[b] (acres)	BUILDING NUMBER	BASIS[c]	REMEDIATION/ MITIGATION
2.6-184Q-A/L	33,4	0.11	184	ACM and LBP present; confirmed by previous sampling and testing. Lead from exterior paint present in soil at levels greater than 400 ppm.	No current mitigation.
3.2-S195Q-A/L	31,2	0.10	S195	ACM and LBP present; confirmed by previous sampling and testing.	No current mitigation.
3.3-196Q-A/L(P)	31,2	0.02	196	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
3.4-S198Q-A/L(P)	31,2	0.01	S198	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
3.5-398Q-A/L(P)	29,4	0.01	398	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
3.5-RANGEQ-X(P)	30,6	0.25	Range	Site used as a pistol range; UXO possible.	No current mitigation
4.1-252Q-A/L(P)	30,10	0.19	252	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
4.2-270Q-A/L(P)	31,7	0.33	270	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
4.3-S271Q-A/L(P)	31,7	0.03	S271	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
4.4-260Q-A/L(P)	30,9	0.15	260	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
4.5-251Q-A/L(P)	31,9	0.18	251	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
4.5-T256Q-A(P)/L(P)	29,10	<0.01	T256	ACM and LBP possible based on the year of construction.	No current mitigation.

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TABLE 3-8
QUALIFIED PARCEL DESCRIPTIONS
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

QUALIFIED PARCEL NUMBER AND LABEL[a]	LOCATION (x, y coordinates)	APPROXIMATE SIZE[b] (acres)	BUILDING NUMBER[c]	BASIS	REMEDIATION/ MITIGATION
4.5-T261Q-A(P)/L(P)	30,9	0.14	T261	ACM and LBP possible based on the year of construction.	No current mitigation.
4.5-265Q-A/L(P)	31,8	0.18	265	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
4.6-T254Q-A/L(P)	29,9	0.02	T254	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
4.7-257Q-A/L(P)	28,10	0.01	257	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
4.8-263Q-L(P)	30,9	0.02	263	LBP possible based on the year of construction.	No current mitigation.
4.11-253Q-A/L(P)	29,9	0.22	253	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
5.1-T272Q-L(P)	30,7	0.03	T272	LBP possible based on the year of construction.	No current mitigation.
5.2-274Q-A/L(P)	29,7	0.31	274	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
6.2-250Q-A/L(P)	30,11	2.8	250	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
6.3-349Q-A/L(P)	26,12	2.8	349	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
6.4-350Q-A/L(P)	26,11	2.8	350	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
7.2-249Q-A/L(P)	30,12	2.8	249	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.

TABLE 3-8
QUALIFIED PARCEL DESCRIPTIONS
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

QUALIFIED PARCEL NUMBER AND LABEL*	LOCATION (x, y coordinates)	APPROXIMATE SIZE* (acres)	BUILDING NUMBER	BASIS	REMEDIATION/ MITIGATION
8.2-229Q-A/L(P)	30,15	2.8	229	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
8.3-230Q-A/L(P)	30,14	2.8	230	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
8.4-329Q-A/L(P)	26,15	2.8	329	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
8.5-330Q-A/L(P)	26,14	2.8	330	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
9.2-429Q-A/L(P)	23,15	2.8	429	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
9.3-430Q-A/L(P)	23,14	2.8	430	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
9.4-449Q-A/L(P)	23,12	2.8	449	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
9.5-450Q-A/L(P)	23,11	2.8	450	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
10.1-649Q-A/L(P)	16,12	2.8	649	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
10.4-549Q-A/L(P)	20,12	2.8	549	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
10.5-550Q-A/L(P)	20,11	2.8	550	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.

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TABLE 3-8
QUALIFIED PARCEL DESCRIPTIONS
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

QUALIFIED PARCEL NUMBER AND LABEL*	LOCATION (x, y coordinates)	APPROXIMATE SIZE* (acres)	BUILDING NUMBER	BASIS	REMEDIATION/ MITIGATION
10.6-650Q-A/L(P)	16,11	2.8	650	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
11.2-529Q-A/L(P)	20,15	2.8	529	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
11.3-530Q-A/L(P)	20,14	2.8	530	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
11.4-630Q-A/L(P)	16,14	2.8	630	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
12.2-629Q-A/L(P)	16,15	2.8	629	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
13.1-23Q-A/L(P)	34,10	<0.01	23	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
13.2-24Q-L(P)	33,10	<0.01	24	LBP possible based on the year of construction.	No current mitigation.
13.3-25Q-L(P)	32,10	<0.01	25	LBP possible based on the year of construction.	No current mitigation.
13.4-210Q-A/L(P)	30,10	5.5	210	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
14.1-22Q-A/L(P)	27,19	<0.01	22	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
14.2-S209Q-A/L(P)	30,18	5.50	S209	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.

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TABLE 3-8
QUALIFIED PARCEL DESCRIPTIONS
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

QUALIFIED PARCEL NUMBER AND LABEL[a]	LOCATION (x, y coordinates)	APPROXIMATE SIZE[b] (acres)	BUILDING NUMBER	BASIS	REMEDIATION/ MITIGATION
15.1-15Q-A/L(P)	10,19	<0.01	15	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
15.2-S308Q-A/L(P)	25,18	0.01	S308	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
15.3-319Q-A/L(P)	26,16	0.41	319	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
15.4-S702Q-A/L(P)	14,18	0.28	S702	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
15.6-301Q-A(P)/L(P)	18,17	<0.01	301	ACM and LBP possible based on the year of construction.	No current mitigation.
15.6-S309Q-A/L(P)	25,18	0.01	S309	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
15.6-T416Q-A/L(P)	24,16	0.06	T416	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
15.6-T417Q-A/L(P)	23,16	0.07	T417	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
16.2-S559Q-A/L(P)	18,9	3.5	S559	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
17.3-359Q-A/L(P)	25,9	5.5	359	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
19.1-S468Q-L(P)	22,8	0.22	S468	LBP possible based on the year of construction.	No current mitigation.
19.2-S465Q-A	22,7	0.01	S465	ACM present; confirmed by previous sampling and testing.	No current mitigation.

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TABLE 3-8
QUALIFIED PARCEL DESCRIPTIONS
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

QUALIFIED PARCEL NUMBER AND LABEL*	LOCATION (x, y coordinates)	APPROXIMATE SIZE* (acres)	BUILDING NUMBER	BASIS	REMEDIATION/ MITIGATION
19.3-S469Q-L(P)	22,8	0.22	S469	LBP possible based on the year of construction.	No current mitigation.
20.2-670Q-A/L(P)	16,6	5.0	670	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
20.3-470Q-A/L(P)	22,6	5.0	470	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
20.4-489Q-A/L(P)	22,5	5.0	489	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
21.1-690Q-A/L(P)	16,3	5.0	690	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
21.2-490Q-A/L(P)	22,3	5.0	490	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
21.3-689Q-A/L(P)	16,5	5.2	689	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
21.4-685Q-A/L(P)	14,4	0.73	685	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
23.2-8Q-A/L(P)	13,2	0.02	8	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
23.4-795Q-L(P)	11,2	0.01	795	LBP possible based on the year of construction.	No current mitigation.
23.7-783Q-A/L(P)/X(P)	11,5	0.05	783	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction. UXO possible historically ordnance has been stored in this building.	No current mitigation.

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TABLE 3-8
QUALIFIED PARCEL DESCRIPTIONS
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

QUALIFIED PARCEL NUMBER AND LABEL[a]	LOCATION (x, y coordinates)	APPROXIMATE SIZE[b] (acres)	BUILDING NUMBER	BASIS	REMEDIATION/ MITIGATION
23.8-793Q-L(P)/X(P)	11,3	0.04	793	LBP possible based on the year of construction. UXO possible historically ordnance has been stored in this building.	No current mitigation.
24.3-770Q-A/L(P)	12,8	0.57	770	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
24.3-T771Q-A/L(P)	11,9	0.02	T771	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
25.1-S873Q-A/L(P)	9,6	6.3	S873	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
25.2-T875Q-A/L(P)	7,6	6.3	T875	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
26.2-S970Q-A/L(P)	6,6	6.3	S970	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
27.2-S972Q-A/L(P)	4,6	6.3	S972	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
28.2-S1089Q-A(P)/L(P)	3,3	0.91	S1089	ACM and LBP possible based on the year of construction.	No current mitigation.
29.1-9Q-A/L(P)	3,10	0.01	9	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
29.2-801Q-A/L(P)	4,18	0.01	801	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
33.1-753Q-A/L(P)	14,10	0.01	753	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.

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TABLE 3-8
QUALIFIED PARCEL DESCRIPTIONS
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

QUALIFIED PARCEL NUMBER AND LABEL[a]	LOCATION (X, Y coordinates)	APPROXIMATE SIZE[b] (acres)	BUILDING NUMBER	BASIS	REMEDIATION/ MITIGATION
33.3-755Q-A/L(P)	12,14	0.01	755	ACM and LBP present; confirmed by previous sampling and testing.	No current mitigation.
33.4-756Q-A	14,9	0.06	756	Not on master facility list. Since year of construction unknown, unable to complete qualification for LBP. ACM present; confirmed by previous sampling and testing.	No current mitigation.
33.5-T860Q-A/L(P)	11,10	0.02	T860	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
33.8-S863Q-A/L(P)	10,10	0.03	S863	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
33.9-717Q-A/L(P)	12,14	0.01	717	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
33.9-720Q-A/L(P)	14,15	0.11	720	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
33.9-S737Q-A/L(P)	13,13	0.13	737	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
35.1-S1090Q-A/L(P)	3,3	0.02	S1090	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
35.3-1086Q-L(P)	3,4	0.22	1086	LBP possible based on the year of construction.	No current mitigation.
35.4-1087Q-A/L(P)	3,3	0.11	1087	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
35.4-1088Q-L(P)	3,3	0.05	1088	LBP possible based on the year of construction.	No current mitigation.

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TABLE 3-8
QUALIFIED PARCEL DESCRIPTIONS
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

QUALIFIED PARCEL NUMBER AND LABEL[a]	LOCATION (x, y coordinates)	APPROXIMATE SIZE[b] (acres)	BUILDING NUMBER	BASIS	REMEDIATION/ MITIGATION
35.5-T1084Q-A/L(P)	4,5	0.03	T1084	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
35.5-S1091Q-A/L(P)	3,2	0.02	S1091	ACM present; confirmed by previous sampling and testing. LBP possible based on the year of construction.	No current mitigation.
36.14-1184Q-L(P)	12,31	0.01	1184	LBP possible based on the year of construction.	No current mitigation.
36.30-RANGEQ-X(P)	11,31	0.33	Range	Qualification for UXO includes potential for lead in soil from firing ranges.	No current mitigation.

Notes:

ACM: Asbestos-containing material
LBP: Lead-based paint
PCB: Polychlorinated biphenyl
ppm: Parts per million
UXO: Unexploded ordnance

a. Parcel label definitions are as follows:

PS = petroleum storage
PR = petroleum release or disposal
HS = hazardous substance storage
HR = hazardous substance release or disposal

Qualified parcel label definitions are as follows:

A = asbestos containing material
L = lead-based paint
P = polychlorinated biphenyls
R = radon
X = UXO and/or ordnance fragments
RD = radionuclides
(P) = possible (unverified)

b. Acreage figures are approximate; they have been calculated using AutoCad Release 13.

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TAB

4.0

4.0 INSTALLATION-WIDE STRATEGY FOR ENVIRONMENTAL RESTORATION

This section describes and summarizes the installation-wide environmental restoration and compliance strategy for DDMT.

Prior to the announcement of installation realignment in March 1995, restoration projects were under way to identify, characterize, and remediate environmental contamination at DDMT. The restoration strategy focused on the protection of human health and the environment at DDMT, taking into consideration the ongoing and continued use of DDMT. With the realignment announcement, the restoration strategy for DDMT changed from supporting an active military installation to responding to property disposal and reuse considerations. The DDMT environmental restoration strategy was therefore modified to address closure and reuse while still focusing on protection of human health and the environment.

The overall environmental and compliance strategy is the responsibility of DDMT's Environmental Protection and Safety Office. The DDMT's BRAC strategy is designed to ensure that all regulatory requirements are met, and that adequate and cost-effective restoration activities are implemented as quickly as possible to provide expedited disposal and reuse in compliance with U. S. Army and community goals. The current strategy provides for the completion of all site restoration activities on the BRAC parcel by 2003 with the exception of groundwater remediation, which is anticipated to continue until 2024.

The following sections describe various elements of the DDMT BRAC environmental restoration strategy, including area designation strategy, compliance strategy, and natural and cultural resources strategies.

4.1 AREA DESIGNATION STRATEGY

To provide a comprehensive and effective investigation and restoration of sites at DDMT, various means of grouping the sites were developed. The group designations include OUs, MDRA parcel groups, and BRAC parcel groups. The following subsections reflect the relationship among OUs, MDRA parcels, and BRAC parcels. The priorities and sequence for cleanup were determined by the

BCT and the MDRA to reflect a balance between risk to human health and the environment and the reuse priority of a parcel awaiting remedial action.

4.1.1 Zone Designations

There are three zone designations at DDMT: OUs, MDRA parcels, and BRAC parcels. Representatives from DDMT, EPA, TDEC, and CEHNC divided the facility into four potential OUs. Based on the potential reuse of each portion of DDMT, the MDRA further subdivided each OU into MDRA parcels. There are 36 MDRA parcels at DDMT. Because different types of contaminants are located within each MDRA parcel, each MDRA parcel was further subdivided into BRAC parcels. There are 187 BRAC parcels at DDMT. The relationship among the OUs, MDRA parcels, and BRAC parcels is shown in Table 4-1.

4.1.2 Sequence

The sequence for investigating each MDRA parcel is presented in Table 4-1. Because none of the areas within DDMT were identified as a higher potential risk to human health and the environment than any other areas, the sequence is based primarily on the MDRA's order of preference. Table 4-2 lists primary deliverables and projected deliverable dates for the investigations.

4.1.3 Early Actions Strategy

The DDMT plans to implement the "Record of Decision for Interim Remedial Action of the Groundwater at Dunn Field (OU-1)" to control the migration of chlorinated solvents identified in the groundwater. Other early actions will be initiated when appropriate to accelerate the cleanup process.

4.1.4 Remedy Selection Approach

Remedies for the restoration of each site at DDMT will be selected in accordance with the NCP. The BCT will evaluate each site to determine the appropriate remedy. Areas where contamination is suspected to be limited in extent will likely be addressed by ER actions (presumptive remedy) where such activities have been identified as providing significant environmental and economic benefits. If contamination extends beyond the limits within which remediation can feasibly be completed using available ER technologies, ER will be not be implemented and another course of action will be taken.

Using the approach outlined in the NCP, the following items will be required for these sites:

- A work plan will be prepared and implemented to evaluate the extent of the contamination.
- A risk assessment will be completed to evaluate the potential risk to human health and the environment. Future land use will be considered during the assessment (it is anticipated that commercial use would apply); the results will be compared to EPA Region III preliminary remediation goals, background concentrations, and achievable analytical reporting limits.
- Options to remediate the area of contamination will be evaluated. Selected technologies for application of expedited solutions will be reviewed, presumptive remedies will be reviewed, and a focused feasibility study will be prepared.
- The design for the selected remedial option will be prepared and implemented in a ROD, and applicable or relevant and appropriate requirements will be identified.

4.2 COMPLIANCE PROGRAM STRATEGY

This section describes the strategies for addressing compliance-related environmental issues at DDMT. These environmental compliance strategies have been developed to ensure that DDMT complies with federal and state regulatory requirements, DOD and DLA directives, and other relevant regulations throughout the BRAC realignment and property disposal process.

4.2.1 Storage Tanks

The following strategies have been developed to manage the storage tanks at DDMT until realignment is complete and the BRAC parcel is disposed of. Historically, there have been 39 storage tanks in use at DDMT.

Underground Storage Tanks

Since the 1980s, DDMT has implemented a program to remove or close in place tanks that were identified as leaking or not in use. Soil samples and groundwater samples (if groundwater was encountered) were generally not collected to confirm the absence of contamination for the USTs removed or closed in place during the 1980s because the regulatory agencies did not require sampling.

For UST areas where confirmation sampling did not occur, DDMT is implementing a program to collect soil samples to confirm the absence or presence of contamination. If contamination is present at these areas, the remedy selection approach described in Section 4.1.4 will be implemented.

The location of one of the suspected USTs could not be confirmed. For this unknown tank, DDMT plans to confirm through a records/document review that the tank has been removed or abandoned in place; determine whether soil samples and/or groundwater samples were collected during the removal or abandonment activities to confirm the absence of contamination; and review the results for the confirmation samples (if available). If the results are not available and the tank location can be confirmed, DDMT will implement a soil and/or groundwater sampling program to confirm the absence or presence of contamination; and if analytical results indicate that ER actions are required, DDMT will implement the remedy.

As of October 1996, there are two active regulated USTs at DDMT, which DDMT plans to remove in 1998.

Aboveground Storage Tanks

Historically, there have been six ASTs in use at DDMT. Since the 1980s, DDMT has implemented a program to remove or close in place tanks that were leaking or not in use. As of October 1996, there are three active and one inactive ASTs at DDMT. The DDMT plans to remove the inactive AST in 1997 and the active ASTs in 1998.

4.2.2 Hazardous Materials/Waste Management

Hazardous materials/waste management compliance programs at DDMT will continue to be conducted throughout the realignment action in accordance with applicable state and federal regulations.

4.2.3 Solid Waste Management

Municipal solid wastes generated at DDMT will continue to be collected and disposed of off-site at the North Shelby Sanitary Landfill or South Shelby Sanitary Landfill (both operated by Browning-Ferris Industries) by a licensed solid waste vendor.

4.2.4 Polychlorinated Biphenyls

In 1993, DDMT implemented a program to identify PCB-containing equipment and to replace the PCB-containing equipment with non-PCB-containing equipment. The results of the program are presented in Appendix E. As of October 1996, DDMT had replaced all equipment confirmed to contain PCBs with non-PCB equipment, with the exception of light ballasts that may or may not contain PCBs.

According to an interview conducted during the EBS, a PCB spill occurred in Building 469. The DDMT plans to investigate the presence or absence of residual PCBs in Building 469. If required, DDMT plans to clean the PCB spill area in Building 469 in 1997.

4.2.5 Asbestos

Asbestos-containing material will continue to be managed in compliance with the DA guidance, "Lead-Based Paint and Asbestos in U. S. Army Properties Affected by Base Realignment and Closure," and the DOD memorandum entitled "Asbestos, Lead Paint, and Radon Policies at BRAC Properties." The current policy for the BRAC parcel is to abate friable ACM and maintain nonfriable asbestos in place.

All friable asbestos that poses a health threat in BRAC buildings will be abated prior to lease or transfer, in accordance with DA policy.

4.2.6 Radon

Based on the results of the radon testing conducted in 1995, radon levels in structures at DDMT are below the EPA action level; therefore, no further testing or abatement is planned. The results of the survey are provided in Appendix E.

4.2.7 RCRA Facilities

Solid waste management units were identified under the RCRA process at DDMT. The corrective action for each solid waste management unit will be addressed under CERCLA.

4.2.8 NPDES Permits

The DDMT has an NPDES permit for the discharge of stormwater runoff, and will continue to conduct the activities required in its NPDES permit.

4.2.9 Oil/Water Separators

There are three oil/water separators at DDMT. The oil/water separators will continue to be maintained in accordance with applicable state and federal requirements. The separators will continue to undergo routine cleaning and waste oil disposal, and the discharge from the units will be sampled regularly. When operations at DDMT have ceased, the oil/water separators will either be left in place or removed pending future reuse of the facility.

4.2.10 Unexploded Ordnance

Three areas at DDMT were identified as being of concern because of potential UXO. Two areas were used as pistol ranges. One pistol range is located near the ninth hole of the golf course. The second pistol range is located in the Dunn Field area. The third area, an ordnance burn area, is located in the Dunn Field area. The DDMT plans to sample and, if required, remediate these areas.

4.2.11 Pesticides

The DDMT plans to implement a site-wide program to collect samples to evaluate the lateral extent of pesticide contamination and the types and concentrations of pesticides. Areas requiring remediation will be determined and remediation will be implemented if necessary.

4.2.12 Lead-Based Paint

Lead-based paint at DDMT is managed in accordance with DA policy guidance, "Lead-Based Paint and Asbestos in U. S. Army Properties Affected by Base Realignment and Closure," and the DOD memorandum entitled "Asbestos, Lead Paint, and Radon Policies at BRAC Properties."

The DDMT plans to abate LBP in areas requiring such activities.

4.3 NATURAL AND CULTURAL RESOURCES STRATEGY

The DDMT is prepared to implement a program as applicable for the preservation of natural and cultural resources. A leasing EA for DDMT is scheduled to be completed in October 1996. The EA will identify archaeological resources, historical structures and resources, Native American resources, threatened and endangered species, sensitive habitats, wetlands, surface waters, floodplains, and paleontological resources, if found at DDMT.

4.3.1 Archaeological Resources

Archaeological resources, if any, will be identified in the EA for DDMT. If archaeological resources are identified, a strategy to address them will be developed.

4.3.2 Historical Structures and Resources

The DDMT may have properties eligible for listing in the National Register of Historic Places. The DDMT plans to work with the Tennessee Historical Commission to complete the Section 106 review process.

4.3.3 Native American Resources

Native American resources, if any, will be identified in the EA for DDMT. If Native American resources are found at DDMT, a strategy to address them will be developed.

4.3.4 Threatened and Endangered Species

No threatened and endangered species have been identified at DDMT.

4.3.5 Sensitive Habitats

Sensitive habitats, if any, will be identified in the EA for DDMT. If sensitive habitats are found at DDMT, a strategy to address them will be developed.

4.3.6 Wetlands

There are no apparent wetlands at DDMT.

4.3.7 Surface Waters

There are two bodies of water located at DDMT. Both bodies of water (Lake Danielson and a golf course pond) are used to store water for firefighting purposes. Lake Danielson, approximately 4 acres in area, is located in the northwest corner of the golf course, and the golf course pond is located on the northeast corner of the golf course.

4.3.8 Floodplains

The DDMT is located outside the 500-year floodplain.

4.3.9 Paleontological Resources

Paleontological resources, if any, will be identified in the EA for DDMT. If paleontological resources are found at DDMT, a strategy to address them will be developed.

4.4 COMMUNITY INVOLVEMENT/STRATEGY

A draft final community relations plan dated April 1994 has been implemented to facilitate communication among DDMT; other federal, state, or local agencies; and interested groups and other community residents concerning IRP activities at DDMT. This communication ensures that all involved or interested parties are provided accurate, consistent information in a timely manner concerning related cleanup activities, contaminants, and possible effects of any contamination, and offers mechanisms that allow all parties to provide input into the decision-making process of the IRP.

The DDMT BCT has adopted the following strategy to support a proactive community relations program in accordance with the CERCLA requirements:

- Inform interested citizens and local officials about the progress of remedial activities.
- Provide opportunities for the public to be involved in planning remedial actions at the site.
- Keep local residents; DDMT employees; and federal, state, and local officials informed in a timely manner of major findings of the remedial actions to be conducted at DDMT.

- Provide local residents; on-post employees; and federal, state, and local officials with an opportunity to review and comment on the studies to be conducted at DDMT and on suggested remedial action alternatives and decisions.

- Keep the U. S. Army sensitive to and informed about changes in community concerns, attitudes, information needs, and activities regarding DDMT. Use those concerns as factors when evaluating modifications to the community relations plan as necessary to address these changes.

- Effectively serve the community's information needs and address citizen inquiries through prompt release of information via the media and other information dissemination techniques.

- Provide timely responses to inquiries and requests for media interviews and briefings, to facilitate fair and accurate reporting of remedial activities at DDMT.

- Enhance and/or maintain, through an active public affairs program, a climate of understanding and trust with the aim of providing information and opportunities for comment and discussion.

- Provide a single point of contact for dissemination of information regarding the progress of the contamination assessments, remedial actions, and other decisions at DDMT.

- Identify issues and potential areas of concern and develop and implement objective means to avoid or resolve conflicts.

This strategy is supported by the activities of the RAB, established for the BRAC IRP disposal and reuse planning activities at the installation.

TABLE 4-1
CLEANUP SEQUENCE
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

OPERABLE UNITS	MDRA PARCEL	BRAC PARCEL	ENVIRONMENTAL RISK	CLEANUP SEQUENCE[1]
3	34	34.1	none anticipated	NA
3	34	34.2	potential pesticide contamination	NA
3	18	18.1	potential contamination from spill of unknown foam	NA
3	18	18.2	potential pesticide contamination	NA
4	32	32.1	potential pesticide contamination	3
4	32	32.2	potential petroleum and pesticide contamination	3
4	32	32.3	unknown	3
4	30	30.1	potential petroleum contamination	3
4	30	30.2	none anticipated	3
4	30	30.3	potential pesticide contamination	3
4	30	30.4	potential pesticide contamination	3
4	30	30.5	metals, pesticides, VOCs, and SVOCs	3
4	13	13.1	none anticipated	NA
4	13	13.2	none anticipated	NA
4	13	13.3	none anticipated	NA
4	13	13.4	none anticipated	NA
4	13	13.5	potential pesticide contamination	NA
3	1	1.1	none anticipated	NA
3	1	1.2	none anticipated	NA
3	1	1.3	none anticipated	NA
3	1	1.4	none anticipated	NA
3	1	1.5	none anticipated	NA
3	1	1.6	none anticipated	NA
3	1	1.7	none anticipated	NA
3	1	1.8	potential petroleum and pesticide contamination	NA
3	6	6.1	potential pesticide contamination	2
3	6	6.2	potential pesticide contamination	2
3	6	6.3	potential pesticide contamination	2
3	6	6.4	potential pesticide contamination	2
3	17	17.1	none anticipated	NA
3	17	17.2	potential petroleum and pesticide contamination	NA
3	17	17.3	none anticipated	NA
3	3	3.1	none anticipated	3
3	3	3.2	none anticipated	3
3	3	3.3	none anticipated	3
3	3	3.4	none anticipated	3
3	3	3.5	potential pesticide contamination	3
3	3	3.6	surface water and sediment contaminated with DDT, chlordane, and metals	3
3	3	3.7	potential pesticide, metals and VOC contamination	3
3	3	3.8	sediment contaminated with metals, DDT, and pesticides	3
3	3	3.9	pesticides and metals detected in surface water, PAHs detected in surface soils	3
3	3	3.10	potential UXO issues	3
3	3	3.11	potential petroleum contamination	3
3	2	2.1	none anticipated	NA

TABLE 4-1
CLEANUP SEQUENCE (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

OPERABLE UNITS	MDRA PARCEL	BRAC PARCEL	ENVIRONMENTAL RISK	CLEANUP SEQUENCE*
3	2	2.2	none anticipated	NA
3	2	2.3	none anticipated	NA
3	2	2.4	none anticipated	NA
3	2	2.5	none anticipated	NA
3	2	2.6	none anticipated	NA
3	2-184	2.7	potential lead and pesticide contamination	1
3	8	8.1	potential pesticide contamination	2
3	8	8.2	potential pesticide contamination	2
3	8	8.3	potential pesticide contamination	2
3	8	8.4	potential pesticide contamination	2
3	8	8.5	potential pesticide contamination	2
3	19	19.1	potential petroleum and pesticide contamination	NA
3	19	19.2	potential petroleum contamination	NA
3	19	19.3	PCB contamination	4
3	20	20.1	none anticipated	NA
3	20	20.2	none anticipated	NA
3	20	20.3	none anticipated	NA
3	20	20.4	none anticipated	NA
3	20	20.5	potential pesticide contamination	NA
3	20	20.6	sulfuric acid spill	NA
3	21	21.1	unknown	NA
3	21	21.2	none anticipated	NA
3	21	21.3	unknown	NA
3	21	21.4	potential acid contamination	NA
3	21	21.5	potential pesticide contamination	NA
3	9	9.1	potential pesticide contamination	3
3	9	9.2	potential pesticide contamination	3
3	9	9.3	potential acid and pesticide contamination	3
3	9	9.4	potential pesticide contamination	3
3	9	9.5	potential pesticide contamination	3
4	10	10.1	none anticipated	3
3,4	10	10.2	potential pesticide contamination	3
3,4	10	10.3	potential acid and petroleum contamination	3
3	10	10.4	potential pesticide contamination	3
3	10	10.5	potential acid and pesticide contamination	3
4	10	10.6	potential pesticide contamination	3
3	16	16.1	potential pesticide contamination	3
3	16	16.2	potential pesticide contamination	3
3,4	11	11.1	potential pesticide contamination	3
3	11	11.2	potential acid and pesticide contamination	3
3	11	11.3	potential pesticide contamination	3
4	11	11.4	potential pesticide contamination	3
3	7	7.1	potential pesticide contamination	3
3	7	7.2	potential acid and pesticide contamination	3
4	12	12.1	potential pesticide contamination	2
4	12	12.2	potential acid and pesticide contamination, soil contaminated with PAHs, pesticides, VOCs, and metals	2
3	4	4.1	none anticipated	4

TABLE 4-1
CLEANUP SEQUENCE (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

OPERABLE UNITS	MDRA PARCEL	BRAC PARCEL	ENVIRONMENTAL RISK	CLEANUP SEQUENCE*
3	4	4.2	none anticipated	4
3	4	4.3	none anticipated	4
3	4	4.4	none anticipated	4
3	4	4.5	potential petroleum and pesticide contamination	4
3	4	4.6	potential petroleum contamination	4
3	4	4.7	potential pesticide, petroleum, PAHs, and metals contamination	4
3	4	4.8	potential petroleum and pesticide contamination	4
3	4	4.9	potential pesticide contamination	4
3	4	4.10	VOCs, PAHs, and pesticides detected in soil samples	4
3	4	4.11	potential petroleum and pesticide contamination	4
3	4	4.12	Building 251 has a sump/waste oil tank located in the building; no previous sampling for this site	4
3	4	4.13	Building 265 has a floor drain that is connected to the sanitary sewer; no previous sampling for this site	4
3	5	5.1	Potential pesticide contamination	4
3	5	5.2	PAHs and DDT detected in soil, VOCs detected in groundwater, potential PCB contamination	4
4	14	14.1	none anticipated	NA
4	14	14.2	potential petroleum and pesticide contamination	NA
4	15	15.1	none anticipated	6
4	15	15.2	PAHs, dieldrin, and metals detected in soil	6
4	15	15.3	potential SVOC contamination	6
4	15	15.4	unknown	6
4	15	15.5	PAHs, dieldrin, and metals detected in soil	6
4	15	15.6	Potential petroleum, pesticide, and solvent contamination; metals, pesticides, and methylene chloride have been detected in soil and groundwater	6
3	22	22.1	potential pesticide contamination	6
3	22	22.2	unknown	6
2,3	23	23.1	none anticipated	5
2,3	23	23.2	none anticipated	5
2,3	23	23.3	none anticipated	5
2,3	23	23.4	none anticipated	5
2,3	23	23.5	none anticipated	5
2,3	23	23.6	potential pesticide contamination	5
2	23	23.7	potential flammables and UXO present	5
2	23	23.8	potential flammables and UXO present	5
2,3	23	23.9	potential gasoline contamination	5
2,3	23	23.10	potential PCB and pesticide contamination	5
2	23	23.11	potential pesticide contamination	5
2	24	24.1	VOCs, PAHs, pesticides, and metals detected in surface soils	6
2	24	24.2	potential pesticide contamination	6
2	24	24.3	PAHs, VOCs, pesticides, and metals detected in surface soils; potential petroleum contamination	6
2	25	25.1	potential petroleum, solvent and acid contamination	6
2	25	25.2	potential petroleum and pesticide contamination	6
2	26	26.1	potential pesticide contamination	NA

TABLE 4-1
CLEANUP SEQUENCE (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

OPERABLE UNITS	MDRA PARCEL	BRAC PARCEL	ENVIRONMENTAL RISK	CLEANUP SEQUENCE[a]
2	26	26.2	potential petroleum contamination	NA
2	27	27.1	potential pesticide contamination	5
2	27	27.2	potential petroleum and pesticide contamination	5
2	28	28.1	potential pesticide contamination	5
2	28	28.2	VOCs and metals detected in groundwater	5
4	29	29.1	none anticipated	5
4	29	29.2	potential petroleum and pesticide contamination	5
4	29	29.3	2-butanone and metals detected in surface water	5
4	31	31.1	potential pesticide contamination	5
4	33	33.1	none anticipated	6
4	33	33.2	none anticipated	6
4	33	33.3	none anticipated	6
4	33	33.4	none anticipated	6
4	33	33.5	none anticipated	6
4	33	33.6	potential petroleum contamination	6
4	33	33.7	potential petroleum contamination	6
4	33	33.8	potential petroleum contamination	6
4	33	33.9	potential pesticide and petroleum contamination; VOCs, PAHs, DDT, and metals detected in soils	6
4	33	33.10	none anticipated	6
4	33	33.11	none anticipated	6
2	35	35.1	none anticipated	6
2	35	35.2	potential pesticide and petroleum contamination	6
2	35	35.3	unknown	6
2	35	35.4	toluene, PAHs, pesticides, PCBs, metals and VOCs detected in soils; VOCs, SVOCs, and metals detected in groundwater	6
2	35	35.5	potential pesticide contamination	6
1	36-HTW	36.1	potential acid and base contamination	8
1	36-HTW	36.2	unknown	8
1	36-HTW	36.3	potential petroleum and solvents contamination	8
1	36-HTW	36.4	potential methyl bromide contamination	8
1	36-HTW	36.5	potential acid contamination	8
1	36-HTW	36.6	potential methyl bromide contamination	8
1	36-HTW	36.7	potential acid contamination	8
1	36-HTW	36.8	potential acid contamination	8
1	36-HTW	36.9	unknown	8
1	36-HTW	36.10	potential acid contamination	8
1	36-HTW	36.11	unknown	8
1	36-HTW	36.12	potential contamination from bauxite pile	8
1	36-HTW	36.13	potential contamination from bauxite pile	8
1	36-HTW	36.14	potential pesticide contamination	8
1	36-HTW	36.15	potential pesticide contamination	8
1	36-CWM	36.16	potential presence of chemical warfare materials	7
1	36-CWM	36.17	potential presence of chemical warfare materials	7
1	36-CWM	36.18	potential presence of chemical warfare materials	7
1	36-CWM	36.19	potential presence of chemical warfare materials	7
1	36-HTW	36.20	potential contamination from buried eye ointment	8
1	36-HTW	36.21	unknown	8

TABLE 4-1
CLEANUP SEQUENCE (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

OPERABLE UNITS	MDRA PARCEL	BRAC PARCEL	ENVIRONMENTAL RISK	CLEANUP SEQUENCE[a]
1	36-HTW	36.22	potential contamination resulting from municipal waste burial	8
1	36-HTW	36.23	potential contamination resulting from burial of medical supplies, chlorinated lime, acid, sodium and sodium phosphate	8
1	36-HTW	36.24	potential contamination resulting from disposal of sanitary wastes, construction debris, smoke pots, and tear gas canisters	8
1	36-HTW	36.25	potential contamination resulting from disposal of asphalt and roofing gravel	8
1	36-HTW	36.26	potential contamination resulting from burial of XXCC-3 impregnate	8
1	36-HTW	36.27	unknown	8
1	36-HTW	36.28	unknown	8
1	36-CWM	36.29	potential contamination resulting from former bauxite pile and burning of mustard gas, cyanide grenades, and ordnance	7
1	36-HTW	36.30	potential pesticide contamination	8

Notes:
BRAC: Base Realignment and Closure
DDT: 4,4'-Dichlorodiphenyltrichloroethane
MDRA: Memphis Depot Redevelopment Agency
NA: Not applicable
PAH: Polycyclic aromatic hydrocarbon
PCB: Polychlorinated biphenyl
SVOC: Semivolatile organic compound
UXO: Unexploded ordnance
VOC: Volatile organic compound

a. Cleanup sequence is categorized from 1 to 8 with 1 as top priority to the MDRA and 8 as the lowest priority to the MDRA. An "NA" designation means that the MDRA does not have an order of preference for this parcel.

TABLE 4-2
ENVIRONMENTAL DOCUMENT STATUS
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

ACTIVITY	AGENCY	DRAFT REPORT	FINAL REPORT
Environmental Baseline Survey	CESAM/Woodward-Clyde	May 16, 1996	November 1996
BRAC Cleanup Plan	CESAM/Woodward-Clyde	October 10, 1996	November 1996
Environmental Assessment-Leasing	CESAM/Tetra Tech	Aug 20, 1996	September 27, 1996
Environmental Assessment-Disposal	CESAM/Tetra Tech	November 1996	June 1997
Finding of Suitability for Lease	CESAM/DDMT	August 23, 1996	September 30, 1996
Radiological Survey	DDRE	August 16, 1996	September 13, 1996
Cultural/Natural Resources Surveys	CESWF		
Wetland Determination	CESWF/CELMM		July 23, 1996
Section 106 Review	CESWF/HUD/Tennessee Historical Commission/TRC Moriah		TBD
Lead-Based Paint Survey	CELMM/Barge, Waggoner, Sumner & Cannon	December 1, 1995	April 12, 1996
Asbestos Survey	CELMM/Pickering Inc.		March 1, 1994
PCB Survey	DDMT-W		1993
Radon Survey	ASCE-WP		March 8, 1996
UST Survey	CELMM/Pickering Inc.		November 1, 1993
OU Specific Primary Documents			
Site Community Relations Plan	DLA	TBD	TBD
RI/FS Work Plans	CEHNC/CH2M Hill	1995	1995
RI Reports	CEHNC/CH2M Hill	TBD	TBD
FS Reports	CEHNC/CH2M Hill	TBD	TBD
Proposed Remedial Action Plans	CEHNC/CH2M Hill	TBD	TBD
Record of Decision (Groundwater IRA)	CEHNC/CH2M Hill		April 1996
Records of Decision	CEHNC/CH2M Hill	TBD	TBD
RD Work Plans	CEHNC/CH2M Hill	TBD	TBD
100% RD Reports	CEHNC/CH2M Hill	TBD	TBD
RA Work Plans	CESAM	TBD	TBD
Written Notification of RA Implementation Start Date	DLA	TBD	TBD
Final Remediation Reports	DLA	TBD	TBD
Five Year Review Reports	DLA	TBD	TBD

TABLE 4-2
ENVIRONMENTAL DOCUMENT STATUS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

ACTIVITY	AGENCY	DRAFT REPORT	FINAL REPORT
OU Specific Finding of Suitability for Transfer	DLA	TBD	TBD
OU Specific Finding of Suitability for Lease	DLA	TBD	TBD
Site Closeout Report, including Notice of Intent to Delete	DLA	TBD	TBD
Site Management Plan	DLA	TBD	TBD

Notes:

ASCE-WP: Admin Support Center East - Environmental Branch
BRAC: Base Realignment and Closure
CELMM: U.S. Army Corps of Engineers, Memphis, Tennessee
CESAM: U.S. Army Corps of Engineers, Mobile, Alabama
CESWF: U.S. Army Corps of Engineers, Ft. Worth, Texas
DDMT: Defense Distribution Depot Memphis, Tennessee
DDRE: Defense Distribution Region East
DLA: Defense Logistics Agency
FS: Feasibility study
HUD: Housing and Urban Development
OU: Operable unit
PCB: Polychlorinated biphenyl
RA: Remedial action
RD: Remedial design
RI: Remedial investigation
TBD: To be determined
TRC: Technical Review Committee
UST: Underground storage tank

TAB

5.0

5.0 ENVIRONMENTAL PROGRAM MASTER SCHEDULES

This section presents the DDMT master schedule of anticipated activities for the installation's environmental programs. These schedules consolidate and summarize information from detailed network and operational schedules developed to support study area-specific work plans and compliance agreements. The BRAC and IRP activities are summarized in Figure 5-1.

5.1 ENVIRONMENTAL RESTORATION PROGRAM

This section provides the response schedules and fiscal year requirements for the environmental restoration program for DDMT.

5.1.1 Response Schedules

The schedules shown on Figure 5-1 are based on existing schedules established for the DDMT IRP. In order to accelerate the environmental restoration process, scheduling strategies and timelines are prepared by the BCT and project team so all involved parties can provide input to the process. These schedules will be reviewed regularly by the BCT to ensure that they are current, that activities are expedited whenever possible, and that reuse goals continue to be met.

The response schedules on Figure 5-1 include timelines for the following activities: screening of DDMT property; remedial investigation, design, and action; BCP production; and EBS production.

5.1.2 Requirements by Fiscal Year

The financial requirements by fiscal year for the environmental program at DDMT are summarized in Appendix A.

5.2 COMPLIANCE PROGRAMS

The fiscal year requirements for compliance programs at DDMT are shown in Appendix A. The response schedules for the compliance programs at DDMT will be presented in subsequent versions of the BCP.

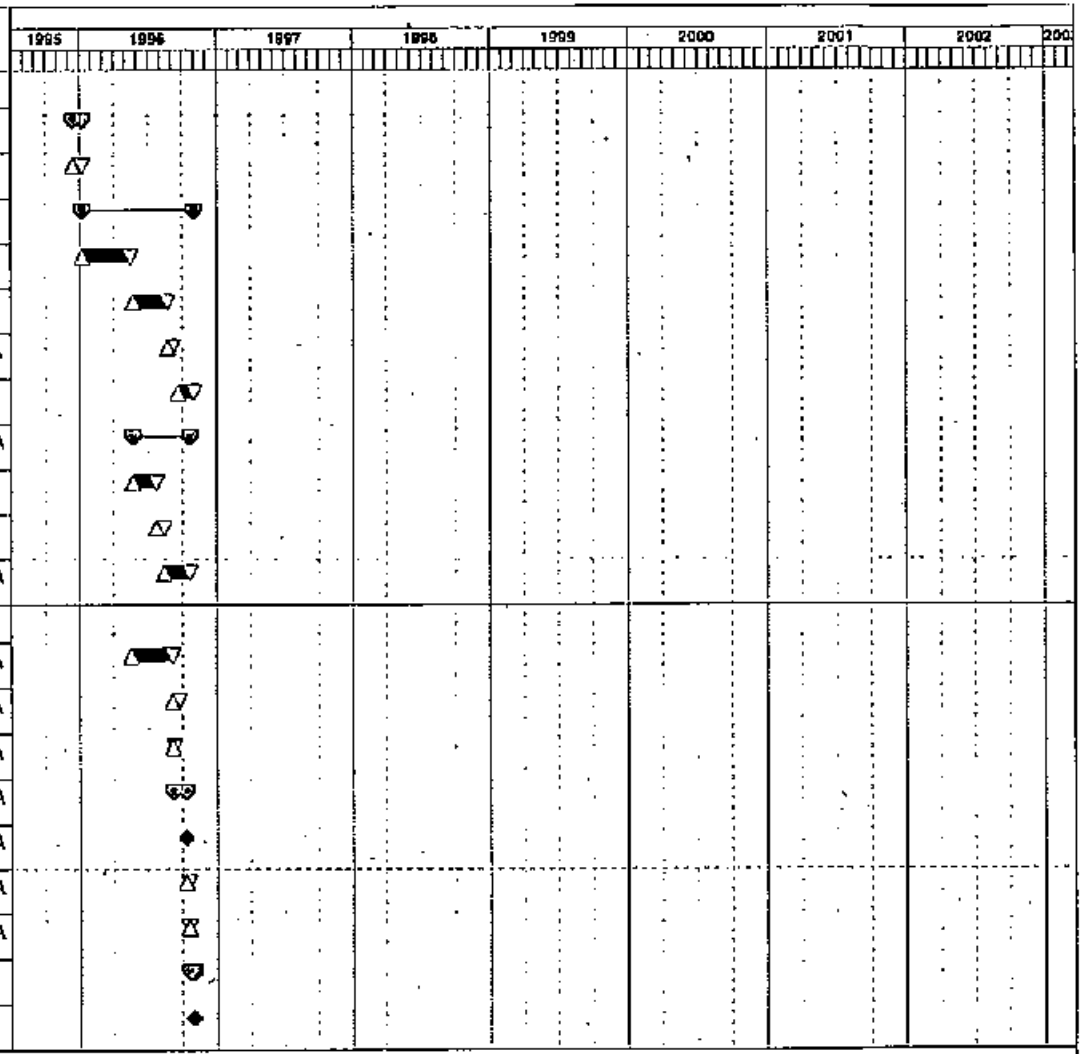
5.3 NATURAL AND CULTURAL RESOURCES

Natural and cultural resources at DDMT will be assessed under the NEPA environmental assessment as discussed in Section 4.3. The fiscal year requirements for natural and cultural resources at DDMT are shown in Appendix A. The final EA for DDMT is scheduled for completion in October 1996. The response schedule for natural and cultural resources programs at DDMT will be presented in subsequent versions of this BCP.

5.4 BCT/PROJECT TEAM/RAB MEETING SCHEDULE

The meetings and the schedule for the meetings concerning issues related to BRAC and remedial actions at DDMT are as follows: the BCT meets the third Thursday of every month, the project team meets the third Wednesday of every month, and the RAB meets the third Thursday of every month.

Description	Early Start	Early Finish
Environmental Baseline Survey Preparation		
Defense Depot Memphis Fieldwork	DEC 13, 1995 A	JAN 07, 1996 A
Fieldwork	DEC 13, 1995 A	JAN 07, 1996 A
Defense Depot Memphis EBS	JAN 07, 1996 A	NOV 01, 1996
Draft EBS and CERFA Reports	JAN 07, 1996 A	MAY 16, 1996
Draft EBS Reviewed by Regulators	MAY 22, 1996 A	AUG 22, 1996
Comment Response Package	AUG 22, 1996 A	SEP 04, 1996 A
Final EBS and CERFA Reports Preparation	SEP 18, 1996 A	NOV 01, 1996
Defense Depot Memphis SAR	MAY 22, 1996 A	OCT 21, 1996 A
Draft SAR Preparation	MAY 22, 1996 A	JUL 23, 1996 A
Draft SAR Reviewed by Regulators	JUL 23, 1996 A	AUG 13, 1996
Final SAR Preparation	AUG 13, 1996 A	OCT 21, 1996 A
BRAC Cleanup Plan Preparation		
Bottom Up Review	MAY 17, 1996 A	SEP 04, 1996 A
Version 1 Coordination Meeting	SEP 04, 1996 A	SEP 22, 1996 A
Missing Data Notification	SEP 05, 1996 A	SEP 09, 1996 A
Prepare Draft BCP	SEP 05, 1996 A	OCT 10, 1996 A
Draft Version 1 BCP out		OCT 10, 1996 A
Review Draft BCP	OCT 11, 1996 A	OCT 17, 1996 A
Version 1 Review Meeting	OCT 18, 1996 A	OCT 18, 1996 A
Finalize BCP	OCT 21, 1996 A	NOV 01, 1996
Final Version 1 BCP out		NOV 01, 1996



△ Early start point
▽ Early finish point
Early bar
Progress bar
Critical bar
Summary bar

▲ Progress point
▲ Critical point
Summary point
◆ Start milestone point
◆ Finish milestone point

1A

Date	Revision	Checked	Approved
OCT 29, 1996	FINAL Revision 0	CLB	

DEFENSE DEPOT MEMPHIS, TENNESSEE

PROJECT NO. EE9518MD

Woodward-Clyde

PROJECTED MASTER RESTORATION SCHEDULE

FIGURE 5-1

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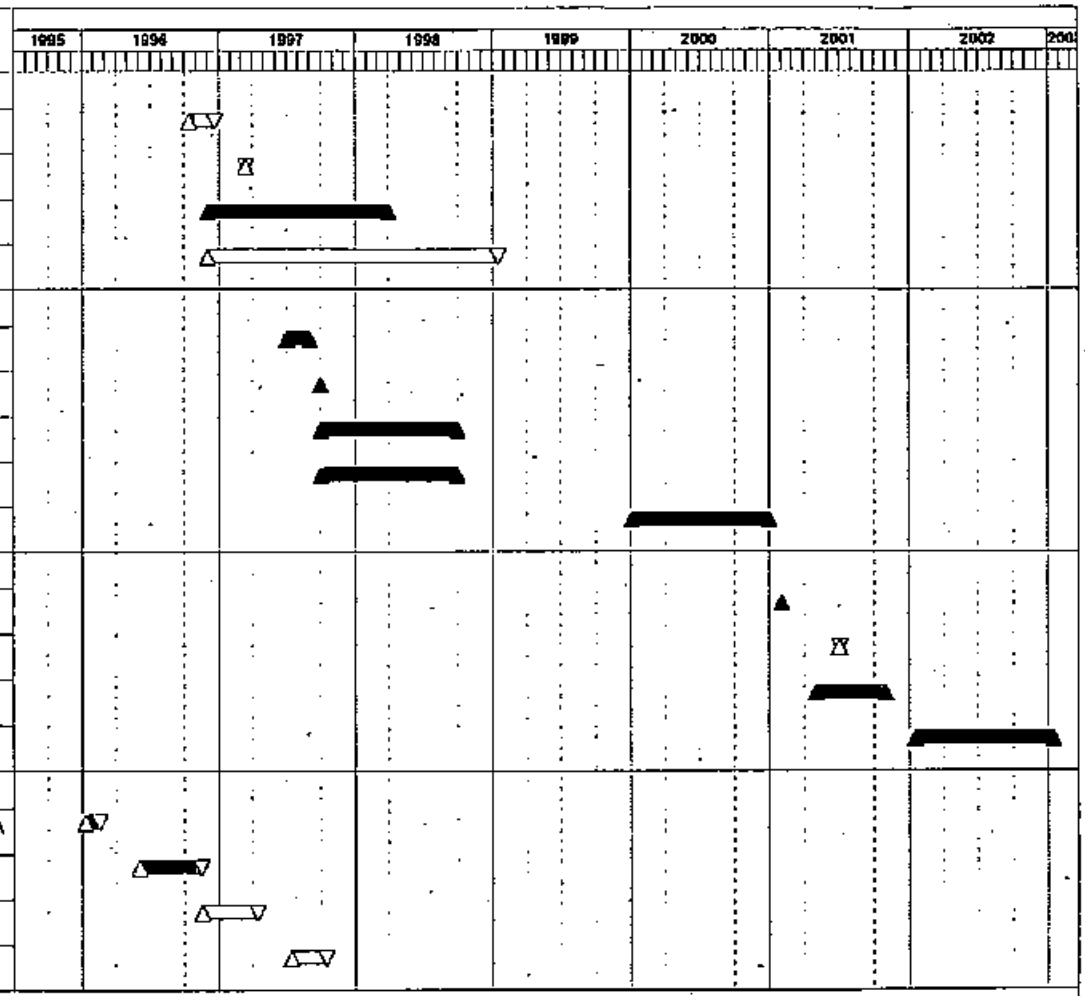
Description	Early Start	Early Finish
Main Installation		
RI/Screening Fieldwork	OCT 15, 1996 A	DEC 20, 1996
Final Sampling Report	MAR 14, 1997	MAR 14, 1997
Remedial Designs	DEC 02, 1996 *	APR 01, 1998
Remedial Actions/Early Removals	DEC 02, 1996	JAN 15, 1999
Dunn Field - CWM		
Fieldwork	JUL 01, 1997 *	SEP 02, 1997
Final Sampling Report	SEP 30, 1997	SEP 30, 1997
Site Safety Submission	OCT 01, 1997	SEP 30, 1998
Remedial Design	OCT 01, 1997	SEP 30, 1998
Remedial Action	JAN 03, 2000	JAN 01, 2001
Dunn Field - HTW		
RI/Screening Fieldwork	FEB 01, 2001	FEB 01, 2001
Final Sampling Report	JUL 02, 2001	JUL 02, 2001
Remedial Design	MAY 01, 2001	NOV 01, 2001
Remedial Action	JAN 15, 2002	JAN 15, 2003
Groundwater IRA - Dunn Field		
Install/Sample Monitoring Wells	JAN 09, 1996 A	FEB 17, 1996 A
WES Modeling	JUN 03, 1996 A	NOV 15, 1996
Design	NOV 18, 1996	APR 15, 1997
Install Production Wells/Treat System	JUL 15, 1997	OCT 15, 1997



△ Early start point
▽ Early finish point
Early bar
Progress bar
Critical bar
Summary bar

▲ Progress point
▲ Critical point
Summary point
◆ Start milestone point
◆ Finish milestone point

2A

Date	Revision	Checked	Approved
OCT 29, 1996	FINAL Revision 0	CLB	

DEFENSE DEPOT MEMPHIS, TENNESSEE

PROJECT NO. EE951BMD

Woodward-Clyde

PROJECTED MASTER RESTORATION SCHEDULE

FIGURE 5-1

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TAB

6.0

6.0 TECHNICAL AND OTHER ISSUES TO BE RESOLVED

This section summarizes technical and other issues that are yet to be resolved. These issues include information management; the usability of historical data; data gaps; natural (background) levels of elements and compounds in soil, groundwater, surface water, and sediments; risk assessments; state cleanup standards; and program initiatives to complete cleanup requirements as required to meet property transfer schedules.

6.1 DATA USABILITY

This section summarizes unresolved issues pertaining to the validity of using historical data sets in the base environmental restoration program. Historical data sets have been deemed valid for use in making environmental restoration decisions. Therefore, at this time there are no unresolved issues.

6.2 INFORMATION MANAGEMENT

This section addresses unresolved issues that need to be resolved with regard to managing information gathered and used in the base environmental restoration and compliance programs. Issues include the following:

- Improve coordination of, access to, and management of environmental restoration and real estate-type data generated at DDMT
- Ensure that all data from DDMT has been loaded into a specified electronic data management system such as the Installation Restoration Program Information Management System (IRPIMS), Installation Restoration Data Management Information System (IRDMIS), or other equivalent data management system
- Require that all contractors submit data and reports in an electronic format that can be readily used by the U.S. Army
- Establish method/procedure to distribute data and reports to all involved parties associated with the DDMT environmental restoration program (DDMT, EPA, TDEC, and USACE)

- Develop provisions for real-time data input of field decisions to expedite the progress of BRAC field work

6.2.1 BCT Action Items

The following BCT action items should be addressed at DDMT to more effectively manage information during the BRAC environmental restoration process:

- Establish a database management system and procedures to distribute data to all involved parties (DDMT, EPA, TDEC, and USACE) with a need for installation-wide and BRAC-specific perspectives on activities at DDMT
- Evaluate all future contracts for provisions requiring the submittal of data and reports in both hard copy and electronic formats
- Develop method/procedure for distribution of data and reports to the RAB
- Develop method/procedure to load future data and reports into a system that can be readily used by the U.S. Army, such as the Defense Environmental Network Information Exchange (DENIX)

6.2.2 Rationale

As the number of agencies and contractors associated with the DDMT environmental restoration program grows, it is important that all parties involved be able to share data for decision making. The establishment and maintenance of electronic databases of sampling and analysis data and spatial data (e.g., real estate maps) are the most efficient methods of sharing data among parties.

6.2.3 Status/Strategy

The BCT is addressing the issue of maximizing the access of all interested parties to data in the following manner:

- All historical data generated at DDMT are available in the installation administrative record held by the DDMT Environmental Protection and Safety Office

- All new sampling and analysis data generated during the DDMT IRP will be entered in a specific data management system, such as the IRPIMS or IRDMIS

- A process for distributing reports to the RAB has been established. A copy of the report is provided at RAB meetings for review by RAB members. Upon request, RAB members may check out documents for review. Community members can make appointments to review documents at the DDMT Environmental Protection and Safety Office.

- Necessary contract modifications will be made by the U.S. Army to ensure that data and reports from ongoing efforts are submitted electronically to the U.S. Army and are loaded into a system such as DENIX that can be readily accessed by the U.S. Army, and other authorized interested parties

- Information repositories have been established, including several at public libraries, to provide community access to information

- Various public outreach programs have been established to disseminate information to the community. These include the formation of the RAB, public meetings, quarterly newsletters, and mailings as necessary.

6.3 DATA GAPS

This section summarizes unresolved issues pertaining to the determination and collection of data needed to complete the DDMT environmental restoration program.

6.3.1 BCT Action Items

The following BCT action items should be addressed at DDMT to identify and fill data gaps and continue the BRAC environmental process:

- A majority of the areas of concern at DDMT are undergoing either an evaluation to confirm the presence or absence of contamination or a site characterization. These areas of concern include, but are not limited to, the following: sediment sampling in the surface water impoundments; base-wide pesticide issues; UXO issues (two pistol

ranges and an ordnance burn area); and groundwater issues (Dunn Field and the southwest corner of DDMT).

- The data from the above-listed investigations will be used to evaluate whether a risk assessment is warranted.

6.3.2 Rationale

Identifying and filling data gaps will permit the development of comprehensive conceptual zone or site models for site characterization and risk assessment. Effective analysis of data gaps will also facilitate the completion of RI efforts so that appropriate remedial action can be identified and evaluated. This information will also facilitate the identification of clean areas at DDMT.

6.3.3 Status/Strategy

A future strategy for filling data gaps will be developed for any area of concern for which data are insufficient. At this time, there are no unresolved issues pertaining to data gaps.

6.4 BACKGROUND LEVELS

The DDMT has recently completed a background sampling program. The data will be used to establish cleanup criteria. At this time, there are no unresolved issues pertaining to background levels.

6.5 RISK ASSESSMENTS

This section addresses unresolved issues pertaining to the completion of risk assessments required to support DDMT environmental restoration programs.

Risk assessment issues to be resolved involve the base-wide pesticide study and sediment study for surface waters located at DDMT. The DDMT plans to complete a remedial investigation program to address the base-wide pesticide issue. Based on the results of the studies, the need for a risk assessment will be evaluated. If contaminant concentrations are greater than background levels or EPA Region III RBCs, a risk assessment will be prepared for the contaminants of concern identified in the studies. It is possible that other unresolved issues will arise in the future as a result of other remedial investigation programs at DDMT; however, at this time, there are no unresolved issues pertaining to risk assessment.

6.6 BASE-WIDE REMEDIAL ACTION STRATEGY

This section discusses issues pertaining to the base-wide remedial action strategy for DDMT. A base-wide remedial action strategy has been developed to guide the ongoing environmental restoration efforts at DDMT. For areas identified as having a potential for contamination from historical practices (CERFA Category 7), DDMT plans to collect samples to confirm the absence or presence of contamination. If contamination is found at a site, a strategy to address the extent of the contamination will be developed and implemented. In addition, DDMT plans to complete a base-wide pesticide study. At this time, there are no unresolved issues pertaining to the base-wide remedial action strategy.

6.7 INTERIM MONITORING OF GROUNDWATER AND SURFACE WATER

At this time, DDMT plans to implement an interim groundwater pump-and-treatment system at Dunn Field. Groundwater samples will likely be collected on a quarterly basis until the groundwater contamination has been cleaned to acceptable cleanup goals. In addition, DDMT plans to implement a remedial investigation to evaluate the extent of VOCs within the groundwater at the southwest corner of DDMT.

Surface water samples will be collected according to the requirements specified in the NPDES permit. At this time, there are no unresolved issues pertaining to interim monitoring of groundwater and surface water.

6.8 EXCAVATION OF CONTAMINATED MATERIALS

Environmental restoration activities are presently in the investigative phase. As of October 1996, there are no plans to excavate contaminated materials at any of the specific areas of concern except an area outside of Building 184, where elevated lead concentrations were found, and CWM in Dunn Field. No CWM excavation activities will occur until issues regarding the transportation and disposal of the excavated material have been resolved with the CEHNC and the Project Manager for Chemical Demilitarization. Upon completion of CWM excavation activities, all excavated material must be immediately removed from DDMT to the proper disposal facility. No long-term storage of excavated CWM will be allowed.

Early removal actions through excavation of contaminated material for appropriate areas of concern (technically feasible and cost-effective) is DDMT's preferred cleanup action. As information is gathered at each area of concern, a strategy to remediate these areas will be developed, taking into consideration the use of presumptive remedies and other remedial techniques based on the type and extent of contamination. At this time, there are no unresolved issues pertaining to the excavation of contaminated materials.

6.9 PROTOCOLS FOR REMEDIAL DESIGN REVIEWS

Environmental restoration activities are presently in the investigative phase. Protocols for the review of design documents will follow the requirements specified in the Federal Facility Agreement. In addition, the USACE will be reviewing the design documents according to their established internal review procedures for design reports prepared either internally or by contractors. The BCT, regulatory agencies, and the community will be included in the review process. As of October 1996, there are no unresolved issues pertaining to the protocols for remedial design review.

6.10 CONCEPTUAL MODELS

To assist in focusing decision making, conceptual site models are theorized, calculated, written, and drawn up. Since little information is currently known about the areas of concern listed for investigations, a conceptual model in the form of a logic diagram was developed for OU-1 that can be applied generically to other areas (Appendix E). As investigations progress and more information is gathered, a generic conceptual model will be developed for each area of concern to better display site-specific assumptions regarding sources, pathways, and receptors. As of October 1996, there are no unresolved issues pertaining to conceptual models.

6.11 CLEANUP STANDARDS

The DDMT, in agreement with the agencies (EPA and TDEC) will initially base the cleanup standards on the EPA Region III RBCs or background concentrations for DDMT. It is possible that risk-based cleanup goals will be developed and implemented, with agency approval, at a later date as more information is gathered at DDMT. As of October 1996, there are no unresolved issues pertaining to cleanup standards.

6.12 INITIATIVES FOR ACCELERATING CLEANUP

The following initiatives have been implemented by the project team for expediting response actions at the installation:

- **Regulatory Involvement.** The BCT has been formed and meets regularly. The BCT, in conjunction with the project team, provides a forum for the cooperative development of short-term and long-term strategies for the investigation and the restoration of DDMT. The BCT has representatives from DDMT, EPA, and TDEC.
- **Defined Document Review Periods.** Document review periods have been established on an accelerated basis that will assist in the overall investigation and scheduling process.
- **Strategic Zone Groupings.** The zones were grouped to expedite investigation and restoration.
- **Concurrent IRP Phases.** To expedite investigation, concurrent investigations, feasibility studies, and designs will be conducted.
- **Concurrent Reviews.** To minimize review delays, concurrent review of documents will be conducted.
- **Community Involvement.** The Depot formed the RAB to involve the community during the remedial process. The RAB meets on a monthly basis to discuss the status of the environmental restoration program at DDMT. By informing the community of the IRP process, the likelihood of opposing comments during the public comment review period will be minimized.

As the DDMT IRP moves from the investigation to the design phase, other initiatives will be implemented to potentially expedite the cleanup process. These initiatives could include the following:

- **Innovative Technologies.** Collaborative projects using innovative technologies being researched by the U.S. Army, EPA, or state or suggested by any of the contractors will be pursued.

- **Innovative Contracting.** Flexible contracting procedures have been maximized, and the use of level-of-effort, direct/cost reimbursement, award incentives, and other flexible contracting methods has been investigated and will be implemented where applicable.

- **Identify Applicable or Relevant and Appropriate Requirements.** A list of applicable or relevant and appropriate requirements has been established for DDMT.

- **Risk-based Cleanup.** At this time, the regulators have agreed to use the EPA Region III RBCs or background concentrations for remedial goals. However, risk-based cleanup goals may be developed at a later date as additional information is gathered at each site. The regulators agreed that negotiations for revised cleanup goals according to future land use will be pursued at that time.

6.13 REMEDIAL ACTIONS

Environmental restoration activities are presently in the investigative phase. As of October 1996, no remedial actions have been initiated. Therefore, there are no unresolved issues pertaining to remedial actions. If unresolved issues are identified at a later date, a strategy will be developed and implemented.

6.14 REVIEW OF SELECTED TECHNOLOGIES FOR APPLICATION OF EXPEDITED SOLUTIONS

Environmental restoration activities are presently in the investigative phase. As of October 1996, no remedial technologies have been selected at DDMT. Therefore, there are no unresolved issues pertaining to review of selected technologies for application of expedited solutions.

6.15 HOT-SPOT REMOVALS

Hot spots have not been identified at DDMT. Therefore, there are no unresolved issues related to hot-spot removals at this time. However, if a hot spot is identified at a later date, a strategy to address the hot spot will be developed and implemented.

6.16 IDENTIFICATION OF CLEAN PROPERTIES

Clean properties were identified in the final EBS. The DDMT plans to update the environmental condition of property map and property suitable for transfer map as areas of the DDMT BRAC parcel are remediated, so that an accurate visual portrayal of property available for transfer is maintained. As of October 1996, there are no unresolved issues pertaining to the identification of clean properties. If unresolved issues are encountered, a strategy to address them will be developed and implemented.

6.17 OVERLAPPING PHASES OF THE CLEANUP PROCESS

As of October 1996, no remedial actions have been implemented. Therefore, there are no issues to be resolved pertaining to overlapping phases of the cleanup process. If unresolved issues arise in the future, a strategy to address each unresolved issue will be developed and implemented.

6.18 IMPROVED CONTRACTING PROCEDURES

The DDMT has several contracting tools to assist in the accomplishment of the environmental restoration work at DDMT. As of October 1996, there are no unresolved issues pertaining to improved contracting procedures.

6.19 INTERFACING WITH THE COMMUNITY REDEVELOPMENT PLAN

The LRA has been established as the MDRA. The MDRA is in the process of completing a community redevelopment plan. The MDRA is working with the community to develop the plan. As of October 1996, there are no unresolved issues related to interfacing with the community redevelopment plan.

6.20 BIAS FOR CLEANUP INSTEAD OF STUDIES

Whenever possible, the BCT will select early cleanup rather than additional studies of potentially contaminated sites. At this time, one site outside of Building 184 having elevated lead concentrations in soils has been selected for cleanup instead of additional investigative studies. This approach will expedite early achievement of cleanup goals and transfer of property. At this time, the BCT has not identified any unresolved issues related to bias for cleanup instead of studies

6.21 EXPERT INPUT ON CONTAMINATION AND POTENTIAL REMEDIAL ACTIONS

The DDMT BCT is committed to using expert input during the scoping, execution, and review of the individual environmental investigation projects and remedial actions. Such expertise will be drawn from USACE, EPA, TDEC, and contractors employed to perform scopes of work on the various projects at DDMT during the environmental investigation and restoration work. At this time, there are no unresolved issues pertaining to expert input on contamination and potential remedial actions.

6.22 PRESUMPTIVE REMEDIES

The EPA has issued guidance on generic or presumptive remedies for a few specific contamination scenarios (e.g., one of the generic remedies for VOC contamination is soil vapor extraction). Presumptive remedies are preferred remedial technologies for common categories of sites and are based on past patterns of remedy selection and performance data. Presumptive remedies are expected to reduce the cost and time required to clean up similar sites by streamlining site investigation and remedy selection. Presumptive remedies are expected to be used at appropriate sites. At this time, there are no unresolved issues with regard to presumptive remedies. The process to identify whether a presumptive remedy is applicable to any of the sites will be completed as more information is gathered for the sites.

6.23 PARTNERING (USING INNOVATIVE MANAGEMENT, COORDINATION, AND COMMUNICATION TECHNIQUES)

The DDMT is fostering the partnership with regulatory agencies, the USACE, and the community through scheduled meetings and the document review process. These partnerships can accelerate implementation of environmental restoration efforts by keeping key individuals informed, soliciting their comments, and addressing their concerns prior to implementing environmental restoration activities. The BCT plans to continue its activities and to encourage information transfer. At this time, since partnering is established, there are no unresolved issues with regard to partnering.

6.24 UPDATING THE EBS AND NATURAL/CULTURAL RESOURCES DOCUMENTATION

The draft EBS for DDMT was completed in May 1996. The DDMT plans to complete the final EBS in November 1996. After the EBS is final, DDMT plans to update the installation status portions of the BCP on an annual basis, if needed.

The draft leasing EA, which includes natural and cultural resources documentation for DDMT, was completed in September 1996. The DDMT plans to finalize the leasing EA in November 1996. After the leasing EA is final, DDMT plans to update the leasing EA on an annual basis, if needed. The DDMT plans to complete an EA transfer after all areas of concern at DDMT have been remediated. At this time, there are no unresolved issues pertaining to the updating of the EBS and natural and cultural resources documentation.

6.25 IMPLEMENTING THE POLICY FOR ON-SITE DECISION MAKING

At this time, there are no major issues pertaining to implementing the policy for on-site decision making. The DDMT is actively fostering partnerships with the regulatory agencies, the USACE, and the community through scheduled meetings and the document review process. These partnerships can accelerate implementation of environmental restoration efforts by keeping key individuals informed, soliciting their comments, and addressing their concerns prior to implementing environmental restoration activities. However, because on-site decision-making relies on the installation BEC, the process of filling this currently vacant position should be expedited.

TAB

7.0

7.0 REFERENCES

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TAB

Appendix A

APPENDIX A

FISCAL YEAR FUNDING REQUIREMENTS/COSTS

TABLE A-1
FISCAL YEAR FUNDING REQUIREMENTS/COSTS

INSTALLATION BUDGET ($000)									
ACTIVITY	FY95	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03-COMPLETION
Restoration			14,500	11,540	3,890	4,838	2,859	7,879	10,973
Compliance			1,557	830	123	0	0	0	0
Planning			0	0	0	0	0	0	0
Management			620	671	665	492	506	400	354
TOTAL			16,676	13,041	4,678	5,330	3,365	8,279	11,327

TAB

Appendix B

APPENDIX B

INSTALLATION ENVIRONMENTAL RESTORATION DOCUMENTS SUMMARY TABLE

TABLE B-1
INSTALLATION ENVIRONMENTAL RESTORATION DOCUMENTS
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

YEAR	AUTHOR	TITLE
1940	Shelby County Commissioners	Aerial Photo of DDMT Site Before Construction
1947	Office of Post Engineer, DDMT	Depot Layout Plan
1948	Office of Post Engineer, DDMT	Area North of Dunn Avenue
1981	Chemical Systems Laboratory	Installation Assessment of Defense Depot Memphis, Memphis, Tennessee
1982	MCI/Consulting Engineers, Inc.	Reconnaissance Report, Phase I, Jackson Pit Site, Shelby County Tennessee
1982	US Army Toxic and Hazardous Materials Agency	Installation Assessment of Defense Depot Memphis, Tennessee
1984	Memphis and Shelby County Health Department	Notice of Violation, Dust Nuisance
1984	Office of Post Engineer, DDMT	Location of Materials Buried in Dunn Field
1984	Phoenix Environmental Consultants, Inc.	Environmental Assessment for Hazardous Materials Mission Expansion
1986	Facilities Engineering Division, DDMT	Location of Dioxin Contaminated Materials Storage at DDMT
1988	Brittain, Doyle T	Record of Personal Communication Regarding January 19, 1988 Incident
1988	City of Memphis	Interoffice Memorandum, Collapse of Steel Dome and Spillage of Flammable Liquids
1988	Defense Logistic Agency, DDMT	Cooling Tower Discharge
1988	Harland Bartholomew & Associates, Inc.	Master Plan Report, Defense Depot Memphis, Tennessee
1988	Johnston, Col James M	Corrective Actions to Notice of Violation
1988	State of Tennessee, Division of Solid Waste Management	Spill from Adjacent Property, Auto Zone, Inc.
1988	Tennessee Department of Health and Environment	Hazardous Waste Small Quantity Generator's (Follow Up) Inspection
1988	Tennessee Department of Health and Environment	Notice of Violation and Inspection Report
1989	Johnston, Col James M	Corrective Actions to Notice of Violation
1989	Tobin, Patrick M	Notice of Violation from May 18, 1989 US EPA Inspection
1990	A.T. Kearney, Inc. for the U.S. Environmental Protection Agency	RFA Report
1990	City of Memphis and Shelby County, Tennessee	Real Estate Property Plats
1990	Defense Logistic Agency	Areas of Concern that Require No Further Action
1990	Defense Logistic Agency	Environmental Assistance Book
1990	Defense Logistic Agency	Schedule of Compliance From RCRA Permit
1990	Law Environmental	Feasibility Study Final Report for US Army Corps of Engineers Huntsville Division
1990	Law Environmental	Final Risk Assessment Defense Depot Memphis (DDMT)
1990	Law Environmental	Remedial Investigation Draft Final Report for US Army Corps of Engineers Huntsville Division
1990	Scarbrough, James H	Comments on Interim RFA Report
1990	United States Environmental Protection Agency	RCRA HSWA Permit
1991	Defense Logistic Agency	Compliance Status Report

TABLE B-1
INSTALLATION ENVIRONMENTAL RESTORATION DOCUMENTS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

YEAR	AUTHOR	TITLE
1991	Defense Logistic Agency	1991 NPDES Report Form, Discharge Monitoring Report
1991	Guinyard, Donald J	Proposed Listing on National Priority List
1991	Memphis and Shelby County Health Department	Air Pollution Control Operating Permits
1991	State of Tennessee, Division of Solid Waste Management	Health and Safety Plan General Information
1991	Tennessee Department of Environment and Conservation	NOVs for DDMT in Violation of NPDES Permit
1991	United States Environmental Protection Agency	HRS Documentation Record
1991	US Army Corps of Engineers, Mobile District	Existing Conditions Maps
1992	Defense Logistic Agency	Spill Response for DDMT 1990, 1991, 1992
1992	Johnston, Jon D	Proposed Listing on the National Priorities List
1992	Tennessee Department of Environment and Conservation	An Explanation of the Notice of Violation Dated September 21, 1992
1992	Tennessee Department of Environment and Conservation	NOV for Adjacent Property, Auto Zone, Inc.
1993	Defense Logistic Agency	Air Inventory Report for Defense Distribution Depot, Memphis, Tennessee
1993	Defense Logistic Agency	Installation Environmental Restoration Activities
1993	Defense Logistic Agency	1993 Spill Response Summary
1993	Defense Logistic Agency	UST Description
1993	Facilities Engineering Division, DDMT	Location of Tanks on Depot to be Cleaned
1993	French, Reginald A	Congressional Inquiry Regarding Mustard Bombs
1993	Memphis and Shelby County Health Department	Annual Air Compliance Inspection on January 12, 1993
1993	Tennessee Department of Environment and Conservation, Division of Water Pollution Control	Notice of NPDES Permit Violation
1993	The Pickering Firm, Incorporated	Asbestos Identification Survey for Buildings 144-209
1993	The Pickering Firm, Incorporated	Asbestos Identification Survey for Buitdings 210-257
1993	The Pickering Firm, Incorporated	Asbestos Survey for Buildings 260-271
1993	The Pickering Firm, Incorporated	Storage Tank Survey
1993	US Army Chemical Material Destruction Agency	Non-Stockpile Chemical Materiel Program: Interim Survey and Analysis Report
1994	CH2M Hill	No Further Action Report, Draft, Defense Distribution Depot Memphis
1994	CH2M Hill	Proposed Groundwater Action Plan for Defense Distribution Depot Memphis, Tennessee
1994	Defense Logistic Agency	Interoffice Memorandum Regarding Environmental Inspections, Buildings 685, 689 and 690
1994	Defense Logistic Agency	Interoffice Memorandum Regarding the Disposition of Drums at Building 835
1994	Defense Logistic Agency	Notice of Environmental Deficiencies
1994	Defense Logistic Agency	Radioactive Waste Interoffice Memorandum
1994	Defense Logistic Agency	Regional Hazardous Waste Management Plan
1994	Defense Logistic Agency	Transformer Records

TABLE B-1
INSTALLATION ENVIRONMENTAL RESTORATION DOCUMENTS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

YEAR	AUTHOR	TITLE
1994	Defense Logistic Agency	Update of Remedial Investigation/Feasibility Study
1994	Defense Logistic Agency	1383 Report Project Exhibit
1994	Tennessee Department of Environment and Conservation	Notice of Deficiency for Mobile Process Technology Co
1994	Tennessee Department of Environment and Conservation	Special Waste Approval
1994	Tennessee Department of Environment and Conservation, Division of Solid Waste Management	Notice of Violation, Tennessee Hazardous Waste Management Act
1994	Tennessee Department of Health and Environment	Tennessee Hazardous Waste Management Regulations Different from Federal
1994	The Pickering Firm, Incorporated	Asbestos Identification Survey of Buildings 139-198
1994	The Pickering Firm, Incorporated	Asbestos Identification Survey for Buildings 211-795
1994	The Pickering Firm, Incorporated	Asbestos Identification Survey for Buildings 229-309
1994	The Pickering Firm, Incorporated	Asbestos Identification Survey of Buildings 319-359
1994	The Pickering Firm, Incorporated	Asbestos Identification Survey of Buildings 319-490
1994	The Pickering Firm, Incorporated	Asbestos Identification Survey for Buildings 429-530
1994	The Pickering Firm, Incorporated	Asbestos Identification Survey of Buildings 549-650
1994	The Pickering Firm, Incorporated	Asbestos Identification Survey of Buildings 670-720
1994	The Pickering Firm, Incorporated	Asbestos Identification Survey of Buildings 737-793
1994	The Pickering Firm, Incorporated	Asbestos Survey of Buildings 1084-Gatehouse #25
1994	The Pickering Firm, Incorporated	Asbestos Survey on 31 Buildings (801-995)
1994	The Pickering Firm, Incorporated	Resource Conservation and Recovery Act (RCRA) Permit II, Spill Prevention, Control and Countermeasure (SPCC) Plan and Installation Spill Control Plan (ISCP)
1994	US Army Center for Health Promotion and Preventive Medicine	Pesticide Management Survey No 16-08-AWB1-94, Defense Distribution Depot Memphis, Tennessee
1994	US Army Corps of Engineers, Waterways Experiment Station	Electromagnetic and Magnetic Surveys at Dunn Field, Defense Depot Memphis, Tennessee
1995	Barge, Waggoner, Sumner, and Cannon	Lead-Based Paint Risk Assessment for the Defense Distribution Depot Memphis, Tennessee
1995	CH2M Hill	Environmental Restoration Program, Monitoring Well Installation Locations, Soil, Surface Water and Sediment Sampling Locations
1995	CH2M Hill	Generic Remedial Investigation/Feasibility Study Work Plan, Defense Distribution Depot Memphis
1995	CH2M Hill	Operable Unit 1 - Field Sampling Plan, Defense Distribution Depot Memphis

TABLE B-1
INSTALLATION ENVIRONMENTAL RESTORATION DOCUMENTS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

YEAR	AUTHOR	TITLE
1995	CH2M Hill.	Operable Unit 2 - Field Sampling Plan, Defense Distribution Depot Memphis
1995	CH2M Hill	Operable Unit 3 - Field Sampling Plan. Defense Distribution Depot Memphis
1995	CH2M Hill	Operable Unit 4 - Field Sampling Plan, Defense Distribution Depot Memphis
1995	CH2M Hill	Record of Decision for Interim Remedial Action of the Groundwater at Dunn Field (OU-1) at the Defense Distribution Depot Memphis
1995	CH2M Hill	Screening Sites Field Sampling Plan for Defense Distribution Depot Memphis
1995	CH2M Hill	Technical Memorandum, Summary of Information Inventory, Defense Distribution Depot Memphis, Tennessee, Early Removal Task
1995	CH2M Hill	Transmittal of Selection of Early Removal Sites, Technical Memorandum for DDMT
1995	Defense Logistic Agency	1995 Spill Response Checklist
1995	Defense Logistic Agency	DDMT Pest Management Plan FY95
1995	Defense Logistic Agency	Toxic Release Inventory (TRI) Report
1995	Department of Defense (DoD)	BRAC Cleanup Plan (BCP) Guidebook
1995	Enpak Incorporated	Plant Closure and Permit Removals
1995	Facilities Engineering Division, DDMT	Location Plan of Tanks to be Tested on Depot
1995	Memphis and Shelby County Health Department	Annual Air Compliance Inspection
1995	Tennessee Department of Environment and Conservation	Notice of Violation for Mobile Process Technology Co
1995	Tennessee Department of Environment and Conservation, Division of Water Poltution Control	DDMT Modified NPDES Permit TN0022322
1995	United States Environmental Protection Agency	Federal Facilities Agreement between United States Environmental Protection Agency Region IV, Tennessee Department of Environment and Conservation, and United States Defense Logistics Agency at the Defense Distribution Depot Memphis, Memphis, Tennessee
1995	US Army Corps of Engineers, Huntsville Division	Archives Search Report Findings, Ordnance and Explosive Waste Chemical Warfare Materials
1995	US Department of Health and Human Services	Public Health Assessment for USA Defense Depot Memphis
nd	Defense Logistic Agency	Environmental Compliance at DDMT
nd	Defense Logistic Agency	List of Names, Addresses and Phone Numbers of Adjacent Properties
nd	Defense Logistic Agency	Notice of Environmental Deficiencies
nd	Facilities Engineering Division, DDMT	BRAC 95 New Additions
nd	Harland Bartholomew & Associates, Inc.	Building Information Schedule Defense Depot Memphis, Tennessee

TAB

Appendix C

APPENDIX C

DECISION DOCUMENT/RECORD OF DECISION SUMMARIES

Record of Decision

for Interim Remedial Action

of the

Groundwater at Dunn Field (OU-1)

at the

Defense Distribution Depot
Memphis, Tennessee

April 1996

193 212

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
MEMPHIS ENVIRONMENTAL FIELD OFFICE
SUITE E-645, PERIMETER PARK
2510 MT. MORIAH
MEMPHIS, TENNESSEE 38115-1520

April 24, 1996

Commander
Defense Distribution Depot Memphis
Attn: DDMT-DE (Ms. Christine Kartman)
2163 Airways Blvd.,
Memphis, Tennessee 38114-5210

Re: Concurrence for the Record of Decision for Interim Remedial Action of the Groundwater at Dunn Field (OU-1) at the Defense Depot site, Memphis, Shelby County, Tennessee, April 1996, TDSF #79-736, cc 82

Dear Ms. Kartman:

The Tennessee Division of Superfund (TDSF) Memphis Field Office (MFO) has reviewed the Interim Remedial Action Record of Decision for the Groundwater at Dunn Field, for the Defense Depot site dated April 1996 referenced above.

The Tennessee Department of Environment and Conservation (TDEC) is in concurrence with the selected remedy, a pump and treat containment alternative, Alternative 8 as described. TDEC has been actively involved with the development of the alternatives as well as the selection process through closely coordinated project management among Base Closure Team (BCT) members and extended BCT members.

This concurrence is provided within the authority of the Federal Facilities Agreement (FFA) for the Defense Depot, the Defense Department/State Memorandum of Agreement (DSMOA), and the delegated powers of the Commissioner of TDEC as part of the President's five step Base Cleanup Plan (BCP) process.

Sincerely,

Clint Willer, Director
Tennessee Division of Superfund

c: TDSF, NCO
TDSF, MFO
Dann Spariosu
United States Environmental Protection Agency
Federal Facilities Branch
345 Courtland Street, N.E.
Atlanta, GA 30365

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

193 213

May 1, 1996

4WD-FFB

Certified Mail
Return Receipt Requested

Colonel Michael J. Kennedy, Commander
Defense Distribution Depot Memphis
2163 Airways Boulevard
Memphis, Tennessee 38114-5210

SUBJ: Concurrence with Interim Record of Decision, Operable Unit 1
Defense Distribution Depot Memphis, Tennessee

Dear Col. Kennedy:

The U.S. Environmental Protection Agency (EPA) Region IV has reviewed the above referenced decision document and concurs with the Interim Record of Decision (IROD) for groundwater at Operable Unit 1, Dunn Field, as supported by the Remedial Investigation in progress.

The selected remedy is Alternative 8 in the IROD. EPA concurs with the selected remedy as detailed in the IROD with the following stipulation: *It is understood that the selected interim remedy for Operable Unit 1 may not be the final remedial action to address all media potentially affected by past disposal practices at this unit.*

This action is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action and is cost effective.

Sincerely,

Richard D. Green
Acting Director
Waste Management Division

cc: Jordan English, Tennessee Department of Environment & Conservation

193 214

Record of Decision for Interim Remedial Action of the Groundwater at Dunn Field (OU-1) at the Defense Distribution Depot Memphis, Tennessee

January 1996

Prepared for

U.S. Army Corps of Engineers
Huntsville Division

Prepared by

CH2M HILL, Inc.
Montgomery, AL
DACA87-94-D-0009

110491.IR

Contents

193 215

Tables

Figures

Acronyms

AEHA	U.S. Army Environmental Hygiene Agency
AOC	Area of Concern
AR	Administrative Record
ARAR	Applicable or relevant and appropriate requirement
BRA	Baseline risk assessment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	*Code of Federal Regulations*
CRP	Community Relations Plan
DDMT	Defense Depot Memphis, Tennessee
DLA	Defense Logistics Agency
DNAPL	Dense non-aqueous phase liquid
DOD	Department of Defense
EE/CA	Engineering evaluation/cost analysis
EPA	U.S. Environmental Protection Agency
gpm	Gallons per minute
IRA	Interim remedial action
MCL	Maximum contaminant level
MCLG	Maximum contaminant level goal
mgd	Million gallons per day
NCP	National Oil and Hazardous Pollution Contingency Plan
NGVD	National Geodetic Vertical Datum
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O&M	Operations and maintenance
OU	Operable unit
PCB	Polychlorinated biphenyl
PCP	Pentachlorophenol
POTW	Publicly owned treatment works
PW	Present worth
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RI/FS	Remedial investigation/feasibility study
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SWMU	Solid waste management unit
TDEC	Tennessee Department of Environment and Conservation
USATHMA	U.S. Army Toxic and Hazardous Materials Agency
UV	Ultraviolet
VOC	Volatile organic compound

Executive Summary

This Record of Decision (ROD) presents the selected interim remedial action (IRA) for DDMT in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). In 1992, after receiving a Hazard Ranking System (HRS) score of 58.06, DDMT was placed on the National Priorities List by the Environmental Protection Agency. The selected IRA provides for hydraulic control of a contaminant plume in groundwater beneath Dunn Field. Contaminants identified as those of potential concern include volatile organic compounds, such as solvents used for cleaning mechanical parts, and metals. It is not intended as a permanent solution; however, it is intended to be compatible with the final remedy.

DDMT and the involved regulatory agencies have been working to inform the community about activities involved with the site since 1992 through press releases, mailings, newspaper ads, and public meetings.

Eight alternatives, each consisting of groundwater extraction, groundwater treatment, and disposal components, were evaluated. The alternative chosen as the preferred alternative consists of extraction on/offsite and discharge to a publicly owned treatment works (POTW). This alternative assumes that pretreatment will not be necessary before treatment at the POTW. If, however, chemical analyses indicate that pretreatment is necessary, a pretreatment provision is part of the contingency remedy.

Part 1
Declaration for the Record of Decision
Interim Remedial Action of the Groundwater
at Dunn Field [Operable Unit (OU-1)]

1.1 Site Name and Location

Defense Depot Memphis, Tennessee (DDMT)
Memphis, Shelby County, Tennessee

1.2 Statement of Basis and Purpose

This decision document (Record of Decision [ROD]) presents the selected interim remedial action (IRA) for the DDMT site, Memphis, Tennessee, developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), 42 U.S.C. Section 9601 *et seq.*, and to the extent practicable, the National Oil and Hazardous Pollution Contingency Plan (NCP) 40 *Code of Federal Regulations* (CFR) Part 300.The DDMT is the lead agency for the remedial investigation/feasibility study (RI/FS) process for the site. The U.S. Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC) are the supporting regulatory agencies for the site. In accordance with 40 CFR 300.430, the regulatory agencies have provided input during this process. The regulatory agencies are provided with a draft IRA ROD for review and their comments are incorporated into the final document. The U.S. EPA and the State of Tennessee concur with the selected interim remedy.

1.3 Assessment of the Site

Actual or threatened releases of hazardous substances from the DDMT site, if not addressed by implementing the IRA selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, and the environment.

1.4 Description of Interim Remedial Action

This IRA provides for hydraulic control of a contaminant plume in groundwater beneath Dunn Field (also called OU-1). Because the contaminated Fluvial Aquifer poses a potential threat to the deeper Memphis Sand Aquifer, it is considered as a potential threat to human health and the environment. Thus, the groundwater IRA is designed to provide a quick, interim response measure that will help prevent the possible contamination of the area's drinking water supply. As a contingency remedy, the IRA also includes a provision for pretreatment if necessary. As described in the IRA Proposed Plan contained in the Administrative Record, follow-on activities include monitoring the groundwater plume and its response to the IRA. Once the plume has been fully characterized, subsequent action may be taken to provide long-term definitive protection, including remediation of source areas. To the extent possible, the interim action will not be inconsistent with, nor preclude implementation of, the expected final remedy. RI/FS activities at OU-2, OU-3, and OU-4 will address contamination found within the southwestern quadrant, southeastern watershed and golf course, and northern portions of the Main Installation, respectively.

This IRA addresses only Dunn Field. OU-2, OU-3, and OU-4 will be addressed in the remedial documents for those OUs.

The major components of the selected IRA for OU-1 include the following:

- Evaluation of aquifer characteristics which may include installation of a pump test well
- Installation of additional monitoring wells to locate the western edge of the groundwater plume
- Installation of recovery wells along the leading edge of the plume
- Obtaining discharge permit for disposal of recovered groundwater to the T. E. Maxson Wastewater Treatment Plant publicly owned treatment works (POTW) or municipal sewer system
- Operation of the system of recovery wells until the risk associated with the contaminants is reduced to acceptable levels or until the final remedy is in place
- Chemical analysis will be conducted to monitor the quality of the discharge in accordance with the city discharge permit requirements; the permit will include parameters to be monitored and frequency.

1.5 Declaration

This interim action is protective of human health and the environment, complies with federal and state requirements that are legally applicable or relevant and appropriate, and is cost-effective. This action is interim; it is not intended as a permanent or final remedy. However, it is intended to be compatible with the permanent solution. It is not intended to be the permanent solution, and uses alternative treatment technologies to the maximum extent practical for this interim response. Because this action does not constitute the final remedy for this OU, the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volumes as a principal element has not been entirely accommodated and will be addressed at the time of the final response action. Subsequent actions are planned to address fully the threats posed by the conditions at this OU. Because this remedy will result in hazardous substances remaining onsite above health-based levels, a review will be conducted to ensure that the remedy continues to provide adequate protection of human health and the environment within 5 years after the commencement of this remedial action. Because this is an interim action ROD, review of the remedy will be ongoing as DDMT continues to develop the final remedial action for OU-1.

Christine E. Kartman — April 9, 1996

CHRISTINE E. KARTMAN
Chief, Environmental Protection and Safety Office

Date

Part 2
Decision Summary

2.1 Site Location and Description

DDMT covers 642 acres of federal land in Memphis, Shelby County, Tennessee, in the extreme southwestern portion of the state. Approximately 5 miles east of the Mississippi River and just northeast of the Interstate 240–Interstate 55 junction, DDMT is in the south-central section of Memphis, approximately 4 miles southeast of the Central Business District and 1 mile northwest of Memphis International Airport. Airways Boulevard borders DDMT on the east and provides primary access to the installation. Dunn Avenue, Ball Road, and Perry Road serve as the northern, southern, and western boundaries, respectively. The installation is surrounded by mixed residential, commercial, and industrial areas. Figure 1 shows the installation's location within the Memphis area.

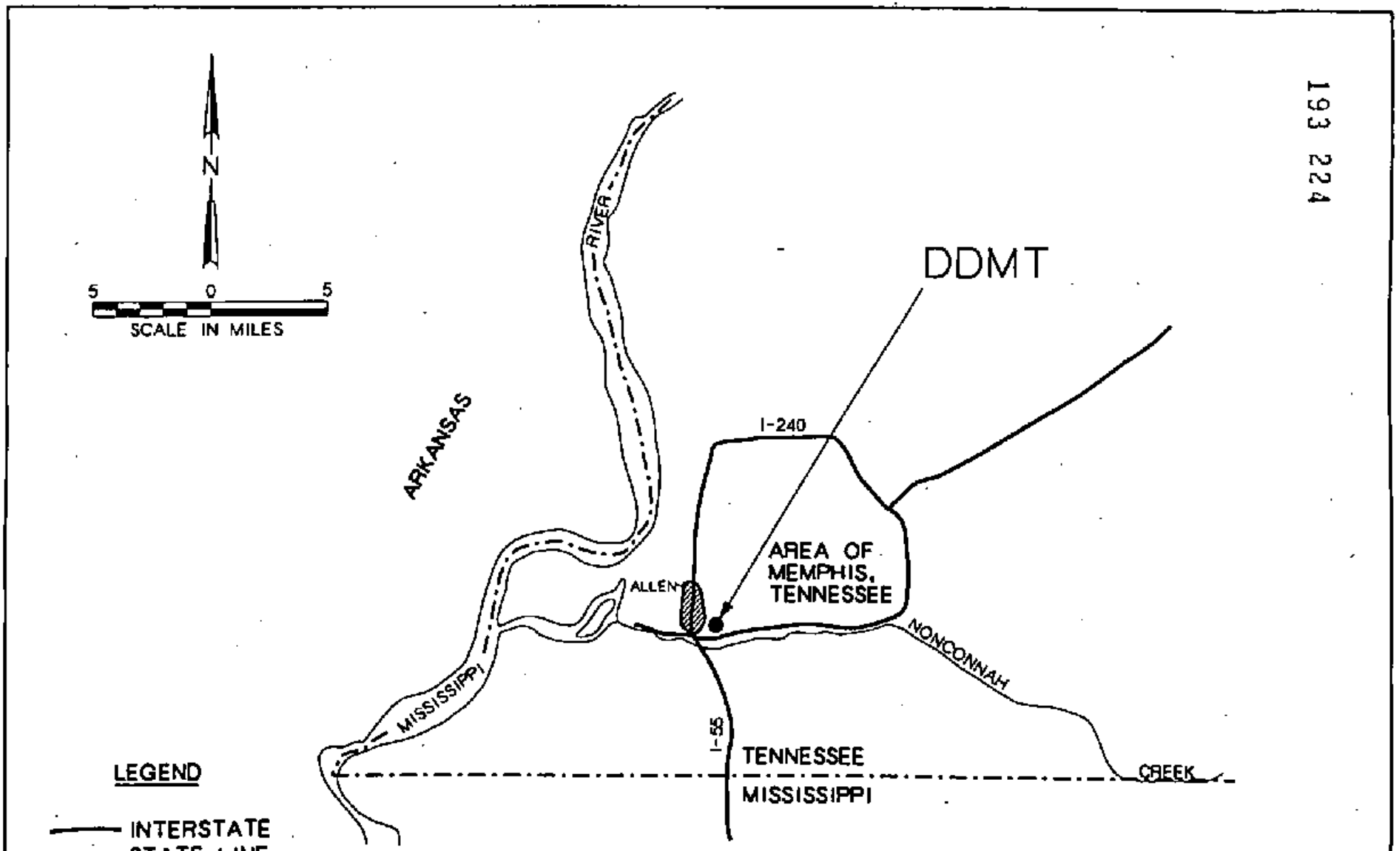
The Defense Logistics Agency (DLA), an agency of the Department of Defense (DOD), provides logistics support to military services. As a major field installation of the DLA, DDMT receives, warehouses, and distributes supplies common to all U.S. military services and some civil agencies located primarily in the southeastern United States, Puerto Rico, and Panama. Stocked items include food, clothing, electronic equipment, petroleum products, construction materials, and industrial, medical, and general supplies.

The installation contains approximately 110 buildings, 26 miles of railroad track, and 28 miles of paved streets. It has about 5.5 million square feet of covered storage space and approximately 6.0 million square feet of open storage space. The land and buildings are owned by the U.S. Army and leased by DLA. DDMT consists of two main sections: the Main Installation, which is intensely developed, and Dunn Field, an open storage area about 64 acres in size. A more detailed description of the OUs, whose current boundaries are shown in Figure 2, is found in Section 2.4.

2.2 Site History and Enforcement Activities

DDMT began operations in 1942 with the charge to inventory and supply materials for the U.S. Army. In 1964, its mission was expanded to serve as one of the principal distribution centers for a complete range of commodities.

Past activities at DDMT include a wide range of storage, distribution, and maintenance practices. Dunn Field (OU-1) has been used as a landfill area (northwestern quadrant), a storage area for mineral stockpiles (southwestern and southeastern areas), and a pistol range, and later as a pesticide storage area (northeastern area). Activities in the southwestern quadrant of the Main Installation (OU-2) have included hazardous material storage and recoupment (Building 873), sandblasting and painting activities (Buildings 1086 through 1089), and maintenance (Building 770). The southeastern portion of the Main Installation (OU-3) includes the bulk of the storage and distribution warehouses at DDMT. Other activities that are documented to have occurred in this area include the polychlorinated biphenyl (PCB) transformer storage (near Building 274), pesticide and



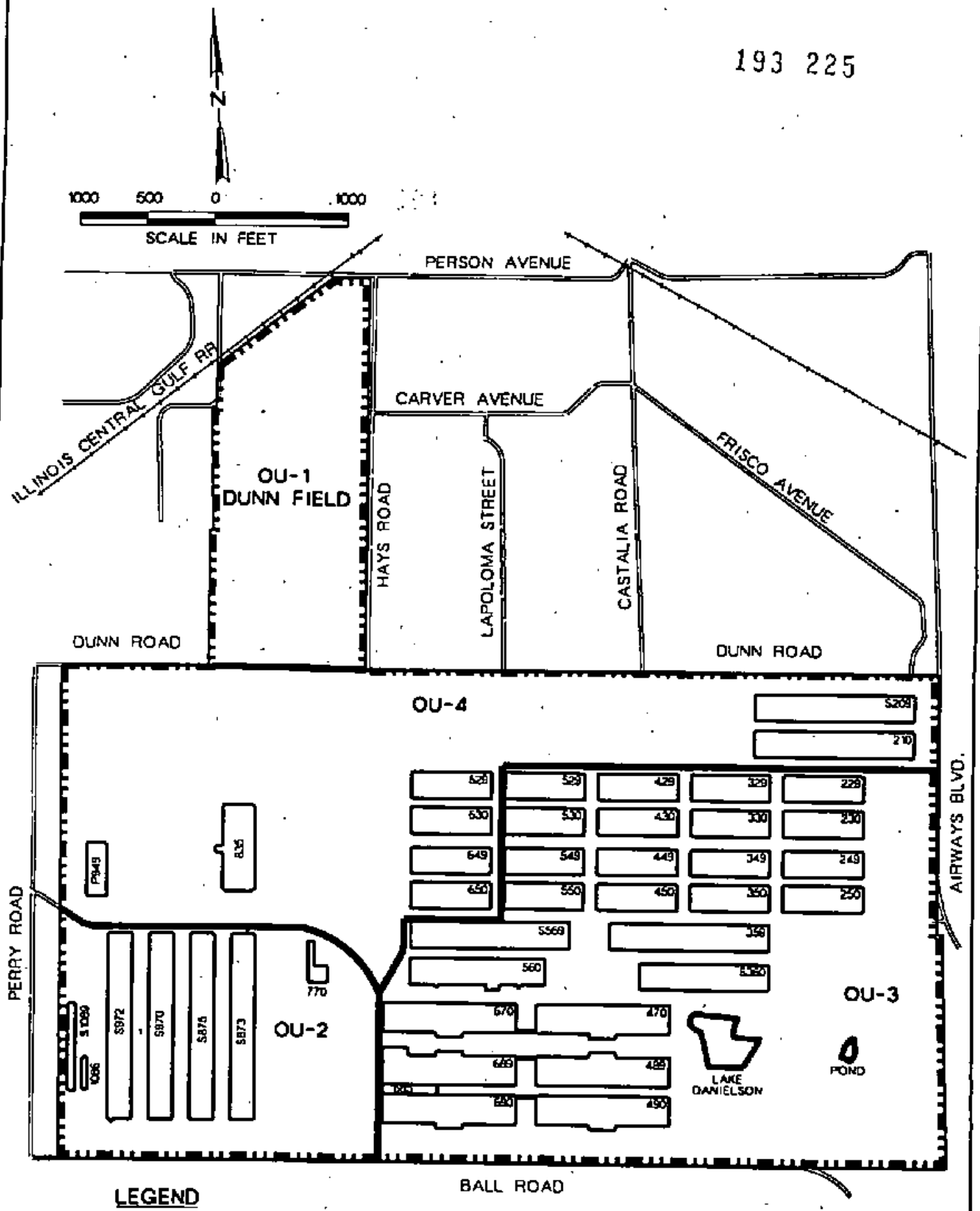
Source: Engineering-Science, 1993

FIGURE 1
DDMT LOCATION IN MEMPHIS METROPOLITAN AREA
Defense Depot Memphis, Tennessee

CH2MHILL

mwp-0022.dgn 09-MAY-1995

193 225



Source: Engineering-Science, 1993

FIGURE 2
OPERABLE UNIT LOCATIONS
Defense Depot Memphis, Tennessee

mwp-0023.dgn 09-MAY-1995

herbicide storage and use (several locations), and fire truck pump testing (Lake Danielson). The northern portion of the installation (OU-4) has a history of the following major activities: hazardous material storage (several locations), treatment of wood products with pentachlorophenol (PCP) (Building 737), and storage of items awaiting disposal (several locations).

Until 1970, army supplies, including hazardous and nonhazardous materials whose containers were damaged or shelf life expired, were occasionally burned or buried in a portion of Dunn Field. Wastes disposed of in this manner may have included oil and grease, paint, paint thinner, methyl bromide, pesticides, herbicides, and food supplies. Documentation indicates that most of the materials disposed of during this time period were buried in the northwestern portion of Dunn Field.

In 1981, the U.S. Army Toxic and Hazardous Materials Agency (USATHMA) prepared an installation assessment of hazardous materials disposal practices to assess potential sources of contamination. The burial sites at Dunn Field were identified and ranked as having the greatest potential for offsite migration of contaminants in groundwater.

In 1982, a hydrogeologic evaluation was conducted by the U.S. Army Environmental Hygiene Agency (AEHA) to determine groundwater quality beneath Dunn Field. Seven wells were installed in the northwestern quadrant of Dunn Field and analyzed for inorganic constituents. The results did not reflect any significant groundwater contamination from the past disposal operations.

A Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) was performed in 1989 by A. T. Kearney to identify solid waste management units (SWMUs) and areas of concern (AOCs). To satisfy CERCLA requirements, an RI/FS was conducted in 1989 and concluded in 1990. The RI was conducted on a sitewide basis to confirm the presence or absence of contamination, to evaluate the extent and significance of detected contamination, and to provide a scientific foundation for cleanup alternatives. An RI Report was submitted to EPA in August 1990. A quantitative baseline risk assessment (BRA) was conducted as part of the RI and submitted along with the RI Report. The remedial alternatives are presented in a draft FS, which was submitted to EPA in September 1990. A final RI for the installation has not yet been accepted by either EPA or TDEC.

During the RI, monitoring wells were installed in the Fluvial Aquifer and Memphis Sand Aquifer. Several groundwater samples collected from monitoring wells around the installation contained levels above regulatory limits of volatile organic compounds (VOCs) and heavy metals. The results suggested that the groundwater contaminant plume was generally migrating to the west and northwest of Dunn Field. Later data (ESE 1994) indicates that there may be a west to southwest component. In 1992, the EPA placed DDMT on the National Priorities List (NPL).

In 1993, an *Engineering Report—Removal Action for Groundwater* (Engineering Science), was prepared for DDMT. The intent of the report was to meet all requirements of the engineering evaluation/cost analysis (EE/CA) under CERCLA and the NCP for a non-time critical removal. The report evaluated a variety of technologies, previously presented in the 1990 RI/FS, that would treat contaminated groundwater in the Fluvial Aquifer to prevent possible human exposure.

This IRA represents the first step in the remediation of the contaminated groundwater beneath the northern portion of Dunn Field (OU-1). Additional actions will be necessary to provide long-term definitive protection for OU-1.

2.3 Highlights of Community Participation

DDMT, EPA, and TDEC have made significant efforts to inform interested parties and provide input on activities associated with the site. As part of its requirements under CERCLA, DDMT has been working with the community surrounding the site since 1992. In October 1992, press releases informing the community of the NPL listing of the site were released. The Information Repository located at the Memphis/Shelby County Public Library, 1850 Peabody Avenue, Memphis, Tennessee, was established in May 1993. Two other repositories are located at the Cherokee Branch Public Library and the Memphis-Shelby County Public Health Department. A draft final *Community Relations Plan* (CRP) was issued in April 1994 and has been placed in the information repositories. On May 24, 1993, at the request of the Memphis Mayor's office, DDMT had a meeting at Corey Junior High School to discuss the restoration effort and to provide a forum for the community to express its concerns about health issues. DDMT also led a public exhibition and discussion on the restoration process on August 10, 1993. In December 1994, DDMT, EPA, and TDEC held a public meeting to discuss the start of the RI/FS.

The FS, the Proposed Plan, and the Administrative Record (AR) for the OU-1 IRA were released to the public in November 1994. These documents were made available in the AR and maintained in the repositories and in the information repository at the site. The notice of availability of these documents and the AR was published in December 1994 in the *Silver Star News*, the *Tri-State Defender*, and the *Commercial Appeal*. A public comment period was held from December 4, 1994, to January 17, 1995. In addition, a public meeting was held on December 20, 1994. At this meeting, representatives from DDMT, EPA, and TDEC answered questions about problems at the site and the remedial alternatives under consideration, including the IRA. Responses to the comments received during this comment period are presented in the responsiveness summary in Part 3 of this document.

The Technical Review Committee, established in February 1994, was converted to a Restoration Advisory Board (RAB) in July 1994. The RAB consists of representatives from the Memphis area community and from the state and federal government, and meets on a monthly basis to discuss activities associated with DDMT. After each meeting, meeting minutes are distributed to board members.

In addition to the RAB, newsletters are prepared on a quarterly basis and disseminated to approximately 3,000 individuals. The mailing list of 3,000 was established from the response to an initial mailing to 20,000 individuals within a 1-mile radius of DDMT in October 1994, the response to newspaper advertisements, and from the existing DDMT mailing list. Factsheets are also completed and distributed whenever new or additional restoration activities occur at DDMT. A hotline (901-775-4569) was established in February 1994 to assist local citizens or other interested parties in obtaining information concerning the environmental restoration activities at the site.

2.4 Scope and Role of Operable Units

Because of the size of the installation (642 acres) and its complexity, DDMT, EPA and TDEC have organized the work at this site into the four OUs, which are discreet parts of an entire response action. Figure 2 shows the location and areal extent of the OUs.

Dunn Field, which is the only area on DDMT where burial of waste is known to have occurred, is designated OU-1. Substances found in OU-1 probably resulted from use of the area for landfill operations, mineral stockpiles, pistol range use, and pesticides storage.

The Main Installation is divided into three other OUs. OU-2, in the southwestern quadrant, is an area where maintenance and repair activities have occurred. Potential contamination of OU-2 may have resulted from spills or releases from the hazardous material storage and repouring area, or sandblasting and painting activities. OU-3 includes the Golf Course Pond, Lake Danielson, and former transformer and pesticide storage areas. Storage of PCBs and the use of pesticides and herbicides are potential sources of contamination for OU-3. OU-4, in the north-central area, is mainly characterized by the presence of the main hazardous materials storage building at DDMT. Principal contamination in OU-4 probably resulted from a wood treatment operation and hazardous material storage.

Because the contaminated groundwater beneath Dunn Field poses a potential threat to the drinking water aquifer, it is considered a possible threat to human health and the environment. Thus, the objective of the groundwater IRA is to provide a quick response measure that will help prevent the possible contamination of the area's drinking water supply. Follow-on activities include characterizing and monitoring the groundwater plume migration. Once the plume has been characterized, subsequent action may be taken to provide long-term definitive protection, including remediation of source areas. To the extent practicable, the interim action will be consistent with any planned future actions.

The IRA addresses contamination of groundwater beneath Dunn Field from past disposal practices at DDMT. The IRA represents the first step in the remediation of the contaminated groundwater beneath the northern portion of Dunn Field. The remainder of OU-1 and OUs-2, 3, and 4 will be evaluated later and will be addressed in future documents.

2.5 Summary of Site Characteristics

The major site characteristics presented in the RI/FS that are applicable to OU-1 are summarized below.

2.5.1 Physiography

DDMT is situated within the Gulf Coastal Plan subdivision of the Atlantic Coastal Plain Physiographic Province. The area is characterized by dissected loess-covered uplands and generally lacks distinct features.

Dunn Field lies just north of the Main Installation and Dunn Avenue, and consists of approximately 64 acres of undeveloped land. Most of Dunn Field is unpaved. About one-half of the area is grassed; the remaining area contains crushed rock and bauxite and fluorspar piles. Several large hardwood trees are present in the northeastern part of the field. The southwestern quadrant of the field is a grassed, gently sloping area. The southeastern quadrant is a level zone used for both covered and uncovered bulk materials storage (bauxite and fluorspar).

Dunn Field's topography is a level-to-gently rolling terrain which has been somewhat altered by past activities of heavy equipment operators. The land appears to slope to the west from the bauxite piles in the center of the field. An arc-shaped ridgeline separates the field's two northern quadrants. In the northeastern quadrant of the field, the areas surrounding the former pistol range (later used as a pesticide/herbicide storage shed [Building 1184]) and the former burn area are level and grassed. The northwestern quadrant of the field (the portion used for burial of waste materials) is a level-to-gently sloping grassed area. Surface elevations range from a low of 273 ft, National Geodetic Vertical Datum of 1929 (NGVD), at the north outfall/installation boundary fenceline to 315 ft NGVD in the field's approximate center. Maximum local relief is about 25 ft at the pistol range bullet stop.

Installation surface drainage is accomplished by overland flow to swales, ditches, concrete-lined channels, and an efficient storm drainage system. Most of DDMT is generally level with, or above, surrounding terrain; therefore, DDMT receives little or no runoff from adjacent areas. Most Dunn Field drainage is achieved by overland flow to the adjacent properties to the north and west. The northeastern quadrant drains east to a concrete-lined channel, or to adjacent properties to the north. The concrete-lined channel consists of two separate segments that join approximately 200 ft north of Building 1184.

Both channel segments convey adjacent residential neighborhood storm water through the northeastern quadrant of Dunn Field. The concrete-lined channel directs flow northward to Cane Creek, which drains into Nonconnah Creek at a point several miles southwest of DDMT. Nonconnah Creek drains into Lake McKellar, a Mississippi River tributary.

Runoff from the northwestern quadrant flows overland to a roadside ditch along Kyle Street (northwestern boundary of the installation). The remainder of the runoff flows overland to the west onto neighboring properties outside of DDMT.

2.5.2 Hydrogeology

The Dunn Field area of DDMT is covered by a loess deposit, which is a semi-cohesive windblown deposit of silt, silty sand, and silty clay. The loess is about 20 ft thick in the vicinity of Dunn Field and may occasionally reach 30 ft in thickness. Although the loess is not typically a water-bearing zone, seasonal perched groundwater may occur. The extent of this potential perched zone is unknown. There is no evidence that the loess produces water to wells in the DDMT vicinity. The loess is underlain by the Fluvial Deposits, the Jackson Formation/Upper Claiborne Group, and the Memphis Sand.

The Fluvial Deposits consist of a top layer of silty clay, silty sand, or clayey sand; a clean, fine to medium-grained sand; and a basal gravelly sand. The thickness of the Fluvial Deposits in Dunn Field ranges from 50 to 70 ft. This unit forms the shallow aquifer in the vicinity of Dunn Field and receives recharge from rainfall infiltration and lateral groundwater inflow. Discharge is toward the Mississippi River to the west and possibly by leakage into the underlying Memphis Sand Aquifer through the Jackson Formation/Upper Claiborne confining bed. Data collected from the site suggests that groundwater in the Fluvial Aquifer is moving generally toward the west in the Dunn Field area.

Below the Fluvial Deposits is the Jackson Formation and Upper Claiborne Group consisting of stiff gray or orange plastic, lean to fat lignitic clay, silt, and fine sand with minor lenses of lignite. This stratigraphic unit reaches thicknesses of approximately 80 ft and forms a regional confining bed separating the Fluvial Deposits and the underlying Memphis Sand Aquifer. Although no areas of hydraulic connection have been confirmed in the vicinity of DDMT to date, investigations are underway to verify the existence of a potential interconnection.

At Dunn Field, the top of the Memphis Sand Aquifer is about 160 ft below ground level along the western property line and approximately 140 ft below ground level along the eastern property line. The formation is composed of thin-bedded, white to brown or gray, very fine grained to gravelly, partially argillaceous and micaceous sand. The aquifer ranges in thickness from 500 to about 900 ft and is under confined conditions.

The Memphis Light, Gas, and Water Division operates eight well fields that extract water from the Memphis Sand for municipal supply. The Allen Well Field is located 1 to 2 miles west of DDMT. A potentiometric surface map, (Park 1990, plate 3) indicates that groundwater flow in the Memphis Sand Aquifer beneath DDMT is toward the West.

2.5.3 Groundwater Contamination

Chemicals of potential concern identified in Dunn Field monitoring wells screened in the Fluvial Aquifer include the following:

Volatile Organic Compounds

Carbon tetrachloride	1,1-Dichloroethylene
1,2-Dichloroethylene	Tetrachloroethylene
1,1,2,2-Tetrachloroethane	Trichloroethylene

Metals

Arsenic	Barium
Chromium	Lead
Nickel	

The highest concentration of constituents detected in the groundwater samples collected from the Fluvial Aquifer wells are presented in Table 1. To date, constituents of concern in the Fluvial Aquifer have not been detected in Memphis Sand Aquifer groundwater samples in the vicinity of the site.

The constituents of concern found in the Fluvial Aquifer beneath Dunn Field occur at concentrations above the established maximum contaminant levels (MCLs) and maximum contaminant level goals (MCLGs). A comparison of MCLs and MCLGs with the data from the RI is presented in Table 1.

Over the course of 3 sampling efforts conducted at Dunn Field (1989, 1990, and 1992), volatile organics were detected above MCLs in 22 out of 35 Fluvial Aquifer groundwater samples. Metals concentrations above MCLs were detected in 25 out of 35 groundwater samples collected during this time period.

2.6 Summary of Site Risks

In 1990, as part of the RI/FS, a preliminary risk assessment was performed in accordance with EPA guidance available at that time. Potential exposure points for contaminated groundwater from Dunn Field were identified as the following:

- Ingestion of groundwater through the public water supply
- Contact with potable water during bathing
- Inhalation of vapors from VOCs in potable water during household use

Table 1
Comparison of Constituents to Standards
in Dunn Field Groundwater

Constituent	MCL (µg/L)	RI Phase I Highest Levels 1989 (µg/L)	RI Phase II Highest Levels 1990 (µg/L)
Volatile Organic Compounds			
1,1-Dichloroethene	7	130 (MW-10)	160 (MW-10)
1,2-Dichloroethene (total)	70	520[3] (MW-11)	510[3] (MW-12)
Tetrachloroethene	5	210 (MW-5)	240[3] (MW-10)
Trichloroethene	5	1,700[3] (MW-12)	5,100[3] (MW-12)
Carbon tetrachloride	5	77 (MW-6)	40 (MW-6)
Metals			
Arsenic	50	85 (MW-10)	210 (MW-14)
Barium	2,000[1]	3,740[4] (MW-14)	1,900 (MW-10
Chromium	50	1,240[4] (MW-7)	340 (MW-7)
Lead	15[2]	653[4] (MW-10)	1,000 (MW-10)
Nickel	100	602[4] (MW-7)	170 (MW-7 & 10)

Source: Environmental Science, Inc., 1993.

Notes:
[1]Maximum contaminant level goals (MCLGs)
[2]Action level
[3]Identified in the analysis from a secondary dilution factor
[4]Spiked sample recovery not within control limits

Abbreviations:
µg/L = Micrograms per liter
MW = Monitoring well

The transport medium and exposure pathway for the exposure scenarios identified above all relate to groundwater. Contaminants can potentially leach from materials associated with past disposal activities at Dunn Field. Several of these contaminants are already present in the Fluvial Aquifer as a result of dispersion and infiltration. The Fluvial Aquifer, which is not used as a potable water supply, potentially recharges the Memphis Sand Aquifer by leakage. This potential leakage could provide a pathway for contaminants to the deeper Memphis Sand Aquifer, the drinking water aquifer for the City of Memphis. A conceptual site model is shown in Figure 3.

The Allen Well Field, located approximately 1 mile south of Dunn Field, is one of eight pumping centers serving the Memphis area. With 35 wells, the Allen Well Field pumps roughly 21 million gallons a day (mgd) of potable water from the Memphis Sand Aquifer and accounts for approximately 15 percent of the water used within the Memphis area. Contamination of the Memphis Sand Aquifer caused by leakage from the contaminated Fluvial Aquifer could occur, thus directly affecting the Memphis water supply source.

Results of the preliminary risk assessment indicate that there is a potential public health risk associated with the Fluvial Aquifer groundwater. Actual or threatened releases of hazardous constituents from Dunn Field, if not addressed by the preferred IRA, may present a current or potential threat to public health, welfare, or the environment.

The principal goals of this groundwater IRA are to incrementally remove contaminants from the Fluvial Aquifer, to decrease risk by mitigating the spread of constituents toward the Allen Well Field, and to create a hydraulic barrier to prevent contamination in the Fluvial Aquifer at Dunn Field from reaching the Allen Well Field.

Although the IRA is not anticipated to achieve compliance with MCLs, it is consistent with the objective to protect the Memphis Sand Aquifer. Long-term operation of a groundwater removal system will help to achieve MCLs by incrementally removing contaminants.

The more specific findings of the BRA will be included in the final action ROD for OU-1, along with the ultimate cleanup objectives. No changes were made to the preferred alternative as presented in the Proposed Plan.

2.7 Description of Alternatives

Eight alternatives were evaluated for addressing the groundwater contamination beneath Dunn Field. These alternatives are listed in Table 2. Each of the alternatives consist of three elements—groundwater extraction, groundwater treatment, and disposal. Extraction option alternatives range from no action to installation of deep wells on- and offsite.

Treatment possibilities range from none to air stripping or ultraviolet (UV)/oxidation of metals. Groundwater disposal options range from none to discharge to surface drainage, discharge to the municipal sewer system, or reinjection into onsite wells. These alternatives are described in greater detail in the following paragraphs. Cost analyses provided are based on 1990 dollars and may represent a substantial cost increase by the time implementation begins.

GENERALIZED SITE MODEL

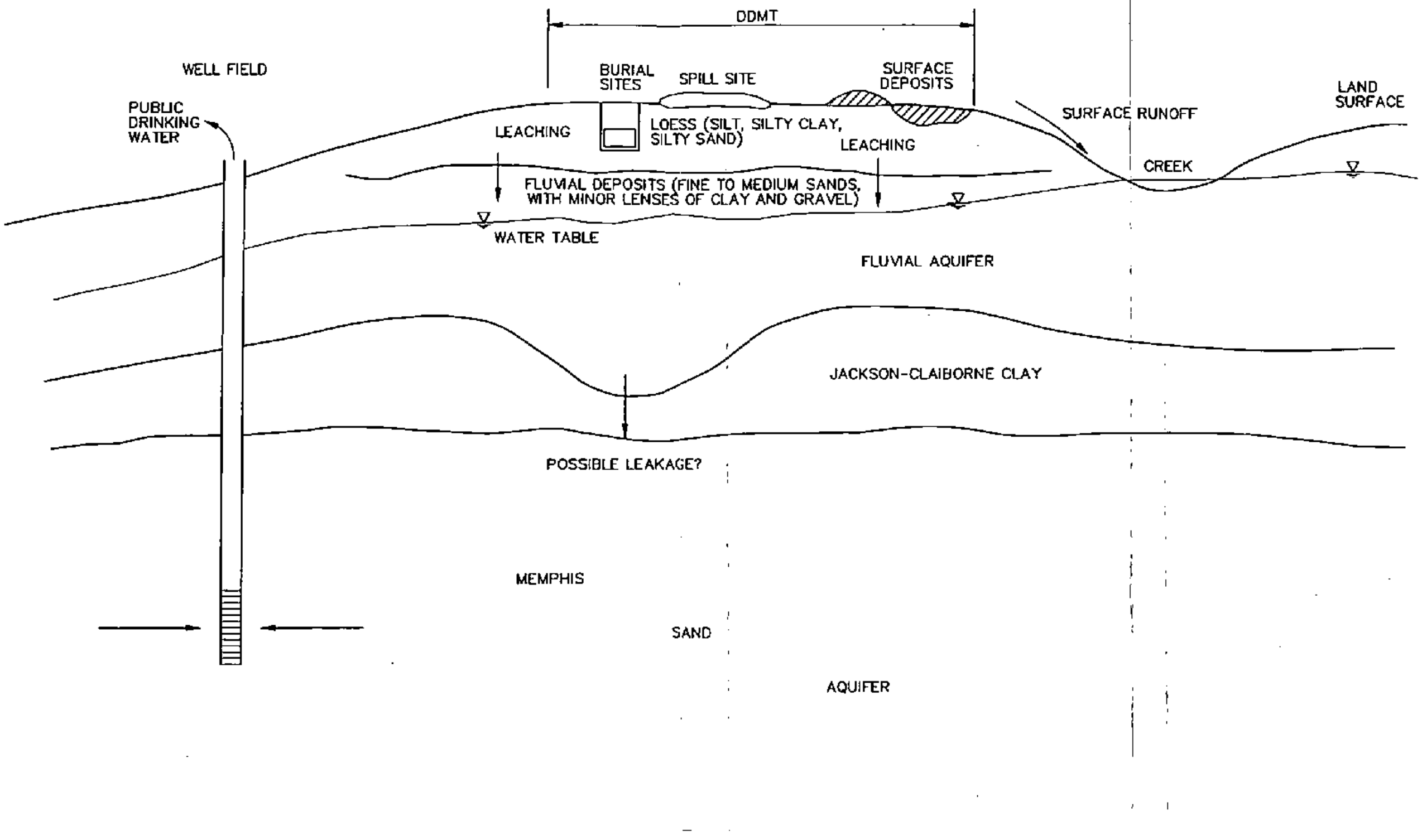


Table 2
Alternatives for Interim Remediation

Alternative	Extraction	Treatment	Disposal
1	No Action	None	None
2	Wells onsite	Air stripping with metals removal if necessary	Municipal sewer
3	Wells on- and offsite	Air stripping with metals removal if necessary	Municipal sewer
4	Wells onsite	Air stripping with metals removal if necessary	Municipal sewer
5	Wells onsite	Air stripping with metals removal if necessary	Surface drainage
6	Wells onsite	Air stripping with metals removal if necessary	Surface drainage
7	Wells onsite	Air stripping with metals removal if necessary	Reinjection upgradient onsite
8 (preferred)	Wells on- and offsite	None	Municipal sewer

Alternative 8 is the preferred alternative.

2.7.1 Alternative 1: No Action

Capital Costs: N/A
Annual O&M Costs: N/A
Present Worth (PW): N/A

The no action alternative is carried out through the screening process as required by the NCP. The no action alternative assumes no further action at the site and is used as a baseline to measure the other alternatives. Under this alternative, no action would be taken in terms of containment and treatment of the groundwater plume. Groundwater contamination would remain and continue to migrate.

2.7.2 Alternative 2: Extraction Onsite, Air Stripping, and Discharge to POTW

Capital Costs: $600,000
O&M: $270,000
PW: $6,000,000

The groundwater extraction system for Alternative 2 consists of eight wells located in Dunn Field. The wells would be located to extract groundwater from the most contaminated portion of the plume, according to existing data. The groundwater would be removed from the eight wells and stored in a holding tank.

The extracted groundwater would be pumped from the holding tank to an air stripping tower for removal of VOCs. The use of a carbon treatment system will be dependent on the concentration of VOCs in the air stream. Removal of heavy metals, if necessary, would be performed after VOC treatment. The treated groundwater would be released into the local sewer system, where it would be treated at the POTW.

2.7.3 Alternative 3: Extraction On/Offsite, Air Stripping, and Discharge to POTW (Contingent Alternative)

Capital Costs: $600,000
O&M: $230,000
PW: $5,200,000

The pumping and treatment system for Alternative 3 is similar to Alternative 2 except for the placement and pumping rate of the wells. Like Alternative 2, this alternative has eight extraction wells, but with different locations. Two of the wells are located west of Dunn Field, downgradient of the property boundary, with the remainder on DDMT property. Alternative 3 would provide greater capture of the contaminated groundwater offsite. The treatment and handling of the groundwater would be similar to Alternative 2.

2.7.4 Alternative 4: Extraction Onsite, UV/Oxidation, and Discharge to POTW

Capital Costs: $830,000
O&M: $300,000
PW: $6,900,000

The extraction well system would be identical to Alternative 2. The extracted groundwater would be treated by a UV/oxidation process using ultraviolet light, ozone, and hydrogen peroxide to break down the VOCs into carbon dioxide, water, and inorganic chlorides. Treatment for heavy metals, if needed, would follow UV/oxidation. The treated water would be discharged to the POTW.

2.7.5 Alternative 5: Onsite Extraction, Air Stripping, and Discharge to Surface Drainage Channel

Capital Costs: $470,000
O&M: $130,000
PW: $3,100,000

The extraction and treatment system of Alternative 5 is identical to Alternative 2. However, the treated water would be discharged into the existing surface water drainage system rather than to the POTW. Surface drainage channels exit from the northern and western boundaries of Dunn Field. Both of these channels terminate at Cane Creek, located north of Dunn Field. A National Pollutant Discharge Elimination System (NPDES) permit would be required before discharge would be allowed.

2.7.6 Alternative 6: Extraction Onsite, UV/Oxidation, and Discharge to Surface Drainage Channel

Capital Costs: $660,000
O&M: $160,000
PW: $3,900,000

Alternative 6 is similar to Alternative 4, except that the treated groundwater would be discharged into the surface water drainage system discussed in Alternative 5.

2.7.7 Alternative 7: Extraction Onsite, Air Stripping, and Reinjection to Onsite Wells

Capital Costs: $500,000
O&M: $150,000
PW: $3,500,000

Alternative 7 would extract groundwater from six wells on government property. The extracted water would be treated by air stripping (similar to the treatment method in Alternative 2), and treated for heavy metals, if needed. The treated water would be reinjected into the Fluvial Aquifer upgradient from the extraction wells at Dunn Field. Reinjection would be completed using four injection wells located on the eastern side of Dunn Field. Pumps and piping would have to be installed to transmit the water from the treatment site to the eastern side of Dunn Field.

2.7.8 Alternative 8: Extraction On/Offsite, and Discharge to POTW (Preferred Alternative)

Capital Costs: $500,000
O&M: $250,000
PW: $5,600,000

Alternative 8 is the preferred alternative and is a hybrid of Alternative 3. However, unlike Alternative 3, Alternative 8 places most of the groundwater recovery wells offsite along the leading edge of the plume. This placement will be more effective in protecting the Memphis Sand Aquifer from contaminants in the Fluvial Aquifer at OU-1. Additionally, this alternative does not assume that pretreatment before discharge will be required making it a less expensive alternative. However, this alternative uses the treatment component of Alternative 3 as a contingency should pretreatment be required.

Alternative 8 would be used to contain the contaminated groundwater by inducing a hydraulic barrier. The hydraulic barrier will be achieved by pumping the groundwater from the containment wells placed along the leading edge of the plume. The leading edge of the plume will be located as part of the RI activities planned for OU-1. Data gathered during the OU-1 RI will be used to locate the leading edge of the plume. Leading edge identification and containment of the plume will be achieved in the following manner:

- A groundwater recovery well will be installed onsite in the middle of the plume to establish aquifer characteristics.
- Additional monitoring wells will be installed to establish the western edge of the contaminant plume. The western edge will be established when samples from these wells are uncontaminated.
- After the aquifer characteristics are established and the leading edge of the plume is identified, additional groundwater recovery wells will be installed as appropriate to contain the plume. These wells are located along the leading edge of the plume and screened in the Fluvial Aquifer down to the confining clay layer of the Memphis Sand Aquifer.

The groundwater and the associated contamination will be captured by the recovery wells (see Figure 4). Calculations and modeling are performed to ensure that the zone of recovery from each well overlaps. The spacing and pumping rate of the wells will be such that the contamination should not move beyond the line of wells. Once the recovery wells are operating, the system will be checked frequently (by comparing field data with predicted model results) and any necessary adjustments made (including the installation of additional recovery wells, if needed) to verify that the plume is contained.

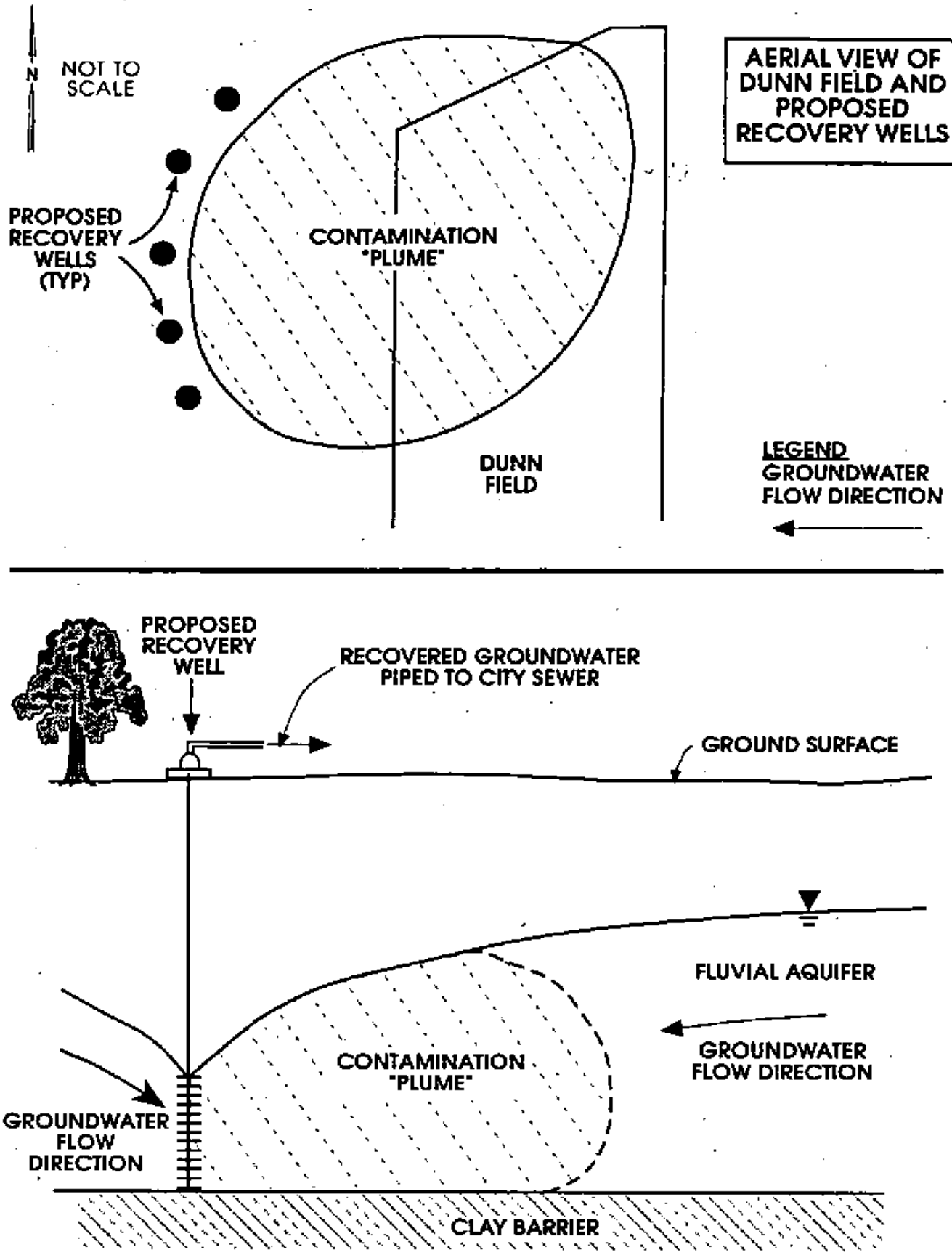


FIGURE 4
PROPOSED GROUNDWATER RECOVERY SYSTEM (OU-1)
Defense Depot Memphis, Tennessee

CH2M HILL

DDMT will obtain a discharge permit to allow the groundwater pumped from the wells to be discharged into the municipal sewer system or POTW. The discharge permit will set maximum levels for groundwater constituent concentrations. If the extracted groundwater exceeds these limits, the treatment contained in Alternative 3 will be used. The cost of Alternative 8, without the use of a contingency treatment remedy, assumes that the groundwater will meet the City's permit limits and that no treatment will be needed.

2.8 Summary of the Comparative Analysis of Alternatives

This section of the interim ROD provides the basis for evaluating which alternative (a) meets the threshold criteria of overall protection of human health and the environment, EPA and TDEC approval, and compliance with applicable or relevant and appropriate requirements (ARARs); (b) provides the best balance with respect to effectiveness, reduction of toxicity, mobility, or volume through treatment, implementability, and cost; and (c) satisfies community acceptance.

Federal law requires that nine criteria be used for evaluating the anticipated performance of remedial actions. The nine criteria are described below, followed by an analysis of the degree to which each alternative satisfies the criteria:

1. Overall Protection of Human Health and Environment—Assesses degree to which alternative eliminates, reduces, or controls health and environmental threats through treatment, engineering methods, or institutional controls.

2. Compliance with ARARs—Assesses compliance with federal and state requirements.

3. Long-Term Effectiveness—Degree to which a remedy can maintain protection of health and the environment once cleanup goals have been met.

4. Reduction of Toxicity, Mobility, or Volume Through Treatment—Refers to expected performance of the treatment technologies to lessen harmful nature, movement, or amount of contaminants.

5. Short-Term Effectiveness—Length of time for remedy to achieve protection and potential effects of construction and implementation of a remedy.

6. Implementability—Refers to the technical feasibility and administrative ease of a remedy.

7. Cost—Weighing the benefits of a remedy against the cost of implementation.

8. State Acceptance—Consideration of the state's opinion of the preferred alternative.

9. Community Acceptance—Consideration of public comments about the preferred alternative and about the proposed plan.

These nine criteria can be categorized into three groups. The first and second categories are threshold criteria. The chosen alternative must meet the threshold criteria to be eligible for selection. The third, fourth, fifth, sixth, and seventh criteria are considered the primary balancing criteria. The final two criteria are termed the modifying criteria and are evaluated after issuance of the Proposed Plan for public review and comment.

2.8.1 Analysis

2.8.1.1 Threshold Criteria

Overall Protection of Human Health and Environment. The preferred interim action would contain the contamination plume and prevent it from migrating while removing a portion of the contaminated groundwater. Because the plume is believed to have migrated offsite, the preferred alternative must have extraction wells located offsite. The wells in Alternatives 2, 4, 5, 6, and 7 are located onsite and would not sufficiently contain the plume. This lack of containment would lead to further environmental effects and would be a continual threat to human health. Alternative 1 offers no protective measures for human health and the environment.

Alternatives 3 and 8 offer adequate degrees of protection by reducing and controlling the risks through removal and containment. Alternatives 1, 2, 4, 5, 6, and 7 are not options for this site because they do not adequately reduce the risks associated with the contaminated groundwater.

Compliance with ARARs. Under the preferred alternative, groundwater will be discharged to the POTW. Compliance issues are further discussed in Section 2.10.

2.8.1.2 Primary Balancing Criteria

Long-Term Effectiveness and Performance. Alternatives 3 and 8 should be effective in reducing long-term contaminated groundwater levels and associated health risks. Because of residual contamination, the size of the aquifer, and inherent complexities, it may not be possible to completely remediate the aquifer to its original condition using technology currently available. Additional actions will be necessary to provide long-term definitive protection for OU-1.

Reduction of Toxicity, Mobility, or Volume of the Contaminants through Treatment. The toxicity and volume of the contaminated groundwater would be reduced by the groundwater extraction in Alternatives 3 and 8. Mobility of the contamination plume would be restricted by the physical forces of the groundwater extraction. This hydraulic barrier should prevent lateral and vertical movement of the contaminated groundwater, thus reducing the threat to the Memphis Sand Aquifer.

Short-Term Effectiveness. Groundwater removal should contain the groundwater contamination plume fairly rapidly and help to reduce further lateral contamination migration. Implementing the preferred alternative would result in a reduction of the potential effects to nearby residents from contaminants at Dunn Field.

Implementability. The groundwater recovery systems will be relatively simple to implement. The technology and processes have been reliably demonstrated. Equipment and materials are readily available. However, as previously stated, the Fluvial Aquifer and the contaminated groundwater plume will have to be further characterized.

Cost. The cost analysis in Alternative 3 includes the cost of well installation and O&M cost of the air stripper. The capital costs are estimated at $600,000, O&M costs at $230,000 and present worth cost at $5,200,000.

The cost of Alternative 8 is based on the installation of eight recovery wells. This cost estimate assumes a quarterly sampling plan to ensure that the system is operating efficiently and that no prior treatment before discharge will be required. However, because of the uncertainties associated with groundwater recovery, additional wells may be required that would affect the estimated cost. Additionally, the cost of Alternative 8 does not include pretreatment costs. For Alternative 8, the capital costs are estimated at $500,000, O&M costs at $250,000 and present worth cost at $5,600,000.

2.8.1.3 Modifying Criteria

State Acceptance. DDMT has been actively working with TDEC throughout the cleanup process. TDEC supports this approach. However, information obtained during the RI may suggest other alternatives that would involve the concurrence of the state.

Community Acceptance. Community response to the alternatives is presented in the responsiveness summary, which addresses comments received during the public meeting and the public comment period.

2.9 Summary of Selected Remedy

Through consideration of the requirements of CERCLA, the NCP, the detailed analysis of alternatives and public and state comments, DDMT has selected an interim remedial action for OU-1. Of the eight alternatives reviewed, only two were considered viable

options. Because "no action" does not address or rectify the problem and Alternatives 2, 4, 5, 6, and 7 do not contain the contamination plume, they are not considered appropriate. The preferred alternative is Alternative 8, which is a hybrid of Alternative 3. However, Alternative 8 puts more emphasis on plume containment and does not assume that pretreatment before discharge will be required making it a less expensive alternative. The placement of groundwater recovery wells in Alternative 8 will be more effective in protecting the Memphis Sand Aquifer from contaminants in the shallow aquifer at OU-1.

If chemical analysis indicate that treatment is required before discharge, the treatment option contained in Alternative 3 (the contingency remedy) will be used. The preferred alternative for the IRA of the contaminated groundwater below Dunn Field is Alternative 8—on/offsite extraction and POTW disposal. The criteria used to determine whether the contingency remedy is implemented are the discharge limitations established in the City of Memphis' discharge permit.

On the basis of current information, this alternative appears to offer the most reasonable approach for the protection of the drinking water supply and containment of the plume. Currently, groundwater recovery is the only appropriate alternative to contain the plume. This alternative represents an interim action and is intended only to stabilize the site and to prevent further degradation. However, with the additional information that will be collected during the RI, other alternatives may become available. No conditions are currently foreseen where the interim action will be inconsistent with, or preclude implementation of, the final remedy.

The approach used to design and implement the preferred alternative will consist of the following:

- Establishing the conditions that are believed to exist on the basis of available information. Design will be based on expected conditions.
- Establishing, in advance, conditions that are reasonable deviations from the probable conditions.
- Implementing the base design and monitor conditions.
- Implementing contingent designs as warranted by monitoring.

This approach is referred to as the observational method. The approach recognizes and manages uncertainties inherent in groundwater remediation. Table 3 illustrates the planned approach for managing uncertainties associated with the implementation of this remedial action.

The observational method will be used during design and implementation and is not part of the selection process for the IRA alternative. If changes to the selected remedy are required, based on information obtained through the observational approach, then the public will be made aware of these changes either through a fact sheet, explanation of significant differences, or ROD Amendment.

Table 3
Observational Method for Dunn Field Groundwater Remediation

Probable Condition*	Reasonable Deviation*	Parameters to Observe	Contingency Plan
8 recovery wells needed	12 recovery wells needed	Capture zone extent. Observe water levels in monitoring wells.	Install additional wells.
Pump at 75 gpm	Pump at 125 gpm	Capture zone extent. Observe water levels in monitoring wells.	Pump at increased rate; provide adequate sewer capacity.
Groundwater meets City discharge limits	Limits not met	Permit parameters	Provide groundwater treatment.
Plume extends 600 ft west of Dunn Field	Plume extends 1,200 ft west of Dunn Field	Data from RI monitoring wells	Locate recovery wells at western extent of plume.

*Will be updated as additional information becomes available.
gpm—Gallons per minute

2.10 Statutory Determinations

DDMT, EPA, and TDEC concur that the extraction system (with the potential for pretreatment, if necessary) will satisfy the CERCLA § 121 (b) statutory requirements of: providing protection of human health and the environment, attaining applicable or relevant and appropriate requirements directly associated with this action, being cost-effective, using permanent solutions and alternative treatment technologies to the maximum extent practicable, and including a preference for treatment as a principal element.

2.10.1 Protection of Human Health and the Environment

Although the groundwater within the contaminated plume is not currently used as a source of drinking water for the local residents, under future or other potential exposure scenarios it presents a potential threat to human health and the environment. The interim

action remedy initiates protection of human health under the exposure scenarios through mitigation of the spread of the plume and removing a portion of the contaminated groundwater until a final action is determined. The remedy also provides protection to the environment by providing the option of treatment of the extracted groundwater before discharge, and effective management of all residual wastes generated during implementation of the action.

The final cleanup levels for the groundwater are not addressed in this interim action record of decision (ROD) because such goals are beyond the limited scope of this action. The final cleanup levels will be addressed by the final remedial action ROD for the site.

2.10.2 Compliance with ARARs

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 was passed by Congress and signed into law on December 11, 1980 (Public Law 96-510). The act was intended to provide for "liability, compensation, cleanup, and emergency response for hazardous substances released into the environment and the cleanup of inactive waste disposal sites." The Superfund Amendments and Reauthorization Act (SARA), adopted on October 17, 1986 (Public Law 99-499), did not substantially alter the original structure of CERCLA, but provided extensive amendments to it. In particular, § 121 of CERCLA specifies that remedial actions for cleanup of hazardous substances must comply with requirements or standards under federal or more stringent state environmental laws that are applicable or relevant and appropriate to the hazardous substances or particular circumstances at a site.

A listing of applicable or relevant and appropriate requirements (ARARs) (chemical-specific, location-specific, and action-specific) are provided in Tables 4, 5, and 6 of this document. Discharge to the publicly owned treatment works (POTW) will be subject to both the substantive and administrative requirements of the national pretreatment program and all applicable state and local pretreatment regulations (Tables 4, 5, and 6). Should treatment be required prior to discharge to the POTW, Alternative 3 will be implemented as a contingency to provide groundwater treatment.

Alternative 3 uses an air stripper for the removal of volatile organic compounds (VOCs) from the extracted groundwater. Air stripping is a viable treatment process for removal of VOCs from water and will be used if treatment for VOCs is required.

2.10.2.1 Chemical-specific ARARs

The principal contaminants of concern in the groundwater plume west of Dunn Field are presented in Table 1. Chemical-specific ARARs are shown in Table 4.

The City of Memphis Sewer Use Ordinance (March 1993) establishes maximum effluent standards for discharge of wastewater into the municipal sewerage system (Table 7). Daily average maximum and instantaneous maximum concentrations are provided for

Table 4
Preliminary Identification of Potential Chemical-specific ARARs for DDMT

Actions[a]	Requirement	Prerequisites	Citation	ARAR	Comments
Discharge to POTW[a]	Treatment of pollutants that could pass through the POTW without treatment, interfere with POTW operation, or contaminate POTW sludge is required.		40 CFR 403.5 See Table 6	Applicable	If any liquid is discharged to a POTW, these requirements are applicable. In accordance with guidance, a discharge permit may be required even for an onsite discharge, because permitting is the only substantive control mechanism available to a POTW.
	Specific prohibitions preclude the discharge of pollutants to POTWs that: • Create a fire or explosion hazard in the POTW • Are corrosive (pH < 5.0) • Obstruct flow resulting in interference • Are discharged at a flow rate and/or concentration that will result in interference • Increase the temperature of wastewater entering the treatment plant that would result in interference, but in no case raise the POTW influent temperature above 104°F (40°C) Discharge must comply with the local POTW pretreatment program, including POTW-specific pollutants, spill prevention program requirements, and reporting and monitoring requirements.		40 CFR 403.5 and local POTW regulations		Categorical standards have not been promulgated for CERCLA sites, so discharge standards must be determined on a case-by-case basis, depending on the characteristics of the waste stream and the receiving POTW. Some municipalities may have published standards for non-categorical, non-domestic discharges. Changes in the composition of the waste stream due to pretreatment process changes or the addition of new waste streams may require renegotiation of the permit conditions. Local (City of Memphis) requirements for discharge to a POTW are summarized in Table 6 for the constituents of concern shown in Table 1. DDMT is applying for a City discharge permit.
	RCRA permit-by-rule requirements must be complied with for discharges of RCRA hazardous wastes to POTWs by truck, rail, or dedicated pipe.		40 CFR 270.60 Permits-by-rule		

Notes:

[a]These regulations apply regardless of whether the remedial action discharges into the sewer or trucks the waste to an inlet to the sewage conveyance system located "upstream" of the POTW.

Table 5
Preliminary Identification of Potential Location-specific ARARs at DDMT

	Location	Requirement	Prerequisite(s)	Citation	ARAR	Comments
1.	Within 61 meters (200 feet) of a fault displaced in Holocene time	New treatment, storage, or disposal of hazardous waste prohibited.	RCRA hazardous waste; treatment, storage, or disposal	40 CFR 264.18(a)	Not ARAR	Shelby County is not listed in 40 CFR 264, Appendix VI, as being seismically active.
2.	Area affecting stream or river	Action to protect fish or wildlife.	Diversion, channeling, or other activity that modifies a stream or river and affects fish or wildlife	Fish and Wildlife Coordination Act (16 USC 661 et seq.); 40 CFR 6.302	Not ARAR	The Fish and Wildlife Coordination Act requires consultation with the Department of Fish and Wildlife before taking any action that would alter a body of water of the United States.
3.	Memphis/Shelby County	Ozone, carbon monoxide, and lead air pollutants for Memphis/Shelby County have been designated a non-attainment area.		State of TN Air Code		Memphis-Shelby County Health Department has adopted Tennessee Air Code.
4.	Within 100-year floodplain.	Facility must be designed, constructed, operated, and maintained to avoid washout.	RCRA hazardous waste; PCB treatment, storage, or disposal	40 CFR 264.18(b); 40 CFR 761.75	Not ARAR	Surface elevations at DDMT (276 to 316 feet NGVD) exceed the average Mississippi River alluvial valley flood levels of 185 to 230 feet NGVD. The Flood Insurance Rate maps, published by Federal Emergency Management Agency and revised August 19, 1985, indicate that DDMT is not within the 100- or 500-year floodplain, but is in Zone C – "Areas of Minimal Flooding."
5.	Wetlands	Action to minimize the destruction, loss, or degradation of wetlands Action to prohibit discharge of dredged or fill material into wetland without permit	Wetlands as defined by Executive Order 11990 Section 7	Executive Order 11990, Protection of Wetlands (40 CFR 6, Appendix A) Clean Water Act Section 404; 40 CFR Parts 230, 231	Not ARAR Not ARAR	

Table 6
Preliminary Identification of Potential Action-specific ARARs for DDMT

Actions*	Requirement	Prerequisites	Citation	ARAR	Comments
Air Stripping	Design system to provide odor-free operation.		CAA Section 101*	Applicable	Odor regulations are intended to limit nuisance conditions from air pollution emissions.
	Obtain Memphis/Shelby County Health Department construction/operating permit.	Emission requirements for groundwater treatment systems are handled individually.	TCA 1200-3-9(1)(a)	Applicable	Each construction-operating permit is based on "Best Available Control Technology."
	Estimate total VOC emissions.		1990 CAAA Section 302(g) TCA 1200-3-9(11)(b)14.(ii)	Applicable	Any source emitting more than 100 tpy VOCs is classified as major and requires agency review and a potential permit.
	File an Air Pollution Emission Notice (APEN) with the State to include estimation of emission rates for each pollutant expected.	Groundwater contains regulated air pollutants.	40 CFR 52*	Applicable	State will have particular interest in emissions for compounds on its hazardous, toxic, or odorous list. Preliminary meeting with State prior to filing APEN is recommended in the regulation. Meeting would identify additional issues of concern to the State.
	Include with filed APEN the following: • Modeled impact analysis of source emissions • Provide a Best Available Control Technology (BACT) review for the source operation	This additional work and information is normally applicable to sources meeting the "major" source criteria and/or to sources proposed for nonattainment areas.	40 CFR 52*	Relevant and Appropriate	State may identify further requirements for permit issuance after first review. These provisions follow the federal Prevention of Significant Deterioration (PSD) framework with some modifications. Additional requirements could include ambient monitoring and emission control equipment design revisions to match Lowest Achievable Emission Requirements (LAER). While a permit is not required for an onsite CERCLA action, the substantive requirements identified during the permitting process are applicable.
	Predict total emissions of volatile organic compounds (VOCs) to demonstrate that emissions do not exceed 450 lb/hr, 3,000 lb/day, 10 gal./day, or allowable emission levels from similar sources using Reasonably Available Control Technology (RACT).	Source operation must be in an ozone nonattainment area.	40 CFR 52*	Applicable	The control technology review for this regulation (RACT) could coincide with the BACT review suggested under the PSD program.
	Verify that emissions of VOCs do not exceed levels expected from sources in compliance with hazardous air pollution regulations.		40 CFR 61*	Relevant and Appropriate	Any source emitting the regulated compound(s) is subject to these regulations. However, some of the specific regulations further restrict the scope of applicability.

Table 6
Preliminary Identification of Potential Action-specific ARARs for DDMT

Actions*	Requirement	Prerequisites	Citation	ARAR	Comments
Air Stripping	Estimate HAP emissions.	Groundwater contains HAPs.	Title III, 1990 CAAA Section 112 TCA 1200-3-9(11)(b)14.(i)	Applicable	If hazardous air pollutants (HAPs) are greater than a major rate, air permit and/or application of Maximum Available Control Technology (MACT) may be required. HAPs exceed 25 tpy aggregate HAPs or 10 tpy for a single HAP.
Groundwater Cleanup	Maximum contaminant level goals (MCLGs), established under SDWA, that are set at concentrations above zero shall be attained if relevant and appropriate to the circumstances of the release. Where MCLGs for a contaminant have been set at a concentration of zero, the MCLs for that contaminant shall be attained. Groundwater standards established under RCRA shall be attained if relevant and appropriate to circumstances of the release.	Groundwater is a current or potential source of drinking water. No MCLG or maximum contaminant level (MCL) has been established for contaminant of concern. Cleanup value for lead in groundwater used for drinking is not an MCL, but is established as an action level.	40 CFR 300.430 of NCP 40 CFR 264.94 USEPA memo dated June 21, 1990, from Henry Longest to Patrick Tobin	Relevant and Appropriate	Tennessee adopted guidelines equivalent to federal guidelines. The interim remedial action will not address groundwater cleanup ARARs. The final remedial action will. Memo recommended a final action level for lead of 15 ppb.
Groundwater Withdrawal	Water withdrawal registration is required for wells or systems that pump more than 50,000 gallons per day.		Water Withdrawal Registration Act of 1963 – Chapter 8 – Water Resources Div., Section 69-8-105	Relevant and Appropriate	Total flow from all recovery wells may be up to 1 mgd.

Notes:

*Action alternatives from ROD keyword index.
*All of the Clean Air Act ARARs that have been established by the federal government are covered by matching state regulations. The state has the authority to manage these programs through the approval of its implementation plans (40 CFR 52, Subpart G). As of January 1996, the Tennessee SIP is complete, with EPA action pending.

Table 7
Maximum Effluent Standards for Discharge of Waste into the Municipal Sewerage System

Constituent	Daily Average[1] Maximum Concentration mg/L	Instantaneous Maximum Concentration mg/L
Metals		
Arsenic	1.0	2.0
Barium		
Chromium (hexavalent)	1.0	2.0
Chromium (total)	5.0	10.0
Lead[2]		
Nickel	5.0	10.0
Volatile Organic Compounds		
1,1-Dichloroethene[3]		
1,2-Dichloroethene (total)[3]		
Tetrachloroethene[4]		
Trichloroethene[3]		
Carbon tetrachloride[3]		

Source: City of Memphis, Sewer Use Ordinance, March 1993

Notes:
[1]Based on 24-hour flow-proportionate composite sample
[2]Cadmium, mercury, and lead discharges are severely restricted due to limitations placed on the disposal of sewage sludge containing cadmium, mercury, and/or lead. Actual allowable discharge concentrations for these constituents will be determined on a case-by-case basis.
[3]No person shall discharge wastewater containing any of the materials listed herein into the municipal sewer system or shall have any connection to the municipal sewer system without obtaining written permission from the Approving Authority.
[4]This parameter is not included in City of Memphis Sewer Use Ordinance.

arsenic, chromium, lead, and nickel. With the exception of tetrachloroethene, the remaining VOCs in Table 1 and barium cannot be discharged without written permission from the approving authority. Tetrachloroethene is not included in the City of Memphis' ordinance. The final permit for city discharge will be negotiated as part of this action.

2.10.2.2 Location-specific ARARs

Location-specific requirements "set restrictions upon the concentration of hazardous substances or the conduct of activities solely because they are in special locations" (53 Fed. Reg. 51394). Table 5 lists location-specific ARARs that might be pertinent to this remedial action.

2.10.2.3 Action-specific ARARs

Performance, design, or other action-specific requirements set controls or restrictions on particular kinds of activities related to the management of hazardous waste (52 Fed. Reg. 32496). Selection of a particular remedial action at a site will invoke the appropriate action-specific ARARs that may specify particular performance standards or technologies, as well as specific environmental levels for discharged or residual chemicals. Federal and state regulations appear in Table 6 and are summarized below.

Well Construction. State of Tennessee requirements for water production well construction are promulgated under Tennessee Code Annotated (TCA) Section 70-2307 Chapter 400-2-2: however, these requirements do not apply under the exemptions stated in TCA Section 68-46, Chapter 1200-4-9.01(b) whereby wells otherwise regulated by the State, in this case through CERCLA, are not considered water production wells. However, the Memphis and Shelby County Health Department Pollution Control Section has promulgated requirements and regulations in the *Rules and Regulations of Wells in Shelby County*. Specific requirements include use of a driller licensed in Tennessee and specific well siting and construction requirements.

Pumping. Under the Water Withdrawal Registration Act of 1963, Chapter 8—Water Resources Division, Section 69-8-105 requires that any person withdrawing 50,000 or more gallons per day (gpd) of water from any source register with the division of water resources. A permit is not required. On the basis of an anticipated pumping rate that may reach 1 million gpd for the recovery well system, it is anticipated that registration will be required.

The action-specific ARARs for direct discharge of treatment system effluent are shown in Table 6. DDMT is applying for a City discharge permit. Discharge limits will be specified in the permit.

2.10.3 Cost-Effectiveness

The interim action remedy uses a commercially tested technology that affords a high level of effectiveness proportional to its costs so that the remedy represents reasonable value. This action will use a relatively inexpensive technology to mitigate the spread of the

contaminated groundwater. This limited scale containment operation should reduce the cost of the overall remediation of the groundwater by retarding the migration of the contaminant plume.

2.10.4 Use of Permanent Solutions and Alternative Treatment Technologies

The interim action is designed to minimize the possibility of contamination of the area's drinking water supply. This is not the final action planned for the groundwater contamination. Follow-on activities include monitoring the groundwater plume and its response to the IRA. Once the plume has been fully characterized, subsequent action may be taken to provide long-term definitive protection, including remediation of source areas. To the extent possible, the interim action will not be inconsistent with, nor preclude implementation of, the expected final remedy.

2.10.5 Preference for Treatment as a Principal Element

This interim action satisfies the statutory preference for treatment of the discharged effluent (through, at a minimum, treatment at the POTW) as a principal element of the containment system. If necessary, onsite treatment will be performed if needed to meet permit criteria.

2.11 References

CH2M HILL, December 1994. *Proposed Groundwater Action Plan*. Defense Depot Memphis, Tennessee.

Engineering-Science, Inc., August 1993. *Engineering Report—Removal Action for Groundwater*. Prepared for U.S. Corps of Engineers, Huntsville Division.

Engineering-Science, Inc., July 1994. *Focused Feasibility Study: Dunn Field*. Prepared for U.S. Corps of Engineers, Huntsville Division.

Environmental Science and Engineering, Inc., July 1994. Groundwater Monitoring Results Report for DDMT. Prepared for U.S. Army Corps of Engineering Huntsville Division.

Law Environmental, August 1990. *Remedial Investigation at DDMT, Final Report*.

Parks, William S., 1990. Hydrogeology and Preliminary Assessment of the Potential for Contamination of the Memphis Aquifer in the Memphis Area, Tennessee. Water Resources Investigations Report 90-4092. Prepared in cooperation with the City of Memphis, Memphis Light, Gas and Water Division.

Part 3
Responsiveness Summary

All the alternatives have been discussed with the community surrounding DDMT via the Restoration Advisory Board (RAB) and Town Hall Meetings. The community wants DDMT to initiate interim actions to stop the flow of contaminated groundwater until a more permanent solution can be determined. The community also wants any interim actions to be as cost-effective as possible. The RAB agreed with DDMT that Alternative 8 best fulfills the community's desires by stopping the flow of contamination in an economical fashion.

The following responses are to comments received at the Proposed Interim Remedial Action public hearing held December 20, 1994. DDMT received no other comments regarding the Interim Remedial Action during the public comment period.

1. **Comments Received from Roosevelt Sanders Jr., 2592 Fontaine Road, Memphis, TN 38106**

It is my suggestion that proposed remedial action should include a larger area of testing. The land south of DDMT, at one time, was used as a dump. A record check should be done to determine whether DDMT has ever used that area for dumping purposes. My father told me, in 1964 (when I moved in that area), that the homes were built on top of a dump.

It seems to me that the IRA is using the Band-aid approach to what could possibly be a serious problem.

DDMT RESPONSE: The Installation Services records were checked and no records of any dumping in this landfill were found. Long-time employees of DDMT, who are familiar with the disposal activities throughout its operational history, were interviewed concerning their knowledge of any DDMT use of the land to the south of its boundaries for dumping purposes. None of the employees had any knowledge of DDMT disposing of any materials south of DDMT. Specifically, Mr. Ulysses Truitt, who worked at DDMT for more than 30 years, indicated with certainty that no materials were disposed of in the area south of DDMT. Historically, DDMT disposed of materials either onsite or in permitted landfills operated by the City of Memphis.

As part of the remedial investigation, monitoring wells are proposed to be installed south of DDMT to determine if any offsite sources are contributing to the contamination under DDMT. These monitoring wells may also intercept any contaminants that might be migrating from the dump reported to be south of DDMT.

The Interim Remedial Action (IRA) was not designed to address dumping that was reported south of DDMT in the 1960s. Rather, the IRA was intended as an interim action to address contamination that appears to be migrating west of Dunn Field. This action will be consistent with the final remedy, and is intended to meet the objective of protecting the Memphis Sand Aquifer. The focus of the IRA is on Dunn Field and contamination migrating to the west of the Field, not on a landfill reported to be south of DDMT. By implementing a groundwater IRA, contaminants will be incrementally removed from the Fluvial Aquifer and will be

contained to mitigate migration toward the Allen Well Field. The IRA will be implemented expeditiously and will continue to operate until a final remedy is in place.

Concerns about any material that may have been disposed of at the landfill south of Alcy Road are valid, but are misdirected at DDMT because it was not a contributor. However, Mr. Sanders may direct his concerns to the Tennessee Department of Environment and Conservation (TDEC). That agency is concerned with contamination resulting from past landfill practices. It is recommended that staff in TDEC's Memphis and Nashville offices be contacted, starting with the Divisions of Superfund and Solid Waste.

2. **Comment Received from Dorothy Brooks, 1802 Wendy Drive, Memphis TN 38114**

I live in the Nob Hill Subdivision, south of Alcy Road. I understand that our subdivision was built on landfill. Therefore, anything and all kinds of materials were probably dumped there.

Because of the large number of health problems that have occurred and are occurring, the residents should be informed of the type of dangers that could possibly be present.

I am again requesting that the soil/water in the above stated community be tested.

DDMT RESPONSE: Ms. Brooks' concerns are valid, but are misdirected toward DDMT, since it does not have the authority or jurisdiction to make an initial investigation of a landfill that is not on DoD property. Because, to the best of its knowledge, DDMT has not disposed of any material in the landfill to the south of its boundaries, it is not currently involved in investigating any alleged contamination resulting from past disposal practices at this site. However, it is recommended that Ms. Brooks convey her concerns to other responsible agencies. TDEC may have a permit file on the old landfill. That file may either be in the field office in Memphis or in the central office in Nashville. The permit file should contain an indication of the types of materials that the landfill was permitted to receive, and may contain some inspection reports.

Other agencies that may provide assistance include the Environmental Protection Agency (EPA), Region IV, in Atlanta, Georgia; the City of Memphis; the Memphis and Shelby County Health Department; Memphis Light Gas and Water (MLGW); and the Memphis State University Groundwater Institute. Each of those agencies has specific areas of authority, jurisdiction, and resources.

TAB

Appendix D

APPENDIX D

NO FURTHER RESPONSE ACTION PLANNED SUMMARIES

Not applicable at this time.

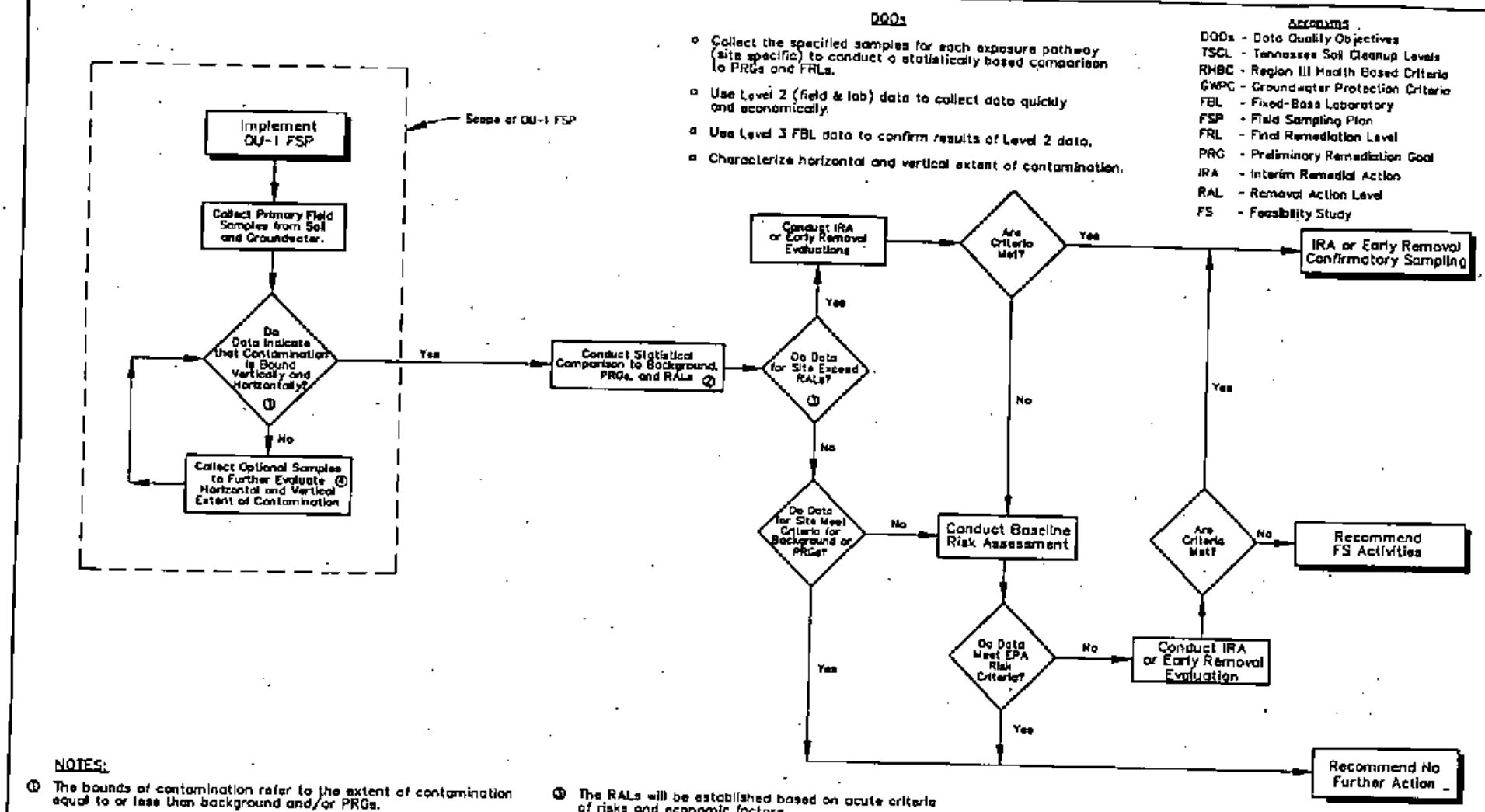
TAB

Appendix E

APPENDIX E

CONCEPTUAL MODEL FOR INSTALLATION RESTORATION PROGRAM CLEANUP AND OTHER RELEVANT DOCUMENTS

Conceptual Model



NOTES:

① The bounds of contamination refer to the extent of contamination equal to or less than background and/or PRGs.

② Background data set will be established by using criteria identified in the RI/FS WP. Comparison criteria are developed using TSCL, RHBC and GWPC, and other applicable regulatory criteria. These criteria are used as PRGs based on a conservative approach from the standpoint of risk (exposure and assessment criteria). Section 3 of this FSP discusses the comparison criteria. Statistical comparison will be limited by the amount of data collected during the field investigation.

③ The RALs will be established based on acute criteria of risks and economic factors.

④ Optional work will not be initiated without prior approval of CEHND. Optional samples will be collected only after a field change request form is signed by CEHND.

FIGURE 3-1
OU-1 LOGIC DIAGRAM
Defense Depot Memphis, Tennessee

EXHIBIT

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Other Relevant Documents

TABLE E-1
ASBESTOS IDENTIFICATION SURVEY RESULTS
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

MDRA PARCEL	BUILDING	FACILITY USE	YEAR CONSTRUCTED	RESULTS
1	139	Bus Stop/Waiting Shelter	1959	A^1
1	144	Office Space	1942	A^3
1	S145	Main Security Office	1943	A^2
1	147	Switch Gear Station	1981	N
1	155	Bus Stop/Waiting Shelter	1960	A^1
2	176	Family Housing	1948	A^2
2	S178	Garage	1948	A^1
2	179	Family Housing	1948	A^2
2	181	Family Housing	1948	A^2
2	S183	Garage	1948	A^1
2	184	Family Housing	1948	A^2
3	193	Pool Pump House	1948	N
3	S195	Golf Clubhouse	1949	A^1
3	196	Office Space	1952	A^1
3	197	Golf Cart Shed	NI	N
3	S198	Cooler Shed	1959	A^1
14	S209	Warehouse/Office Space	1942	A^2
13	210	Warehouse/Office Space	1942	A^3
13	211	Generator/Uninterupted Power Supply	1988	N
8	229	Warehouse Space	1942	A^2
8	230	Warehouse Space	1942	A^3
7	249	Warehouse Space	1942	A^3
6	250	Warehouse Space	1942	A^3
4	251	Thrift Shop/Storage	1942	A^3
4	252	Base Fitness Center	1942	A^1
4	253	Motor Pool Shop	1952	A^2
4	T254	Storage Shed	1944	A^2
4	257	Gas Pump House	1942	A^1
4	260	Paint Shop	1952	A^2
4	263	Garage	1964	N
4	265	Shop Building	1942	A^2
4	T267	DEMOLISHED	NA	NA
4	270	Engineering	1945	A^1
4	S271	Family Housing Office	1958	A^1
5	T272	Lumber Shed	1942	N
5	274	Warehouse Space	1989	A^1
5	T275	DEMOLISHED	NA	NA
15	304	Electric Switchgear	NI	N
15	S308	Warehouse/Storage	1944	A^1
15	S309	Warehouse/Storage	1944	A^2
15	319	Inflammable Materials Storehouse	1942	A^1
8	329	Warehouse Space	1942	A^2
8	330	Warehouse Space	1942	A^2
6	349	Warehouse Space	1942	A^2
6	350	Warehouse Space	1942	A^2
17	359	Medical Warehouse	1942	A^2
3	398	Restroom	1962	A^1

TABLE E-1
ASBESTOS IDENTIFICATION SURVEY RESULTS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

MDRA PARCEL	BUILDING	FACILITY USE	YEAR CONSTRUCTED	RESULTS
15	T416	Storage	1943	A[1]
15	T417	Storage	1943	A[1]
9	429	Warehouse Space	1942	A[2]
9	430	Warehouse Space	1942	A[2]
9	449	Warehouse Space	1942	A[2]
9	450	Warehouse Space	1942	A[2]
19	S465	Forklift Wash Rack (Shop Building)	1984	N
19	S468	Warehouse/Storage	1960	N
19	S469	Maintenance Shop	1960	N
20	470	Warehouse Space	1954	A[1]
20	489	Warehouse Space	1954	A[1]
20	490	Warehouse Space	1954	A[2]
11	529	Warehouse Space	1942	A[2]
11	530	Warehouse Space	1942	A[2]
10	549	Warehouse Space	1942	A[2]
10	550	Warehouse Space	1942	A[2]
16	S559	Warehouse Space	1942	A[1]
18	560	Warehouse Space	1990	N
12	629	Warehouse Space	1942	A[2]
11	630	Warehouse Space	1942	A[2]
10	649	Warehouse Space	1953	A[2]
10	650	Warehouse Space	1942	A[2]
20	670	Warehouse Space	1953	A[1]
21	685	Shipping Office	1985	A[1]
21	689	Warehouse Space	1953	A[1]
21	690	Warehouse Space	1953	A[1]
15	S702	Warehouse (unoccupied)	1941	A[2]
33	717	Ice House/Public Restroom	1951	A[1]
33	720	Shop Space	1942	A[1]
33	S737	Pesticide Storage	1961	A[1]
33	753	Fire Pump House	1956	A[1]
33	755	San. Sewer Pump Station	1953	A[1]
33	756	Fire Pump House	NI	A[1]
24	770	Base Maintenance Shop	1952	A[1]
24	T771	Restroom/Storage Space	1945	A[1]
23	783	Underground Bunker (Shop Space)	1942	A[1]
23	787	Warehouse (Banding Facility)	1988	N
23	793	Underground Bunker (Shop Space)	1942	N
23	795	Gate B Guard Shelter	1974	N
29	801	FE Storage Shop	1956	A[1]
29	802	Waiting Shelter	1981	N
32	835	Hazardous Materials Warehouse	1988	N
33	T860	Office	1944	A[1]
33	S863	Office	1943	A[1]
32	865	Hazardous Recoup Facility	1988	N
25	S873	Open Storage	1942	A[1]
25	S875	Open Storage	1942	A[1]
26	S970	Open Storage	1942	A[1]

TABLE E-1
ASBESTOS IDENTIFICATION SURVEY RESULTS (continued)
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE

MDRA PARCEL	BUILDING	FACILITY USE	YEAR CONSTRUCTED	RESULTS
27	S972	Open Storage	1942	A[1]
35	T1084	Office	1953	A[1]
35	S1085	Abandoned Concrete Grease Rack	NI	N
35	1086	Paint Shed	1959	N
35	1087	Paint Booth	1952	A[1]
35	1088	Sand Blasting Shed	1953	N
35	S1090	Paint Storage Warehouse	1952	A[1]
35	S1091	Paint Storage Warehouse	1953	A[1]
36	1184	Storage Building	1956	N
36	1185	Firing Range	NI	N
1	1	Guard Station	1959	A[1]
1	2	Storage Space	1958	A[1]
23	7	Unoccupied	NI	N
23	8	Guard Station	1969	A[1]
29	9	Communication/ Restroom	1946	A[1]
15	15	Guard Station	1979	A[1]
14	22	Unoccupied	1942	A[3]
13	23	Unoccupied	1942	A[1]
13	24	Unoccupied	1961	N
13	25	Unoccupied	1961	N
Buildings not included on the Asbestos Identification Survey				
1	129	Waiting Shelter	1980	A(P)
4	T256	Other	1943	A(P)
4	T261	Vehicle Storage	1942	A(P)
5	T273	Shed	1942	A(P)
34	360	Warehouse	1942	A(P)
17	P459	Training Facility	1990	NA
19	T467	Open Warehouse Facility	1987	NA
25	T874	Sewage Pump Station	1949	A(P)
30	P949	Open Warehouse Facility	1987	NA
23	S995	Metal Handling	1985	NA
28	S1089	General Purpose Warehouse	1960	A(P)

Notes:

(1) ACM products in this building were non-friable and/or in fair to good condition at the time of ACM survey visual inspection. These ACM products can be managed through a comprehensive operations and maintenance program. Urgent removal of these materials would be required if renovation or demolition threaten to disturb them.

(2) In addition to ACM products as described in note 1, the AIS visual survey found ACM products in poor and/or friable condition based on physical damage and/or natural deterioration. The AIS recommended abatement or removal of the ACM products in poor and/or friable condition to be performed in a timely manner.

(3) In addition to ACM products as described in note 1, the AIS visual survey found ACM products in poor and/or friable condition based on physical damage and/or natural deterioration. The AIS considered these a potential health hazard to personnel and recommended access be restricted in areas with ACM in poor condition until a proper abatement or removal plan can be implemented.

A: ACM test results positive

A(P): ACM possible based on the year of construction

ACM: Asbestos-containing materials

G: Gatehouse

N: Negative. Building surveyed for ACM. If suspect materials were found, ACM test results were negative or less than 1%; no further action required.

NA: Not applicable

PD-EI
JJ.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, Tennessee 38501

July 23, 1996

Mr. Roger A. Burke
Chief, Environment and Resources Branch
U.S. Army Corps of Engineers
P.O. Box 2288
Mobile, Alabama 36628-0001

Dear Mr. Burke:

Thank you for your letter and enclosures of July 10, 1996, regarding the cleanup activities at the Defense Distribution Depot Memphis in Shelby County, Tennessee. The Fish and Wildlife Service (Service) has reviewed the information submitted and offers the following comments.

Information available to the Service does not indicate that wetlands exist in the vicinity of the proposed project. However, our wetland determination has been made in the absence of a field inspection and does not constitute a wetland delineation for the purposes of Section 404 of the Clean Water Act or the wetland conservation provisions of the Food Security Act. The Corps of Engineers or the Natural Resources Conservation Service should be contacted if other evidence, particularly that obtained during an on-site inspection, indicates the potential presence of wetlands.

Endangered species collection records available to the Service do not indicate that federally listed or proposed endangered or threatened species occur within the impact area of the project. We note, however, that collection records available to the Service may not be all-inclusive. Our data base is a compilation of collection records made available by various individuals and resource agencies. This information is seldom based on comprehensive surveys of all potential habitat and thus does not necessarily provide conclusive evidence that protected species are present or absent at a specific locality. However, based on the best information available at this time, we believe that the requirements of Section 7 of the Endangered Species Act of 1973, as amended, are fulfilled. Obligations under Section 7 of the Act must be reconsidered if (1) new information reveals impacts of the proposed action that may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

193 267

Thank you for the opportunity to comment on this action. If you have any questions, please contact Timothy Merritt of my staff at 615/528-6481.

Sincerely,

Lee A. Barclay, Ph.D.
Field Supervisor

193 268 File

TENNESSEE HISTORICAL COMMISSION
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
2941 LEBANON ROAD
NASHVILLE, TN 37243-0442
(615) 532-1550

January 30, 1996

Ms. Christine E. Kartman
Defense Distribution Depot, Memphis
2163 Airways Boulevard
Memphis, Tennessee 38114-5210

RE: DOD, DEFENSE DISTRIBUTION DEPOT, MEMPHIS, SHELBY COUNTY

Dear Ms. Kartman:

Pursuant to your request, this office has reviewed documentation concerning the above-referenced undertaking. This review is a requirement of Section 106 of the National Historic Preservation Act for compliance by the participating federal agency or applicant for federal assistance. Procedures for implementing Section 106 of the Act are codified at 36 CFR 800 (51 FR 31115, September 2, 1986).

Considering available information, we reiterate our previous finding that the project as currently proposed may adversely affect properties that are eligible for listing in the National Register of Historic Places. Therefore, this office has an objection to the implementation of this project. You should now begin immediate consultation with our office. **Until you have received a final comment on this project from this office and the Council, you have not completed the Section 106 review process.** Please direct questions and comments to Joe Garrison (615)532-1559. We appreciate your cooperation.

Sincerely,

Herbert L. Harper

Herbert L. Harper
Executive Director and
Deputy State Historic
Preservation Officer

HLH/jyg

193 269

ASCE-WP

MAR 9 8 1996

MEMORANDUM FOR COMMANDER, DDMT

SUBJECT: Radon Survey

The radon survey for the DDMT military housing area was completed on February 14, 1996. The Priority I (child care, hospitals, schools, and living quarters) radon assessment was conducted in accordance with AR 200-1, Chapter 11 (attachment).

On November 6, 1995, radon detectors were placed in eight military housing structures for ninety days to measure indoor radon gas levels. The objective of the assessment was to identify structures exceeding the Environmental Protection Agency (EPA) recommended action level of 4 pico Curies of radon per liter of air (pCi/l). Based on this screening, the buildings measured did not exceed the EPA action level (attachment), therefore, no additional sampling is required.

Since Priority I concentrations were not greater than 4 pCi/l, Priority 2 and 3 structures will not need to be measured, IAW AR 200-1.

Two radon detectors were placed in each structure on November 6, 1995 with the anticipation of performing the Long Term Measurement (LTM) (one year), if the radon levels exceeded 4 pCi/l. Since the results of the 90 day monitoring are below the EPA established standards, the remaining detectors are not needed. ASCE-WP requests somebody from your installation retrieve and dispose of the additional detectors in your municipal waste stream.

If you have any questions or need further assistance contact Barbara Johns, ASCE-WP, DSN 977-4621.

SIGNED

LARRY V. NEIDLINGER, P.E.
Director
Office of Engineering and
Equipment Management

Attachments

Barbara Johns/ASCE-WP/4-4621/March 7, 1996/bj/WordPerfect

COORDINATION: ASCE-WP DATE Mar 8, 1996

"Official Reading File"

193 270

TCS INDUSTRIES
(717) 657-7032
RADON GAS DETECTION
4526 Granite Run Road, Harrisburg, PA 17112

DEFENSP DISTRIBUTION REGION EAST
ATTN: ASCE-HP(BARBARA JOHNS)
BUILDING 1-1 SECOND FLOOR
NEW CUMBERLAND PA 17070

Monitor Number	pCi/l	Test Location	Exposure Start	Exposure End Date	Reprint from
095661	5.0		11/06/95	02/14/96	
095662	5.4		11/06/95	02/14/96	
095666	5.2		11/06/95	02/14/96	
095701	1.7		11/06/95	02/14/96	
095703	2.3		11/06/95	02/14/96	
095705	0.6		11/06/95	02/14/96	
095707	1.3		11/06/95	02/14/96	
095709	0.9		11/06/95	02/14/96	
095711	0.7		11/06/95	02/14/96	
095713	0.3		11/06/95	02/14/96	
095715	1.1		11/07/95	02/14/96	
095717	< 0.1		11/06/95	02/14/96	
095720	0.2		11/09/95	02/14/96	

Monitor Type: Alpha-track

NOTICE TO CLIENTS

The Radon Certification Act requires that persons who provide radon-related services to the general public must be certified by the Pennsylvania Department of Environmental Protection. You are entitled to a copy of certification from any person who provides such services or products. You are also entitled to a copy of the test results or postmitigation report. All tests conducted shall be sent to the Department as required by the Act and all test results shall, if test results are elevated, contain a statement encouraging persons who provide radon-related services, please contact the Department of Environmental Protection, P.O. Box 8469, Harrisburg, PA 17105-8469, (717)783-3594.

[signature]

DDMT RADON SURVEY

(90 DAYS) Nov 1995 - Feb 1996

DETECTOR ID NO.	LOCATION	RESULTS (Limits 4 pCi/l)
095701	Quarters 12	1.7 pCi/l
095702	Quarters 12 (HOLD in place)	
095703	Quarters 13	2.3 pCi/l
095704	Quarters 13 (HOLD in place)	
095705	Quarters 10	0.6 pCi/l
095706	Quarters 10 (HOLD in place)	
095707	Quarters 11	1.3 pCi/l
095708	Quarters 11 (HOLD in place)	
095709	Quarters 6	0.9 pCi/l
095710	Quarters 6 (HOLD in place)	
095711	Quarters 7	0.7 pCi/l
095712	Quarters 7 (HOLD in place)	
095713	Quarters 8	0.3 pCi/l
095714	Quarters 8 (HOLD in place)	
095715	Quarters 9	1.1 pCi/l
095716	Quarters 9 (HOLD in place)	

m. Promptly initiate a special O&M program for those structures where asbestos has been identified.

n. Dispose of asbestos waste material only in approved disposal facilities per Federal, State, local, and host-nation requirements. (An *approved* disposal facility in most cases will be a facility meeting asbestos disposal standards and having written notification by the State that asbestos can be disposed of at the facility.) Off-post disposal is preferred.

o. Dispose of asbestos-containing excess real property per AR 405–90.

p. Use contracting for asbestos abatement in preference to in-house abatement, unless in-house performance is adequately justified and funded and personnel are adequately trained.

q. Conduct worker education/training programs for individuals identified to work with asbestos.

r. Assess the relative health risks associated with alternative control actions. Asbestos should not be removed for the sole purpose of eliminating asbestos.

10–3. Installation asbestos management plan

As a minimum, an installation asbestos management plan will include—

a. A complete review of O&M schedules, design plans, and specifications to identify structures that are scheduled for repair, alteration, or demolition.

b. An installation-wide survey of all structures to determine the location, extent, and condition of all asbestos.

(1) First priority for installation surveys will be to identify the existence of asbestos in aging or deteriorated condition that presents a significant exposure potential in structures occupied or likely to be occupied; in structures to be repaired, altered, or demolished; in DA-controlled schools and child development centers; in hospitals; and in residential housing. These determinations of exposure potential do not have to be supported by independent air sampling for asbestos.

(2) All installation-wide surveys will be completed within 1 year from the effective date of this regulation.

(3) All asbestos survey work will be conducted by accredited personnel meeting the *inspector* training requirements of AHERA and other applicable Federal, State, local, and host-nation requirements. These personnel will be supervised by a similarly qualified industrial hygienist, or other qualified health and safety or environmental professional, who meets the OSHA definition of *competent person*, as specified in 29 CFR 1926.58(b).

(4) Annual follow-up inspections will be performed by accredited personnel to identify and report damage and deterioration of asbestos.

c. Documentation of the presence, extent, and condition of asbestos, using the survey and assessment criteria described in TM 5-812.

d. Assessment, for each occurrence of asbestos, of the potential for environmental release and of the associated risk to human health and the environment.

(1) All assessments will be conducted by accredited personnel meeting the *management planner* training requirements of AHERA and other applicable Federal, State, local, and host-nation requirements.

(2) In OCONUS locations where AHERA-accredited personnel are not available, a waiver from AHERA accreditation may be granted by commanders of MACOMs to personnel demonstrating equivalent qualifications.

e. Preparation, coordination, and immediate implementation of an abatement plan that minimizes the potential for asbestos exposure for each assessed area where potential for asbestos exposure exists. Abatement plans will include provisions for appropriate training of workers and a discussion of the considered abatement alternatives and the reason the preferred alternative was selected. All abatement plans will be prepared by accredited personnel meeting the AHERA *management planner* and other training requirements specified in *d*(1) and (2) above.

f. Preparation, coordination, and execution, for each occurrence of asbestos, of a special O&M plan designed to monitor the condition of asbestos and minimize environmental release and human exposure. O&M plans will include provisions for appropriate training of workers. All special O&M plans will be prepared by personnel meeting the AHERA *management planner* and other training requirements specified in *d*(1) and (2) above.

g. Provision for worker education/training programs for individuals identified to work with asbestos. Individuals will be trained and certified per Federal, State, local, and host-nation requirements, where applicable.

h. An environmental impact analysis of the installation asbestos management plan, as required by AR 200–2.

10–4. Procedures

a. Asbestos is regulated as a hazardous air pollutant under the CAA (40 CFR 61, subpart M). In addition, OSHA, State, local, and host-nation requirements that are applicable to asbestos will be considered when establishing asbestos management plans.

b. Operation of solid and hazardous waste management systems will be conducted per chapter 6.

c. To avoid duplication to the extent practical, asbestos management plans may be incorporated into existing environmental management documents such as the installation hazardous waste management plan discussed in chapter 6. Modification of an existing program is authorized only when doing so will not jeopardize the accomplishment of that program's objectives or the objectives of the Army's asbestos management program.

d. Installation asbestos management plans and asbestos-related actions that entail a potential for generating fugitive asbestos emissions will be environmentally assessed, as required by AR 200–2. Even if there is a FNSI, such a finding must be published throughout the affected geographic area.

e. Programming requests for asbestos-related actions will be clearly identified as such.

f. Specifications for the procurement of material will preclude the use of asbestos unless asbestos-free substitute materials do not exist.

g. Design and specifications for new construction will preclude the use of asbestos unless asbestos-free substitute materials do not exist.

h. Contracts for projects involving the removal and disposal of asbestos will use the provisions of Technical Guide Specification CEGS-02080 through 02083.

i. To ensure compliance with subpart M of the CAA, ICs will adopt the procedures outlined in paragraph 12–7*e* for noncompliance notification procedures.

10–5. Technical assistance

Technical assistance relating to health and environmental aspects of asbestos management can be obtained from the Commander, USAEHA, Aberdeen Proving Ground, MD 21010-5422. Technical assistance relating to O&M can be obtained from the Commander, USAEHSC (CEHSC-FB-S), Ft. Belvoir, VA 22060-5516.

Chapter 11
Army Radon Reduction Program (ARRP)

11–1. Scope

a. This chapter describes policy and procedures for assessing indoor levels of radon and mitigating radon in structures where the levels are elevated. This chapter will provide a summary of the health risks associated with indoor radon, discuss DA indoor radon standards, and outline the DA radon measurement strategy.

b. The objectives of the ARRP are to—

(1) Identify structures owned and leased by the Army (CONUS and OCONUS) that have indoor radon levels greater than 4 picocuries per liter (pCi/l) of air.

(2) Modify all Army-owned structures having radon levels greater than 4 pCi/l so that the levels are reduced to 4 pCi/l or less.

(3) Provide detailed guidance concerning radon measurement procedures and risk estimates which have been published in the 1989 USAEHA Technical Guide No. 16a.

(4) Issue mitigation strategies and procedures which will be addressed in separate publications furnished by USACE.

11–2. ARRP requirements

a. *Overview.* DA has adopted a decentralized radon reduction program to identify and to mitigate indoor radon in DA structures.

(1) The installation is responsible for funding, executing, documenting, and managing the radon monitoring and mitigation efforts on that installation based upon the ARRP.

(2) The installation will purchase radon detectors and laboratory analytical services through contracts which are centrally managed by the USAEHSC. This will negate the need for the installation to develop separate, more costly contracts and will aid in ensuring the technical validity of the measurements. The installation will be responsible for proper deployment of the detectors.

(3) All radon measurements will be completed by the 4th quarter of FY91.

b. *Requirements.*

(1) *Installation requirements.* The installation is responsible for the management and the conduct of the radon measurements for that installation. Specifically, this requires—

(a) Purchase of the radon detectors from the centrally managed contractors.

(b) Deploying and retrieving the radon detectors in accordance with quality assurance (QA) instructions received from the USAEHSC.

(c) Shipping detectors to the QA contractor for preparation of "spikes" (that is blind samples).

(d) Shipping detectors back to the contractors for analysis.

(e) Maintaining the records required to document the results of the radon measurements and providing required summaries to their respective MACOMs.

(f) Notifying occupants of the result of radon monitoring and what actions are necessary.

(g) Establishing an archival database compatible with Army systems for storing all measurement data.

(2) *Contractor requirements.* The centrally managed contractors will provide the installation with the following—

(a) Radon detectors capable of performing the long and short-term measurements and pre- and post-mitigation measurements required, with instructions for deployment, emplacement and retrieval of the detectors.

(b) Data forms required to properly document the measurement and ensure that the detectors are properly handled.

(c) A report that will give the results of the measurement and required QA data to ensure that the measurements are valid and verifiable.

11–3. Indoor radon health risk

A radiation-induced increased risk of contracting lung cancer is the primary health concern with elevated levels of indoor radon-222.

a. *Radon-222.* Radon-222 is a naturally occurring, inert, radioactive gas that is formed from the radioactive decay of uranium.

(1) Uranium in the soil is the primary source of indoor radon. Elevated radon levels can be found in soils with high concentrations of uranium or those that have been contaminated with the by-products of uranium or phosphate mining.

(2) Soil composition alone is not a good indicator of a potential indoor radon problem. Increased indoor radon levels have been found in areas where uranium concentrations are relatively low.

(3) Radon levels vary considerably in the same geographic area. Adjacent structures can have radon levels that differ by a factor of 20 to 100. This can be caused by differences in construction, insulation, or differences in the soil composition or geology over which the structure was built.

(4) EPA estimates that we may expect 10 percent of our structures to exceed 4 pCi/*l*.

b. *Source of the problem.* Indoor radon concentrations have become a health concern largely due to efforts to increase the energy efficiency of our buildings.

(1) Radon-222 has always been a component of indoor air. Recent efforts to increase the energy efficiency of DA structures have resulted in a reduction in the ventilation rates and a corresponding increase in the radon concentration.

(2) The increased radon concentrations have increased the radiation dose to the lung with a corresponding increase in the risk of lung cancer to the occupants.

c. *Source of the health hazard.* The health hazard is caused not by the radon-222 but by the daughter products formed by the decay of radon-222.

(1) Radon-222 is an inert gas, and the majority of the radon that is inhaled is also exhaled. Because of this rapid exchange, radon-222 itself does not deliver a significant fraction of the dose to the lung.

(2) The radiation received by the lung is from the decay of the radon-222 daughter products. Radon-222 has a half-life of 3.8 days and decays into radioactive daughter products which can attach themselves to dust particles in the air. When these dust particles are inhaled, they are trapped in the lungs and begin to irradiate lung tissue.

(3) The increased risk of lung cancer is caused by the radiation dose delivered by the radon-222 daughter products trapped in the lung and is proportional to the radon concentration and the length of exposure.

d. *Indoor radon standards.* DA has adopted EPA's recommended remedial action level as its indoor radon standard.

(1) Remedial action will be taken if the annual average radon concentration in a structure exceeds 4 pCi/*l* of air.

(2) The time frame in which mitigation must be accomplished is dependent upon the measured radon concentration and is presented in table 11–1.

(3) EPA estimates that lung cancer death due to radon exposure could occur in 1 to 5 percent of a population exposed to an annual average radon concentration of 4 pCi/*l* for 70 years.

(4) Research is continuing to refine this risk estimate.

Table 11–1
Mitigation time frames

Radon concentration (pCi/l)	Mitigation required within
Greater than 200	Radon [illegible] one (1) month or move the occupants
200–20	[illegible] months
20–8	1–4 years
8–4	5 years
4 or less	No action required

[1] Determined by 90-day screen or 1-year measurement in the case of Priority 2 and 3 structures.
[2] Annual average determined by 1-year measurement. Screening measurements in this range will not be used as the basis for initiating mitigation actions.
[3] Depending on the level of the measurement.

11–4. Measurement plan

a. *Objective.* The objective of the assessment phase of the ARRP is to identify all Army structures that have radon levels above EPA's recommended action level of 4 pCi/*l* with emphasis on finding and mitigating, early in the program, those priority 1 structures (that is, residences, child care centers, schools, and hospitals) with levels greater than 20 pCi/*l*.

b. *Priorities.* Installation structures have been prioritized to ensure the objective can be cost-effectively obtained and to provide a guide for optimizing mitigation efforts. Priorities for radon assessment are—

(1) Priority 1: Day care centers, hospitals, schools, and living areas (that is, quarters, unaccompanied personnel housing, and billets).

(2) Priority 2: Areas having 24-hour operations, such as operations centers and training and RDTE facilities.

(3) Priority 3: All other routinely occupied structures.

c. Phasing. Radon will be measured using assessment plan phasing which consists of the following—

(1) *Initial phase.* The objectives of the initial phase of the measurement plan are to—

(a) Rapidly identify the indoor radon levels in those structures that pose the highest risk to our Army personnel and their families.

(b) Determine whether priority 2 and 3 structures must be measured on the installation.

(c) Provide an early indication of those installations that will require increased resources for mitigation so that funds can be reallocated.

(2) *Long term measurement (LTM)/mitigation phase.* The objectives of the LTM/mitigation phase are to—

(a) Assess annual average radon levels under realistic (as opposed to worst-case) exposure conditions before embarking on mitigation of structures where the health risk appears to be relatively small.

(b) Perform mitigation of structures as warranted by the measured radon levels.

(c) Ascertain whether mitigation efforts have been successful. The decision process employed during the initial (screening) phase and the LTM/mitigation phase is summarized in a schematic flow chart in figure 11–1.

(3) *Post-mitigation phase.* The objective of post-mitigation measurements is to verify and document the effectiveness of the mitigation measures taken.

11–5. Measurement methodology

a. Initial phase measurement methodology.

(1) Radon measurements in this phase will be performed under worst-case conditions so that a rapid, conservative assessment of priority 1 structures can be obtained. The installation will accomplish this by—

(a) Placing the radon detector(s) in the lowest living area (LLA) of the structures measured because radon concentrations are the most elevated in the lowest areas of a structure. The LLA is defined as follows—

1. For structures without subsurface areas, the LLA is the ground floor.

2. For structures with subsurface areas, the LLA is defined as the lowest area in that structure that has a finished, hard surface floor (for example, concrete or tiled) that is or could be used. A dirt-crawlway is not an LLA, but an unfinished basement with a concrete floor is, regardless of what the current occupants are using the area for.

(b) Performing the radon measurements during the time of the year when these structures will most likely be closed up. In the colder climates, the detectors will be emplaced during the heating season, and in the warmer climates, during the cooling season.

(2) The radon detector(s) will be in place for 90 days. The worst-case conditions described above will ensure that the actual annual average radon concentration will be below the value measured.

b. LTM methodology.

(1) *Determination of average annual radon concentration.* For LTM, alpha track-type radon detectors will be employed for a 1 year period under normal living conditions so that an annual radon concentration can be obtained in the structures measured.

(2) *Applicability of LTM to priority 2 and 3 structures.* The results of the initial (screening) phase will be used to determine whether priority 2 and 3 structures must be measured. This determination should be based upon the following:

(a). If any of the priority 1 structures had radon concentrations greater than 4 pCi/l, LTM of all priority 2 and 3 structures must be performed.

(b). If none of the priority 1 structures had radon concentrations greater than 4 pCi/l, priority 2 and 3 structures do not need to be measured, provided there is reason to believe that priority 2 and 3 structures do not have significantly higher levels of radon than the priority 1 structures. If there is reason to believe that some priority 2 and 3 structures have levels greater than 4 pCi/l, then those structures should be measured.

(3) *Applicability of LTM to priority 1 structures.* Recent data indicate that radon levels measured under the conditions required for priority 1 structures will be approximately two to four times higher than the actual annual average concentration in that structure. Based upon this, the following actions will be taken—

(a) Priority 1 structures with radon levels greater than 4 pCi/l but less than 20 pCi/l require LTM to determine the actual annual radon concentration in the structure before mitigation efforts are initiated. This is done as a cost-saving measure to prevent the unnecessary mitigation of structures. Mitigation, if required, can be accomplished within the time frames prescribed in table 11–1 above if the levels are still greater than 4 pCi/l.

(b) All priority 1 structures with levels greater than 20 pCi/l will be mitigated on the basis of the 90-day screening in order to comply with the mitigation time frames specified in the Army radon policy.

(c) All priority 1 structures with levels of 4 pCi/l or less require no further action.

c. Post-mitigation measurement methodology. The measurement methodology used for post-mitigation measurements will depend upon the level of radon found in the structure.

(1) For structures with 20 pCi/l or greater, use rapid post-mitigation monitoring coupled with longer-term verification measurements. Specifically—

(a) Use charcoal canister-type detectors that can provide results within days, and make the measurements under *closed-house* worst-case conditions to obtain initial verification of the mitigation.

(b) Once the levels are below the established standards using the rapid monitoring techniques, verify the efficacy of the mitigation using long term (1 year) measurements with alpha-track detectors.

(c) For structures with levels greater than 200 pCi/l before mitigation, the occupants may be returned to their quarters based upon the result of the quick check.

(2) For structures with levels less than 20 pCi/l but greater or equal to 4 pCi/l use the following post-mitigation measurement methodology—

(a) Detectors may be employed that can provide results within 90 days or sooner for worst-case *closed-house* conditions.

(b) Once the levels are below the established standards using this monitoring technique, the efficacy of the mitigation will be verified using the long-term (1-year) measurements.

(3) Structures with levels less than 4 but greater than 4 pCi/l may utilize detectors that will provide results within 180 days. A 90-day to 180-day measurement under worst-case conditions may be utilized for verification.

11–6. Specific guidance

a. Emplacement. Specific emplacement instructions will be provided by the contractor, but the following general guidance is provided for planning purposes.

(1) *Single family structures.* For the screening phase, one detector will be placed in the LLA of the structure. If LTM is required, one will be placed in the LLA and, if the LLA is a basement, one will also be placed on the first floor.

(2) *Multiple family structures.* Guidance for multiple family structures is essentially the same as for single family structures. If the LLA is a common, open area (that is, an open, unpartitioned basement area), measurements can be made using one detector for every 2,000 square feet of area in the LLA and one detector per department on the floor above the basement.

(3) *Office buildings and warehouses.* Sampling methodologies for these structures are currently being developed and will be provided as soon as they are available. For planning purposes, EPA currently recommends placing one detector for every 2000 square feet in the LLA for this type of structure.

b. Detector retrieval and documentation. The installation is responsible for retrieving the detectors, maintaining the documentation required to manage the program, and verifying the levels in the structures.

c. Planning guidance. The following additional information is provided to assist in the planning process.

(1) A coordinated effort will be made with participation by the DEH, PAO, safety office, radiation protection officer, installation DHS, family housing office, and ICs.

(2) Each alpha-track detector will cost about $12; and each charcoal canister about $7 (analysis is included in these price estimates).

(3) Each family housing unit will require one detector in its LLA for screening phase measurements. Using national average data, 20 percent of the measured structures can be expected to fall within the 4 to 20 pCi/l range and require two detectors for LTM.

(4) Hospitals, day care facilities, and schools will require one detector per 2,000 square feet on each level tested for both the screening and LTM.

(5) Priority 2 and 3 structures will also require one detector per 2,000 square feet on each level tested for the screening and LTM measurements.

(6) Further refinement of these estimates will be provided as the data become available.

d. Database management.

(1) Installations will maintain or have access to a database that will permanently capture all the information derived from the assessment and mitigation of radon.

(2) At the end of each FY, each installation will submit an annual report to its respective MACOM on its progress in implementing the ARRP. For ARNG, each State will submit an annual progress report to NGB.

11–7. Technical assistance

Technical assistance relating to the measurement of radon in buildings can be obtained from Commander, USAEHA, Aberdeen Proving Ground, MD 21010–5422, or from Commander, USAEHSC, ATTN: CEHSC–FU–S, Fort Belvoir, VA 22060–5516. Technical assistance relating to mitigation of elevated levels of radon in buildings can be obtained from USAEHSC ATTN: CEHSC–FB–S, Fort Belvoir, VA 22060–5316.

SCHEMATIC FLOW CHART OF THE ACTIONS REQUIRED BY THE ARMY RADON REDUCTION PROGRAM

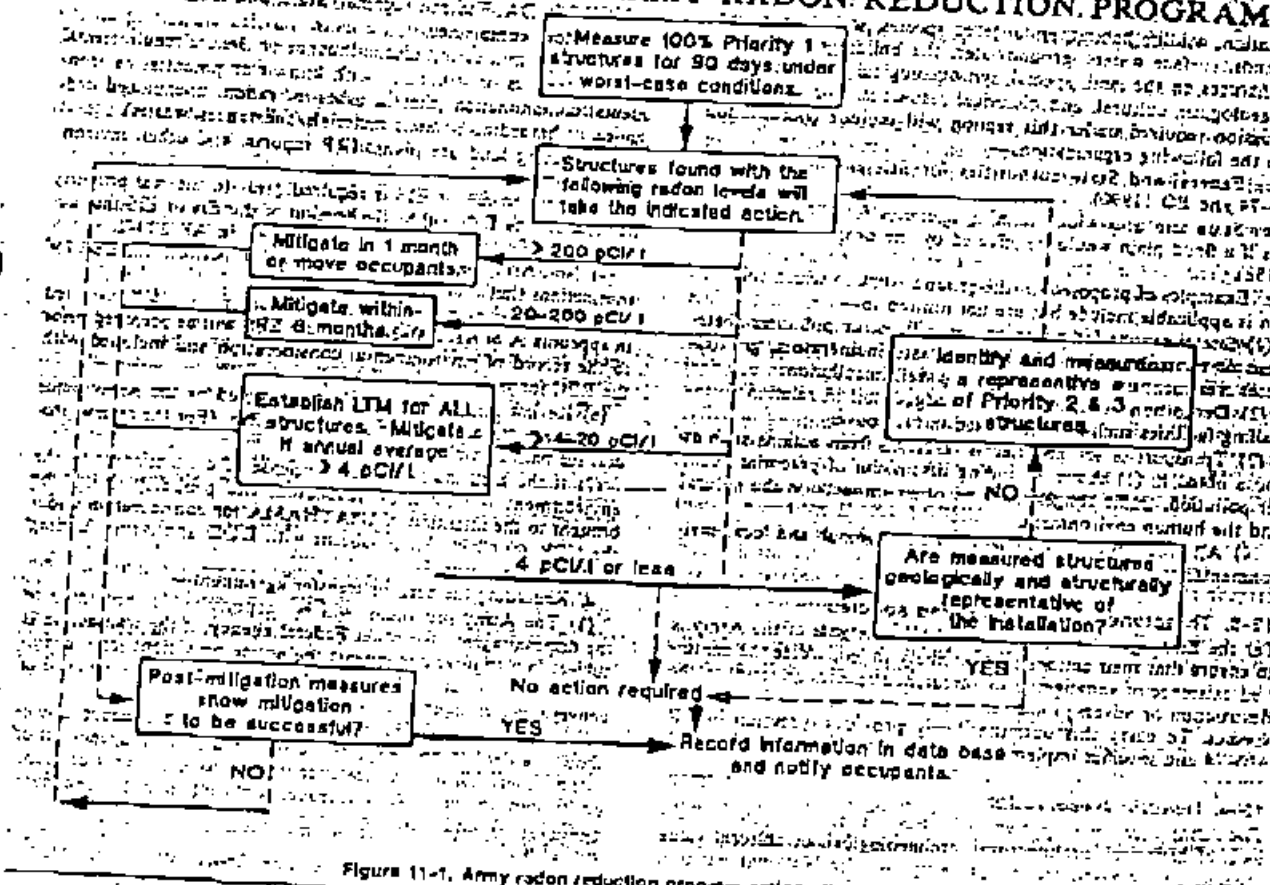

Figure 11–1. Army radon reduction program actions flow chart

Chapter 12
Other Environmental Programs

12–1. Scope

This chapter describes additional environmental programs that should be considered concurrently with the other chapters of this regulation. Each paragraph, 12–2 through 12–14, describes a different program and lists the applicable responsibilities, policies, and procedures associated with the program.

12–2. On-the-ground work

The selection of a method to effect on-the-ground work intended to carry out the requirements of this regulation will be contingent

MD 1072

PCB Yes No

TRANSFORMER RECORD

XFMR #	LOCATION	INSTALLED	# TEST	KVA	VOLTAGE		PHASE		CONDITION	MOUNTING	MANUFACTURE	SERIAL #	% IMP	WEIGHT	AIR COOLED	
					PRIMARY	SECONDARY	SINGLE	THREE						LBS	OIL (G)	DRY
14	144	6/21/76	1	100.0	7200/12470	2400	X		GOOD	POLE	CENTRAL	7826-1	1.10	1130	31	
168	E. FENCE LINE	6/21/76	1	15.0	7200/12470	120/240	X		GOOD	POLE	LINE MAT	267125	2.00	470	16.7	
227	229	1/1/89	1	37.5	7620	120/240	X		GOOD	POLE	WESTINGHOUSE	6423124	2.40	950	33.0	
227'	229	6/21/76	1	37.5	7620	120/240	X		GOOD	POLE	WESTINGHOUSE	6010854	2.40	950	33.0	
227	229	6/21/76	1	37.5	7620	120/240	X		GOOD	POLE	WESTINGHOUSE	6077807	2.40	950	33.0	
292	S. FENCE LINE	6/21/76	1	15.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	3138977	2.00	320	27.0	
292	S. FENCE LINE	6/21/76	1	5.0	7200/12470	240	X		GOOD	POLE	WAGNER	5L219.53	2.80	301	20.0	
301	N. FENCE LINE	1/1/89	1	15.0	7200/12470	120/240	X		GOOD	POLE	GE	D991293-60Y	2.60	232	15.0	
393	PICNIC AREA	7/12/77	1	5.0	7200	120/240	X		GOOD	POLE	MALONEY	689160	1.20	320	21.3	
400	SWITCH GEAR	6/7/76	1	10.0	7200/12470	120/240	X		GOOD	POLE	WAGNER	A6F7365	2.80	300	12.0	
402	308/309	6/7/76	1	5.0	7200/12470	120/240	X		GOOD	POLE	MALONEY	NONE	2.20	320	12.0	
461	468/469	1/1/89	1	75.0	7200/12470	120/208	X		GOOD	POLE	WESTINGHOUSE	6150508	3.10	1090	12.0	
461	468/469	1/1/89	1	75.0	7200/12470	120/208	X		GOOD	POLE	WESTINGHOUSE	6150507	3.10	1090	40.0	
461	468/469	1/1/89	1	75.0	7200/12470	120/208	X		GOOD	POLE	WESTINGHOUSE	6113915	3.10	1090	40.0	
472	360	6/8/76	1	5.0	7200/12470	120/240	X		GOOD	POLE	PEDI	2361-7	2.60	300	40.0	
475	J & 4TH ST	6/10/76	1	5.0	7200/12470	120/240	X		GOOD	POLE	MALONEY	6d7541	1.20	280	21.0	
552	550	11/28/89	1	75.0	7200/12470	120/240	X		GOOD	POLE	GE	N495606YGUA	3.10	1100	27.0	
552	550	11/28/89	1	75.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	70A73931	3.10	1090	27.0	
552	550	11/28/89	1	75.0	7200/12470	120/240	X		GOOD	POLE	GE	N229576Y?AA	3.10	1100	30.0	
584	589	6/10/70	1	15.0	7200/12470	120/240	X		GOOD	POLE	GE	D994294-60Y	2.30	330	21.3	
699	699	6/10/76	1	50.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	6070155	2.30	560	34.4	
699	690	6/10/76	1	50.0	7620/13200	120/240	X		GOOD	POLE	WESTINGHOUSE	6070139	2.30	631	30.4	
699	690	4/22/81	1	50.0	720Y/12470Y	120/240	X		GOOD	POLE	MAGNET ELEC	HMD1882	2.50	631	30.4	
751	G ST	6/11/76	1	3.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	5569101	2.70	560	34.4	
751	G ST	6/11/76	1	3.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	5569035	2.70	290	15.1	
751	G ST	6/11/76	1	3.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	5569104	2.70	290	15.1	
755	754	11/28/89	1	37.5	7200/12470	120/240	X		GOOD	POLE	MAGNET	HFQ9615	2.50	290	15.1	
764	860	11/28/89	1	37.5	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	6113325	2.40	511	25.2	
764	860	1/1/89	1	37.5	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	6113322	2.40	950	33.0	
764	860	11/28/89	1	37.5	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	6113311	2.40	950	33.0	
778	670	6/10/76	1	15.0	7200/12470	120/240	X		GOOD	POLE	GE	D994292-60Y	2.30	950	33.0	
865	873	11/28/89	1	25.0	7200/12470	120/240	X		GOOD	POLE	HOWARD IND	63563-3136	2.10	300	12.0	
865	873	11/28/89	1	25.0	7200/12470	120/240	X		GOOD	POLE	HOWARD IND	63561-3136	2.40	396	20.1	
874	873	6/10/76	1	25.0	7200/12470	120/240	X		GOOD	POLE	HOWARD IND	63562-3136	2.40	396	20.1	
906	15TH & B	6/10/76	1	15.0	7200/12470	120/240	X		GOOD	POLE	MALONEY	676420	2.50	396	20.1	
987	972	11/28/89	1	75.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	3176567	2.40	330	20.1	
987	972	11/28/89	1	75.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	3F04236	1.40	841	37.0	
987	972	11/28/89	1	75.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	HG11559	1.40	950	20.0	
991	S. FENCE LINE	6/21/76	1	5.0	7200/12470	120/240	X		GOOD	POLE	UNITED ELEC	B838E3DAA	1.80	350	28.0	
1031	W. FENCE LINE	6/21/76	1	25.0	7200/12470	120/240	X		GOOD	POLE	PENN	3363-5	2.60	300	12.0	
1062	G ST	6/10/76	1	15.0	7200/12470	120/240	X		GOOD	POLE	ALLIS CHALMERS	2441490	2.30	480	27.0	
1710	QTS 6,7,178	6/21/76	1	37.5	7200/12470	120/240	X		GOOD	POLE	LINE MATERIAL	293871	2.50	120	16.5	
1711	QTRS 8,9	6/21/76	1	37.5	7620	120/240	X		GOOD	POLE	WESTINGHOUSE	6930816	2.40	550	33.5	
1811	B ST	6/11/76	1	15.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	6076803	2.40	950	33.0	
4711	470	6/8/76	1	100.0	7200/12470	120/240	X		GOOD	POLE	MALONEY	682651	2.45	450	33.0	
4711	470	6/8/76	1	100.0	7200/12470	120/240	X		GOOD	POLE	ESCO	8C11356	2.90	1420	27.0	
4711	470	6/8/76	1	100.0	7200/12470	120/240	X		GOOD	POLE	ESCO	8D24455	2.90	1420	60.0	
4714	470	1/10/91	1	75.0	7200/12470	120/240	X		GOOD	POLE	GE	Y45350487?AA	1.70	1320	60.0	
4714	470	1/10/91	1	75.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	3C10130DAA	1.80	450	31.0	
4715	470	1/10/91	1	50.0	7200/12471	120-241		X	GOOD	POLE	UNITED UTILITY	3C10130DAA	1.80	450	28.0	
4715	470	6/15/91	1	50.0	7200/12470	120/240		X	GOOD	POLE	MAGNETIC	M11?306	1.30	631	28.0	
											MAGNETIC	M11?306	1.30	631	30.4	

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INFORMATION NOT AVAILABLE

TRANSFORMER NUMBERING NOT YET DETERMINED

TRANSFORMER RECORD

XFMR #	LOCATION	INSTALLED	# INST	KVA	VOLTAGE PRIMARY	VOLTAGE SECONDARY	PHASE SINGLE	PHASE THREE	CONDITION	MOUNTING	MANUFACTURE	SERIAL #	% IMP	WEIGHT LBS	AIR COOLED OIL(G)	AIR COOLED DRY
4715	470	6/12/91	1	100.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	M211007	2.30	931	20.1	
4716	470	6/12/91	1	100.0	7200/12470	120/240	X		GOOD	POLE	KUHLMAN	4670130164	2.00	1000	29.0	
4716	470	6/12/91	1	100.0	7200/12470	120/240		X	GOOD	POLE	KUHLMAN	4670130581	2.00	1000	29.0	
4719	470	11/28/89	1	100.0	7200/12470	120/240		X	GOOD	POLE	KUHLMAN	4675890994	2.00	1000	29.0	
4719	470	11/28/89	1	100.0	7200/12470	120/240	X		GOOD	POLE	KUHLMAN	40008570284	2.00	1000	29.0	
4719	470	11/28/89	1	100.0	7200/12470	120/240	X		GOOD	POLE	KUHLMAN	4659040883	2.00	1000	29.0	
4912	490	3/7/91	1	100.0	7200/1200	470	X		GOOD	POLE	KUHLMAN	1659040483	2.00	1000	29.0	
4912	490	1/1/89	1	100.0	7200/1200	470	X		GOOD	POLE	MAGNETIC	I202870	2.30	1021	49.0	
4912	490	1/1/89	1	100.0	7200/1200	470	X		GOOD	POLE	MAGNETIC	I202871	2.30	1021	49.0	
6240	685	1/1/89	1	100.0	7200/12470Y	120/240	X		GOOD	POLE	MAGNETIC	I202872	2.30	1021	49.0	
6240	685	1/1/89	1	100.0	7200/12470Y	120/240	X		GOOD	POLE	KUHLMAN	4639480282	1.80	990	29.1	
6240	685	1/1/89	1	100.0	7200/12470Y	120/240	X		GOOD	POLE	KUHLMAN	4639480182	1.80	990	29.1	
6715	670	1/1/89	1	100.0	7200/12470	120/240	X		GOOD	POLE	KUHLMAN	4639480682	1.80	990	29.1	
6715	670	3/21/76	1	100.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	68AA2840	1.50	1050	53.5	
6715	670	1/1/89	1	100.0	7200/12470	120/240	X		GOOD	POLE	GE	9428424-599	2.20	1020	53.0	
6718	670	6/11/76	1	75.0	7200/12470	120/240	X		GOOD	POLE	GE	68AA2842	1.50	1020	53.0	
6718	670	6/11/76	1	75.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	6150500	3.10	1090	40.0	
6718	670	6/11/76	1	75.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	6150505	3.10	1090	40.0	
6719	670	2/8/91	1	100.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	6119919	3.10	1090	40.0	
6719	670	2/8/91	1	100.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	09469543DAA	1.50	1250	40.0	
6810	689	11/28/89	1	100.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	09469416DAA	1.50	1250	40.0	
6810	689	11/28/89	1	100.0	7200/12470	120/240	X		GOOD	POLE	CUHLMAN	4659040783	2.00	100	29.0	
6810	689	11/28/89	1	100.0	7200/12470	120/240	X		GOOD	POLE	CUHLMAN	4659040583	2.00	100	29.0	
6912	690	6/10/76	1	100.0	7200/12470	120/240	X		GOOD	POLE	CUHLMAN	4659040673	2.00	100	29.0	
6912	690	6/10/76	1	100.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	68AA-2839	1.50	1050	52.5	
6912	690	6/10/76	1	100.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	67AJ7915	1.50	1050	52.5	
6916	690	6/10/76	1	15.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	68AA2846	1.50	1050	52.5	
7910	N ST	6/10/76	1	25.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	68AC6612	1.50	350	20.0	
8012	B ST	6/10/76	1	37.5	7200/12470	120/240	X		GOOD	POLE	MALONEY	678801	1.60	843	37.0	
9433	685	1/1/89	1	37.5	7200/12470Y	120/240	X		GOOD	POLE	AC	2195315	2.90	920	27.0	
9433	685	1/1/89	1	37.5	7200/12470Y	120/240	X		GOOD	POLE	MAGNETIC	HG01560	2.50	498	25.0	
9814	970/875	1/1/89	1	15.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	HG01559	2.50	498	25.0	
9950	972	11/28/89	1	37.5	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	HG01557	2.50	498	25.0	
9950	972	11/28/89	1	25.0	7200/12470	120/240	X		GOOD	POLE	GE	8299377	1.60	330	21.8	
9950	972	11/28/89	1	25.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	6030822	3.10	950	37.0	
10811	972	6/10/76	1	167.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	830772	2.50	396	20.1	
10811	972	6/10/76	1	167.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	830771	2.50	386	19.0	
10811	972	6/10/76	1	167.0	7200/12470	120/240	X		GOOD	POLE	AC	2488542	3.40	1246	46.0	
15399	873/875	8/4/94	1	50.0	7200/12470	120/240		X	GOOD	POLE	AC	2486650	3.50	1246	46.0	
15399	873/875	8/4/94	1	50.0	7200/12470	120/240		X	GOOD	POLE	AC	2484527	3.40	1246	46.0	
15399	873/875	8/4/94	1	50.0	7200/12470	120/240		X	GOOD	POLE	UNITED UTILITY	8223P30AA	1.80	650	28.0	
17153	835	1/1/89	1	10.0	7200/12470Y	120/240	X		GOOD	POLE	UNITED UTILITY	8223P65DAA	1.80	650	28.0	
21374	970/972	8/4/94	1	50.0	7200/12470	120/240		X	GOOD	POLE	UNITED UTILITY	8223B20AA	1.80	650	28.0	
21374	970/972	8/4/94	1	50.0	7200/12470	120/240		X	GOOD	POLE	MAGNETIC	HG05593	3.10	213	7.0	
21374	970/972	8/4/94	1	50.0	7200/12470	120/240		X	GOOD	POLE	MAGNETIC ELEC	821654DAA	1.80	631	20.4	
27322	N. FENCE LINE	1/1/89	1	5.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC ELEC	IZ11104	2.50	631	20.4	
1-150	185	11/28/89	1	150.0	7200/12470	120/240		X	GOOD	POLE	MAGNETIC ELEC	822J84DAA	1.80	631	20.4	
1-150	185	8/3/94	1	50.0	7200/12470	120/240		X	GOOD	POLE	MAGNETIC	IZ11086	2.60	232	11.0	
1-150	185	8/3/94	1	50.0	7200/12470	120/240		X	GOOD	PAD	FAMILES-CHANGE	98M14790	5.75	1633	157.0	
1-150	185	8/3/94	1	50.0	7200/12470	120/240		X	GOOD	POLE	MAGNETIC ELEC	IA00026	2.20	650	37.0	
1-150	185	8/3/94	1	50.0	7200/12470	120/240		X	GOOD	POLE	MAGNETIC ELEC	IA00027	2.20	650	37.0	
									GOOD	POLE	MAGNETIC ELEC	IA00028	2.20	650	37.0	

No Ref

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ALL INFORMATION NOT AVAILABLE

TRANSFORMER NUMBERING NOT YET DETERMINED

TRANSFORMER RECORD

XFMR #	LOCATION	INSTALLED	# INST	KVA	VOLTAGE		PHASE		CONDITION	MOUNTING	MANUFACTURE	SERIAL #	% IMP	WEIGHT	AIR COOLED	
					PRIMARY	SECONDARY	SINGLE	THREE						LBS	OIL (G)	DRY
143/144	144	6/21/76	1	100.0	7200/12470	2400	X		GOOD	PAD	CENTRAL	7824-1	1.30	1120	31.0	
143/144	144	6/21/76	1	100.0	7200/12470	2400	X		GOOD	PAD	CENTRAL	7826-1	1.30	1120	31.0	
143/144	144	6/21/76	1	167.0	7200/12470	120/240	X		GOOD	PLATFORM	CENTRAL MALONEY	1855519/05	1.40	1266	46.0	
143/144	144	6/21/76	1	167.0	7200/12470	120/240	X		GOOD	PLATFORM	MCGRAW-EDISON	85NN110-005	1.50	1266	46.0	
143/144	144	6/21/76	1	167.0	7200/12470	120/240	X		GOOD	PLATFORM	CENTRAL MALONEY	1855519-10	1.40	1266	46.0	
20-370	1087	8/2/94	1	150.0	7200/12470	240.0		X	GOOD	PAD	COOPER POWER	939900724	4.90	2927	134.0	
20-370	1087	8/2/94	1	500.0	7200/12470	277/480		X	GOOD	PAD	COOPER POWER	939900765	4.00	5000	185.0	
213/214	210	11/28/89	1	167.0	7200/12470	277/480			GOOD	PAD	WESTINGHOUSE	BBA3110022	2.50	1385	30.0	
213/214	210	11/28/89	1	167.0	7200/12470	277/480			GOOD	PAD	WESTINGHOUSE	BBA312801	2.50	1385	30.0	
213/214	210	11/28/89	1	167.0	7200/12470	277/480			GOOD	PAD	WESTINGHOUSE	BBA412354	2.50	1385	30.0	
3001A	308	8/8/94	1	25.0	7200/12470	120/240		X	GOOD	POLE	WESTINGHOUSE	A712A25AAE	1.70	396	20.0	
3001A	308	8/8/94	1	25.0	7200/12470	120/240		X	GOOD	POLE	WESTINGHOUSE	A7212A25AAE	1.70	386	20.0	
3001A	308	8/8/94	1	25.0	7200/12470	120/240		X	GOOD	POLE	MCGRAW EDISON	B7N8361-039	2.30	386	20.0	
325/326	329	1/1/89	1	50.0	12470	120/240	X		GOOD	PLATFORM	GE	6711354	1.80	566	50.0	
325/326	329	1/18/91	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	MAGNETIC	1211350	1.80	690	37.0	
325/326	329	11/28/89	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	PENN	3364-6	2.30	690	37.0	
336/337	330	6/7/76	1	100.0	7620	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	7303475	1-6	1050	53.5	
336/337	330	6/7/76	1	100.0	7620	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	7303478	1-6	1050	53.5	
336/337	330	6/7/76	1	100.0	7620	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	7303489	1-6	1050	53.5	
352/359	350	6/7/76	1	167.0	7200	120/240	X		GOOD	PLATFORM	AC	2451028	3.50	2500	90.0	
352/359	350	6/7/76	1	167.0	7200	120/240	X		GOOD	PLATFORM	AC	2486037	3.50	2500	90.0	
352/359	350	6/7/76	1	167.0	7200	120/240	X		GOOD	PLATFORM	AC	2409169	3.50	2500	90.0	
354/355	350	1/1/89	1	50.0	12470	240/480	X		GOOD	PLATFORM	MCGRAW/EDISON	B7N8246-002	1.80	575	29.0	
357/358	350	1/1/89	1	100.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	K162857K71AA	1.70	1020	53.0	
357/358	350	6/9/76	1	75.0	7200/12470	120/240	X		GOOD	PLATFORM	ESCO	7012500	2.80	1020	53.0	
367/368	360	6/8/76	1	100.0	7200/12470	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	56L28678	2.90	1020	51.0	
367/368	360	1/1/89	1	100.0	7200/12470	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	7180011239	1.60	1050	52.5	
367/368	360	6/8/76	1	100.0	7200/12470	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	56K4928	2.90	1050	52.5	
437/438	430	1/1/89	1	50.0	7200/12470	120/240	X		GOOD	POLE	PENN	3361-9	3.50	650	30.0	
437/438	430	6/9/76	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	MALONEY	696002	3.50	650	30.0	
454/455	450	6/8/76	1	75.0	7620/13200	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	6150509	3.10	1180	49.0	
454/455	450	6/8/76	1	75.0	7620/13200	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	6150510	3.10	1180	49.0	
454/455	450	1/1/89	1	75.0	7620/13200	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	611917	3.10	1180	49.0	
4914/4915	490	7/19/80	1	75.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	M901317YERA	2.80	1100	30.0	
4914/4915	490	6/9/76	1	75.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	M5729035	2.80	1100	30.0	
4916/4917	490	1/1/89	1	50.0	7620/13200	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	6070175	2.30	631	30.4	
4916/4917	490	6/8/76	1	50.0	7620/13200	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	60703575	2.30	631	30.4	
4916/4917	490	6/8/76	1	50.0	7620/13200	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	6070145	2.30	631	30.4	
625/632	630	6/9/76	1	75.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	J455485570AA	1.75	1100	30.0	
625/632	630	6/19/76	1	75.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	K5U779JK72AA	1.75	1100	30.0	
625/632	630	6/9/76	1	75.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	J2117Z1Y6AAA	1.75	1100	30.0	
652/654	650	6/9/76	1	75.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	B333648	1.70	1100	30.0	
653/654	650	6/9/76	1	75.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	B333570	1.70	1100	30.0	
653/654	650	6/19/76	1	75.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	M3107007YGTA	2.85	1100	30.0	
684/685	689	2/7/91	1	75.0	7200	120/240	X		GOOD	PLATFORM	MAGNETIC	M1110794	1.50	917	47.6	
684/685	689	11/28/89	1	100.0	7200/12470	120/240	X		GOOD	PLATFORM	JERRY ELEC CO	4486-8	2.20	950	28.0	
6915/69150	690	2/7/91	1	100.0	7200/12470	120/240	X		GOOD	PLATFORM	JERRY ELEC CO	4486-10	2.10	950	28.0	
6915/69150	690	11/28/89	1	100.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	1895548Y74AA	2.10	1020	53.0	
6915/69150	690	11/28/89	1	100.0	7200/12470	120/240	X		GOOD	PLATFORM	JERRY ELEC CO	4486-12	2.20	950	28.0	
974/973	973	6/10/76	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	JERRY ELEC CO	4486-11	2.20	950	28.0	
9827981	973/970	11/28/89	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	MALONEY	696004	3.50	650	28.0	
									GOOD	PLATFORM	MALONEY	693993	3.50	650	28.0	

NA=INFORMATION NOT AVAILABLE

TRANSFORMER NUMBERING NOT YET DETERMINED

TRANSFORMER RECORD

XFMR #	LOCATION	INSTALLED	# UNIT	KVA	VOLTAGE		PHASE		CONDITION	MOUNTING	MANUFACTURE	SERIAL #	% IMP	WEIGHT	AIR COOLED	
					PRIMARY	SECONDARY	SINGLE	THREE						LBS	OIL(G)	DRY
987/993	972/970	11/25/89	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	PENN	3368-8	2.30	1050	30.0	
982/983	972/970	11/25/89	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	MALONEY	8540D6	1.50	650	28.0	
A-476	GATE 15	1/1/89	1	5.0	7200/12470Y	120/240	X		GOOD	POLE	MAGNETIC	IZ11684	2.60	232	13.9	
A-481	N. FENCE LINE	4/21/76	1	5.0	7200/12470	120/240	X		GOOD	POLE	PENN	3363-2	2.60	330	21.3	
A035/A037	209	1/16/91	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	MAGNETIC ELEC	IZ11942	1.80	631	30.4	
A035/A037	209	1/16/91	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	MAGNETIC ELEC	IZ11942	1.80	631	30.4	
A035/A037	209	1/16/91	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	MAGNETIC ELEC	IZ11866	1.80	631	30.4	
B-796	GATE 15	1/1/89	1	15.0	7200/12470Y	120/240	X		GOOD	POLE	MCL	680653	3.30	480	23.0	
C-106/C-107	529	6/8/76	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	PENN	3364-1	2.30	650	30.0	
C-106/C-107	529	6/8/76	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	PENN	3364-3	2.30	650	30.0	
C-106/C-107	529	6/8/76	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	PENN	3364-2	2.30	650	30.0	
C-195	720	8/3/94	1	37.5	7200/12470	120/240	X		GOOD	POLE	MAGNETIC ELEC	IB005041	2.40	511	25.2	
C-196	720	8/3/94	1	37.5	7200/12470	120/240	X		GOOD	POLE	MAGNETIC ELEC	IB005040	2.40	511	25.2	
C-196	720	8/3/94	1	37.5	7200/12470	120/240	X		GOOD	POLE	MAGNETIC ELEC	IB005039	2.40	511	25.2	
E-126	530	1/1/94	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	821514DAA	1.80	650	28.0	
E-126	530	8/3/94	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	820845DAA	1.80	650	28.0	
E-126	530	8/3/94	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	820875DAA	1.80	650	28.0	
E-130	530	1/1/93	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	819649DAA	1.80	650	28.0	
E-130	530	1/1/93	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	826357DAA	1.80	650	28.0	
E-130	530	1/1/93	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	826198DAA	1.80	650	28.0	
E-130	717	8/3/94	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	822068DAA	1.80	650	28.0	
E-130	717	8/3/94	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	820846DAA	1.80	650	28.0	
E-138	717	8/3/94	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	822071EAA	1.60	650	28.0	
E-66	230	1/1/89	1	25.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	IZ12138	3.30	396	20.1	
E-66	230	1/1/89	1	25.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	IZ12137	3.30	396	20.1	
E-66	230	1/1/89	1	25.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	IZ12136	3.30	396	20.1	
G-079	250	8/4/94	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	820844DAA	1.80	650	28.0	
G-079	250	8/4/94	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	820324DAA	1.80	650	28.0	
G-079	250	8/4/94	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	820847DAA	1.80	650	28.0	
G-083	250	1/1/93	1	25.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC ELEC	IZ12134	3.30	396	20.1	
G-083	250	1/1/93	1	25.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC ELEC	IZ12139	3.30	396	20.1	
G-083	250	1/1/93	1	25.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC ELEC	IZ12135	3.30	396	20.1	
G-089	350/2	1/1/89	1	50.0	7200/12470Y	120/240	X		GOOD	POLE	DELTA STAR	5400213	2.60	590	30.0	
G-089	350/2	1/1/89	1	50.0	7200/12470Y	120/240	X		GOOD	POLE	MCGRAW EDISON	87NX266-012	1.80	575	29.9	
G-089	350/2	1/1/89	1	50.0	7200/12470Y	120/240	X		GOOD	POLE	DELTA STAR	54003212	2.60	590	30.0	
[illegible]	144	8/2/94	1	750.0	7200/12470	277/480		X	GOOD	PAD	PAUWELS CHANCE	3BS34490	5.75	3639	157.5	
[illegible]	210	11/28/89	1	300.0	480	208/120		X	GOOD	PAD	SQUARE D	194827-1*	2.40	4190		X
[illegible]	210	11/28/89	1	300.0	480	208/120		X	GOOD	PAD	ITE POWER	3F1Y10n	6.30	1320		X
[illegible]	270	1/1/89	1	75.0	7200/12470Y	120/240	X		GOOD	POLE	MAGNETIC	IG12381	1.50	998	52.1	
[illegible]	270	1/1/89	1	75.0	7200/12470Y	120/240	X		GOOD	POLE	MAGNETIC	IB009073	2.00	910	47.6	
[illegible]	270	1/1/89	1	100.0	7200/12470Y	120/240	X		GOOD	POLE	UNITED UTILITY	09509126DAA	1.50	1068	40.0	
[illegible]	271	1/1/89	1	300.0	12470	120/208	X		GOOD	PAD	WESTINGHOUSE	985289916	2.40	4190		X
[illegible]	359	8/12/80	1	167.0	7200/12470	277/480	X		GOOD	PAD	HOWARD IND	359892279	2.00	1337	46.0	
[illegible]	359	8/12/80	1	167.0	7200/12470	277/480	X		GOOD	PAD	HOWARD IND	359872279	2.00	1337	46.0	
[illegible]	359	8/12/80	1	167.0	7200/12470	277/480	X		GOOD	PAD	HOWARD IND	359892279	2.00	1337	46.0	
[illegible]	359	8/21/80	1	167.0	7200/12470	277/480	X		GOOD	PAD	HOWARD IND	359902279	2.00	1337	46.0	
[illegible]	359	8/12/80	1	167.0	7200/12470	277/480	X		GOOD	PAD	HOWARD IND	359902279	2.00	1337	46.0	
[illegible]	359	8/12/80	1	167.0	7200/12470	277/480	X		GOOD	PAD	HOWARD IND	359912797	2.00	1337	46.0	
[illegible]	170	5/[illegible]/91	1	75.0	7200/12470	120/240	X		GOOD	PAD	MAGNETIC	IB009791	2.60	650	31.0	
[illegible]	490	2/24/91	1	100.0	7200/13800	120/240	X		GOOD	PAD	JIMELCO	88F9103	2.90	1420	60.0	
[illegible]	490	1/1/89	1	100.0	7200/13800	120/240	X		GOOD	PAD	JIMELCO	88F9108	2.90	1420	60.0	
[illegible]	490	1/1/89	1	100.0	7200/13800	120/240	X		GOOD	PAD	JIMELCO	88F9110	2.90	1420	60.0	

(A) INFORMATION NOT AVAILABLE

page 1 OF 1

(B) TRANSFORMER NUMBERING NOT YET DETERMINED

193 279

TRANSFORMER RECORD

ITEM #	LOCATION	INSTALLED	# UNIT	KVA	VOLTAGE		PHASE		CONDITION	MOUNTING	MANUFACTURE	SERIAL #	% IMP	WEIGHT	AIR OR OIL(G)
					PRIMARY	SECONDARY	SINGLE	THREE						LBS	
	560	9/2/94	1	1500.0	7200/12470	120/208		X	GOOD	PAD	UNITRAN ELEC	22V0259	5.75	8165	415.0
	829	8/2/94	1	1000.0	7200/12470	277/480		X	GOOD	PAD	ATLANTIC	GF07115174	5.50	8350	370.0
	829	8/2/94	1	1000.0	7200/12470	277/480		X	GOOD	PAD	ATLANTIC 1	EF08274134	5.70	9500	312.0
	670	3/8/91	1	100.0	7200/12470	120/240	X		GOOD	PAD	UNITED UTILITY	09469061DAA	1.50	1250	40.0
	689	1/1/89	1	500.0	7200/12470	240/480		X	GOOD	PAD	ELEC EQUIPMENT	279B02076	2.00	2796	107.0
	689	1/1/89	1	500.0	7200/12470	240/480		X	GOOD	PAD	ELEC EQUIPMENT	9626-378	2.00	2796	107.0
	770	1/1/89	1	100.0	7200/12470Y	120/240	X		GOOD	[illegible]	MAGNETIC	I202371	2.30	1021	48.9
	770	1/1/89	1	100.0	7200/12470Y	120/240	X		GOOD	[illegible]	MAGNETIC	I202369	2.30	1021	48.9
	770	1/1/89	1	100.0	7200/12470Y	120/240	X		GOOD	[illegible]	MAGNETIC	I202370	2.30	1021	48.9
	835	1/1/89	1	1000.0	12470Y	277/480Y	X		GOOD	PAD	GE	P179964TVB	5.60	7600	360.0
	925	1/1/89	1	50.0	7200/12470Y	120/240	X		GOOD	[illegible]	MAGNETIC	IA00950	2.20	690	37.0
	925	1/1/89	1	50.0	7200/12470Y	120/240	X		GOOD	[illegible]	MAGNETIC	IA00290	2.20	690	37.0
	925	1/1/89	1	50.0	7200/12470Y	120/240	X		GOOD	[illegible]	MAGNETIC	IAU0983	2.20	690	37.0
	925	1/1/89	1	25.0	7200/12470Y	277.0	X		GOOD	[illegible]	MAGNETIC	I8111159	2.20	374	20.1
	925	1/1/89	1	25.0	7200/12470Y	277.0	X		GOOD	[illegible]	MAGNETIC	I8111160	2.20	376	20.1
	925	1/1/89	1	25.0	7200/12470Y	277.0	X		GOOD	[illegible]	MAGNETIC	I8111158	2.20	376	20.1
	210/1	INA	1	1500.0	12470	277/480	X		GOOD	EQUIP RM	INA	INA	INA	INA	
	350/1	1/1/89	1	75.0	7200/12470Y	120/240	X		GOOD	POLE	UNITED UTILITY	09223779DAA	1.60	918	39.0
	190/1	1/1/89	1	75.0	7200/12470Y	120/240	X		GOOD	[illegible]	UNITED UTILITY	09123060DAA	1.60	916	39.0
	670/1	3/8/91	1	100.0	7200/12470	120/240	X		GOOD	PAD	MAGNETIC	I212186	2.30	1021	49.0
	689/1	1/1/89	1	500.0	7200/12470	240/480		X	GOOD	PAD	ELEC EQUIPMENT	Z7969-2076	2.00	2796	107.0
	690/1	3/7/91	1	50.0	7200/12470	120/240	X		GOOD	PAD	MAGNETIC	HH01882	1.80	650	28.0
	690/2	3/6/91	1	75.0	7200/1200	120/240	X		GOOD	PAD	MAGNETIC	H113914	1.40	917	47.6
	690/2	3/6/91	1	75.0	7200/1200	120/240	X		GOOD	PAD	MAGNETIC	H113915	1.40	917	47.6
	690/2	3/6/91	1	75.0	7200/1200	120/240	X		GOOD	PAD	MAGNETIC	H113916	1.40	917	47.6
	690/2	1/1/89	1	75.0	7200/12470Y	277	X		GOOD	POLE	MAGNETIC	H113916	1.90	891	48.0
	690/2	1/1/89	1	75.0	7200/12470Y	277	X		GOOD	POLE	MAGNETIC	H113914	1.90	891	48.0
	690/2	1/1/89	1	75.0	7200/12470Y	277	X		GOOD	POLE	MAGNETIC	H113915	1.90	891	48.0
	690/3	3/3/91	1	1000.0	7200/1200	120/208		X	GOOD	PAD	COOPER POWER	9160054A9	5.40	8118	341.0
	690/5	1/1/89.	1	100.0	7200/12470Y	120/240	X		GOOD	POLE	GE	L3498S4Y74AA	2.10	950	28.5
			238	26,533											
TRANSFORMER RESERVE:															
NOT ASSIGNED	YARD	STAND-BY	1	750	7200/12470	277/480			NEW	STORAGE	FAUNEL CHANCE	89G31519	5.75	4639	157.3
NOT ASSIGNED	YARD	STAND-BY	1	100	7200/12470	120/240	X		NEW	STORAGE	MAGNETIC	I809497	2.30	1021	49.0
NOT ASSIGNED	YARD	STAND-BY	1	100	7200/12470	120/240	X		NEW	STORAGE	MAGNETIC	I809494	2.30	1021	49.0
NOT ASSIGNED	YARD	STAND-BY	1	100	7200/12470	120/240	X		NEW	STORAGE	MAGNETIC	I809496	2.30	1021	49.0
NOT ASSIGNED	YARD	STAND-BY	1	100	7200/12470	120/240	X		NEW	STORAGE	MAGNETIC	I809499	2.30	1021	49.0
NOT ASSIGNED	YARD	STAND-BY	1	100	7200/12470	120/240	X		NEW	STORAGE	MAGNETIC	I809491	2.30	1021	49.0
NOT ASSIGNED	YARD	STAND-BY	1	75	7200/12470	480	X		NEW	STORAGE	MAGNETIC	IC07475	1.90	917	47.6
NOT ASSIGNED	YARD	STAND-BY	1	75	7200/12470	480	X		NEW	STORAGE	MAGNETIC	IC07476	1.90	917	47.6
NOT ASSIGNED	YARD	STAND-BY	1	75	7200/12470	480	X		NEW	STORAGE	MAGNETIC	IC07477	1.90	917	47.6
			9	1475											

NO 925

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TRANSFORMER RECORD

XFMR #	LOCATION	INSTALLED	# INST	KVA	VOLTAGE PRIMARY	VOLTAGE SECONDARY	PHASE SINGLE	PHASE THREE	CONDITION	MOUNTING	MANUFACTURE	SERIAL #	% IMP	WEIGHT LBS	AIR OIL (G)

Sample Number	Sec No.	Type	Dim (in Inches)		Height	KVA	Gallons	MFG	Weight (Pounds)	PCBs (ppm)	PCB Ident
1	1364-9	Transformer	36	A	54	75	40	Pennsylvania	1060	102	1260
2	7812498	Transformer	36	A	50	75	60	ESCO	1329	<0.5	
3	7812499	Transformer	36	A	50	75	60	ESCO	1329	<0.5	
4	7812497	Transformer	26	A	50	75	60	ESCO	1329	<0.5	
5	H6620J3Y66AA	Transformer	30	A	56	100	53	Gen Electric	1020	<0.5	
6	5J53363	Transformer	28	A	45	15	17	Wagner Electric	420	1.4	1260
7	1786784	Transformer	28	A	43	15	23	Allis Chalmer	420	63.9	1260
8	6113313	Transformer	33	A	53	37.5	40	Westinghouse	950	8.4	1260
9	[illegible]	Transformer	28	A	36	15	20	Westinghouse	550	<0.5	
10	68AC6616	Transformer	28	A	36	15	20	Westinghouse	350	<0.5	
11	5TJ8925	Transformer	24	A	30	15	20	Wagner Electric	350	<0.5	
12	68AC9094	Transformer	28	A	36	15	20	Westinghouse	350	<0.5	
13	2195345	Transformer	42	A	52	37.5	35	Allis Chalmer	920	<0.5	
14	6150504	Transformer	32	A	53	75	40	Westinghouse	1090	5.2	1260
15	6150506	Transformer	33	A	53	75	80	Westinghouse	1090	6.5	1260
16	BYT1195	Transformer	24	A	44	15	16.5	Wagner Electric	420	<0.5	
17	B9B3494	Transformer	24	A	44	15	16.5	Wagner Electric	420	<0.5	
18	6117274	Transformer	36	A	52	37.5	30	Westinghouse	950	8.3	1260
19	BYT1196	Transformer	24	A	44	15	16.5	Wagner Electric	420	4.8	1260
20	2195338	Transformer	34	A	53	37.5	35	Allis Chalmer	920	<0.5	
21	7812496	Transformer	36	A	60	75	60	ESCO	1329	<0.5	
22	678802	Transformer	31	A	44	25	37	Maloney Elec.	843.5	23	1260
23	678886	Transformer	31	A	44	25	37	Maloney Elec.	843.5	26.3	1260
24	678815	Transformer	31	A	44	25	37	Maloney Elec.	843.5	19.1	1260
25	678866	Transformer	31	A	44	25	37	Maloney Elec.	843.5	22.1	1260

Can't find

NA=INFORMATION NOT AVAILABLE

TRANSFORMER NUMBERING NOT YET DETERMINED

TRANSFORMER RECORD

XFMR #	LOCATION	INSTALLED	# INST	KVA	VOLTAGE		PHASE		CONDITION	MOUNTING	MANUFACTURE	SERIAL #	% DIP	WEIGHT	AIR OR
					PRIMARY	SECONDARY	SINGLE	THREE						LBS	OIL (G)
PCB CONTAINING TRANSFORMERS - ADDRESSED AND PREPARED FOR DRMO BY DOMT-DE.															

DOMT-WIDE INVENTORY OF TRANSFORMERS

Sample Number	Ser No.	Type	DIA (In Inches)		Height	KVA	Approx Gallons	MFG	Weight (Pounds)	PCBs (ppm)	PCB Ident
1	3364-9	Transformer	36	X	54	75	40	Pennsylvania	1060	102	1260
2	7812498	Transformer	30	X	50	75	60	ESCO	1329	<0.5	
3	7812499	Transformer	30	X	50	75	60	ESCO	1329	<0.5	
4	7812497	Transformer	36	X	50	75	60	ESCO	1329	<0.5	
5	B562012Y68AA	Transformer	30	X	58	100	53	Gen Electric	1020	<0.5	
6	5J51363	Transformer	28	X	45	15	17	Wagner electric	420	1.4	1260
7	1784784	Transformer	28	X	43	15	23	Allis Chalmer	420	60.9	1260
8	6211515	Transformer	33	X	53	37.5	40	Westinghouse	950	8.4	1260
9	68AC5617	Transformer	28	X	36	15	20	Westinghouse	350	<0.5	
10	68AC5616	Transformer	28	X	36	15	20	Westinghouse	350	<0.5	
11	4TJ8925	Transformer	24	X	40	15	20	Wagner Electric	350	<0.5	
12	68AC9098	Transformer	28	X	36	15	20	Westinghouse	350	<0.5	
13	2195345	Transformer	42	X	62	37.5	35	Allis Chalmer	920	<0.5	
14	6150508	Transformer	33	X	53	75	40	Westinghouse	1090	5.2	1260
15	6150506	Transformer	33	X	53	75	40	Westinghouse	1090	6.5	1260
16	B9F1195	Transformer	24	X	44	15	16.5	Wagner Electric	420	<0.5	
17	B9F1194	Transformer	24	X	44	15	16.5	Wagner Electric	420	<0.5	
18	6112278	Transformer	36	X	52	37.5	40	Westinghouse	950	8.3	1260
19	B9F1196	Transformer	24	X	44	15	16.5	Wagner Electric	420	4.8	1260
20	2195338	Transformer	34	X	54	37.5	33	Allis Chalmer	920	<0.5	
21	7812496	Transformer	36	X	60	75	50	ESCO	1329	<0.5	
22	678802	Transformer	33	X	54	25	37	Maloney Elec.	843.5	33	1260
23	678886	Transformer	34	X	54	25	37	Maloney Elec.	843.5	16.3	1260
24	676815	Transformer	31	X	44	25	37	Maloney Elec.	843.5	14.2	1260
25	679866	Transformer	31	X	44	25	37	Maloney Elec.	843.5	22.1	1260

INFORMATION NOT AVAILABLE

TRANSFORMER NUMBERING NOT YET DETERMINED

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