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THE MEMPHIS DEPOT
TENNESSEE

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 603

VERSION 4 FINAL REPORT

BRAC CLEANUP PLAN
Version 4

The Memphis Depot
(formerly the Defense Distribution Depot
Memphis, Tennessee)

Prepared by the Memphis Depot Caretaker Division
Environmental Office

October 2000

Instructions for Information Repository copies of the BRAC Cleanup Plan Revision 4, replace in the existing BCP binder the following chapters, tables, figures and appendix inserts.

- Executive Summary, BCP Abstract (Table ES-1), Acronyms and Table of Contents
- Chapter 1, Table 1-1 and Figure 1-3 (Please continue to use Figures 1-1, 1-2, 1-4 and 1-5.)
- Chapter 2 (Please continue to use Table 2-1 and Figure 2-1.)
- Chapter 3, Tables 3-1 and 3-6, and Figure 3-5 (Please continue to use Tables 3-2 through 3-5, 3-7 and 3-8, and Figures 3-1 through 3-4 and 3-6.)
- Chapter 4 (Please continue to use Tables 4-1 and 4-2.)
- Chapter 5 (Figure 5-1 is forthcoming upon BCT approval.)
- Chapter 6
- Table A-1 of Appendix A
- Table B-1 of Appendix B
- Engineering Evaluation/Cost Analysis for the Removal of Chemical Warfare Materiel Addendum 1 and the signed Action Memorandum for Removal of Chemical Warfare Materiel, Parcel 36, to be inserted into Appendix C
- Table E-1, updated Administrative Record Index and correspondence from the Memphis Depot Caretaker to the Environmental Protection Agency and Tennessee Department of Environment and Conservation regarding boundary designation for Parcel 2 to be inserted into Appendix E

provide electronically (cd-Rom or email)

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 for the timely closure and realignment of military installations. Public Law 101-510 provided 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, fluid process).

This BRAC Cleanup Plan (BCP) for the former Defense Distribution Depot Memphis, Tennessee 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 the Depot 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 the Depot. These programs support full restoration of the base property, where feasible, which is necessary to meet the requirements for property transfer and reuse activities associated with closure of the installation.

The BCP is a planning document based on the best available, current information and is used to fulfill the Site Management Plan requirements of the Federal Facilities Agreement signed by the Depot, the Environmental Protection Agency and Tennessee Department of Environment and Conservation. 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 fourth in a series of updates/modifications and represents conditions and strategies as of October 2000.

The following BCP abstract (Table ES-1) provides a summary of essential information contained in the BCP for the Depot. 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.

TABLE ES-1
BRAC CLEANUP PLAN ABSTRACT FOR FY00

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Department of Defense Component Defense Logistics Agency

Installation Name:	Defense Distribution Depot Memphis, Tennessee (Memphis Depot Caretaker Division)	**Date Prepared:**	200010
FFID:	TN-9715020570	**BRAC Round:**	IV
Location:	Memphis, Tennessee	**BRAC Type:**	C

INSTALLATION SUMMARY

Scheduled Operational Closure Date:		Date CERFA EBS Submitted:	199611
Actual Operational Closure Date:	199709	Number of CERFA Acres Proposed.	6 2
		Number of CERFA Acres Concurred:	5 95
Total Number of Installation Acres:	642	Date CERFA Concurrence Received:	199703
Acres Retained by Component.	0		
Acres to be Transferred to another Component	0	Date BCT Formed:	199512
Acres Planned for non-DoD Federal Transfer	0	Date Initial BCP Completed:	199611
Acres Planned for Non-Federal Transfer:	642	Date of Last BCP Update.	199910
		Date RAB Established:	199402

Actual Acres Leased to non-DoD Federal Entity	0	Actual Acres Transferred to non-DoD Federal Entity.	0
Actual Acres Leased to Non-Federal Entity	578	Actual Acres Transferred to Non-Federal Entity.	0

	Environmental Condition of Property						
Types of Acres	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Acres according to CERCLA	57 43	8.01	59.78	67.37	2 00	46 81	400.81

Additional Environmental Considerations	Number of Acres
Petroleum, oils, and lubricants	8.01
Unexploded ordnance/Ordnance or explosives	7 50
Areas that require protection because of the presence of natural or cultural resources	56.03

Total Number of Acres Available for Transfer. 6 51
Total Number of Acres Eligible for Disposal: 642

	Installation Budget ($000)									
Activity	**FY99**	**FY00**	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**	**FY06**	**FY07**	**FY08-Completion**
Restoration	4516	6,978	9,250	7347	700	700	700	700	700	1400
UXO	0	0	0	0	0	0	0	0	0	0
Compliance	146	41	44	36	31	39	32	0	0	0
Planning	5	5	5	5	5	0	0	0	0	0
Administration	1324	881	884	762	566	520	480	300	200	200
TOTAL	5991	7,808	10,183	8150	1302	1259	1212	1000	900	1600

REUSE PLANNING STATUS

Name of LRA. Depot Redevelopment Corporation of Memphis and Shelby County
Status of the Redevelopment Plan: Completed and approved by LRA board, city and county
Projected Date of Installation-Wide Disposal and Reuse EA/EIS
Actual Date of Installation-Wide Disposal and Reuse EA/EIS 199803
Final Property Disposal Date. 200512

Type of NEPA
Type of NEPA EA
Actual/Projected: projected

603 .:6

TABLE ES-1
BRAC CLEANUP PLAN ABSTRACT FOR FY00

	FOST	FOSL
Cumulative **NUMBER** Completed	0	8
Cumulative **ACRES** Completed	0	578
NUMBER Projected in Next Fiscal Year	2	0
ACRES Projected in Next Fiscal Year	58.13	0

RESTORATION PROGRAM

Summary

The EPA placed the Defense Depot Memphis, Tennessee (DDMT; now the Memphis Depot Caretaker [MDC]) 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 the Memphis Depot including former landfill areas, former hazardous material/waste storage areas, former hazardous material recoup area, former wood treatment dip vat area, and former spray paint and sandblast facilities. RI, Screening and BRAC site sampling was completed 97/2. Contaminants include TCE, PCE, Dieldrin, DDT, DDE and heavy metals. BCT reviewed data to determine future actions and made many parcel category changes. Phase I construction of the Interim Remedial Action for Groundwater at Dunn Field was completed with the installation of 7 recovery wells and the discharge piping system. Phase II began 99/10 with the installation of four more recovery wells. Dieldrin contaminated soil removal project at the military family housing units was completed. PCB contaminated soil removal project at Building 274 ("J" Street Café) was completed. Lead contaminated soil removal project at the old paint shop and maintenance area (Parcels 35 and 28) was completed. Dieldrin and PAH issues on remainder of Main Installation will require institutional controls restricting residential land use, including day care operations. The CWM removal action continues at Dunn Field and should be completed in May 2001. Main Installation remedial investigation fieldwork was completed. The Main Installation RI/FS reports are completed and the Main Installation Proposed Plan is out for public comment. The preferred alternative identified in the Main Installation Proposed Plan includes enhanced bioremediation of fluvial aquifer groundwater, soil removal at the south end of Building 949 due to lead levels, and institutional controls in the form of deed restrictions to prohibit residential land use (including day care operations) across the entire Main Installation, to maintain a boundary fence around the golf course and recreational areas to prevent casual access by nearby residents, to prohibit fishing and swimming at the lakes in FU2, and to prohibit the use of fluvial aquifer groundwater for potable use. Groundwater and soil ampling continues at Dunn Field due to a high TCE detection in a monitoring well.

	Site Name	Date
Final Remedy in Place/Response Complete	POL Burial Sites	2007 10
Long-Term Monitoring	POL Burial Sites	2012 10

COMPLIANCE PROGRAM

Summary

The facility operates under a state NPDES (stormwater) permit and has received no violations to date in FY99. MDC received a renewed NPDES permit. The three remaining city-issued air permits were closed in 1996. TDEC has terminated the hazardous waste container storage portion of the facility's RCRA Part B permit. The following have been completed: Radon survey, Lead-Based Paint survey, Radiological survey, Natural/Cultural Resources survey and Asbestos re-inspection. The two remaining permitted underground storage tanks were removed in July 1998 and the permits have been closed. The Nuclear Regulatory Commission has deleted this facility from the DDC's permit.

CONSERVATION PROGRAM

Summary:

No threatened or endangered species, protected habitats, wetlands, archeological, or Native American sites have been identified at the former DDMT facility. Twenty warehouses and three guard buildings built in 1942 have been determined to be eligible for placement on the National Register of Historic Places. The Army Material Command, Tennessee Historic Preservation Office and the Advisory Council for Historic Places signed the Memorandum of Agreement regarding preservation of these buildings.

TABLE ES-1
BRAC CLEANUP PLAN ABSTRACT FOR FY00

FAST-TRACK CLEANUP SUMMARY

Summary

The BCT works very closely with the DRC to include reuse priorities in the decision-making process. The BCT also works very closely with each other and the contractors in determining appropriate investigation and remediation strategies. BRAC sampling was completed in 97/2. Additional sampling requested by the BCT was completed in 1998 The BCT reviewed the data, determined future actions and made several parcel category changes since 98/9. EPA concurred with the CERFA uncontaminated parcels letter report dated 1998/7, but noted that CERFA uncontaminated parcels, e g. buildings, sitting above contaminated soil or groundwater would not receive EPA concurrence for transfer until completion of any required remedial actions or until appropriate land use controls were in place and incorporated into transfer documentation. The preferred alternative identified in the Main Installation Proposed Plan calls for institutional controls in the form of deed restrictions across the entire Main Installation prohibiting residential land use. EPA noted that concurrence for transfer of Main Installation properties (except the military family housing units) would be received when the institutional controls/deed restrictions, which are remedial actions under the National Contingency Plan, were in place. Of the 192.59 acres designated ECP Category 1 through 4, EPA considers 6.51 (Parcel 2) acres currently available for transfer. ATSDR continues to update the 1995 Public Health Assessment for the Defense Depot Memphis, Tennessee. The BCT hosted Community Information Sessions in 99/5 and 99/6 regarding the proposed removal action engineering evaluations/cost analyses. The BCT hosted an Availability Session and Public Comment Meeting for the Main Installation Proposed Plan in 00/8.

	Acres	Date
Cumulative CERFA Concurrence Acres.	57.43	1998/10

	Date	Actual/Projected
BCT Adjournment:		
RAB Adjournment:		
Early Transfer Authority:		

BCT REVIEW

The BCP Abstract has been reviewed by the BCT		Reviewed YES	NO
DoD BEC:	Shawn Phillips (Name)	[x]	[ ]
US EPA BCT Member	Turpin Ballard (Name)	[x]	[ ]
State BCT Member:	James Morrison (Name)	[x]	[ ]

ACRONYMS

ACRONYM	DEFINITION
ACM	Asbestos containing material
AMC	Army Materiel Command
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
CESAM	U.S. Army Corps of Engineers South Atlantic Division, Mobile
CFR	Code of Federal Regulations
CWM	Chemical warfare materiel
DA	Department of the Army
DDC	Defense Distribution Center
DDT	4,4'-Dichlorodiphenyltrichloroethane
DENIX	Defense Environmental Network Information Exchange
DSERTS	Defense Site Environmental Restoration Tracking System
DLA	Defense Logistics Agency
DLAM	Defense Logistics Agency memo
DOD	Department of Defense
DRC	Depot Redevelopment Corporation
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

ACRONYMS

IRDMIS	Installation Restoration Data Management Information System
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

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

List of Appendices

List of Tables

List of Figures

TABLE OF CONTENTS

1.0 INTRODUCTION AND SUMMARY

This Base Realignment and Closure (BRAC) Cleanup Plan (BCP) for the former Defense Distribution Depot Memphis, Tennessee was updated by the Memphis Depot Caretaker Division Environmental Office in September 2000. This BCP will be used to fulfill requirements for a Site Management Plan under the Federal Facilities Agreement.

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

Past waste and resource management practices at the Depot contaminated some areas of the facility Federal law requires federal agencies to investigate and clean up environmental contamination to a level that protects human health and the environment as part of the release and reuse of the property. The cleanup at the former Depot in on track and addresses these past practices. 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 the Depot. The BCP is based on the best information currently available. The information and schedules presented in this BCP were obtained from the BRAC Cleanup Team (BCT), which consists of representatives from the Defense Logistics Agency, the Environmental Protection Agency Region IV and the Tennessee Department of Environment and Conservation. 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 Cleanup Plan Guidebook (DOD 1996):

- 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 Depot 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 Depot environmental restoration program, environmental compliance programs, natural and cultural resource programs, community relations activities that have occurred to date, and the environmental condition of the Depot property.

- Section 4 describes the Depot-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 environmental restoration program 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 Table A-1 presenting funding requirements.

- Appendix B contains Table B-1 summarizing environmental restoration program and other associated technical documents in chronological order.

- Appendix C contains summaries of removal action, interim remedial and remedial action decision documents. (No remedial action decision documents have been completed.)

- Appendix D contains summaries of No Further Action decision documents, as well as Finding of Suitability to Lease (FOSL) and Finding of Suitability to Transfer (FOST) documents produced during this period. (No decision documents have been completed.)

- Appendix E presents working conceptual models for environmental restoration at BRAC sites and presents other materials relevant to the BCP, including a summary of issues related to environmental justice at Depot, an administrative record index, a letter of regulatory concurrence on the Community Environmental Response Facilitation Act (CERFA) report, the radiological survey reports and permit closure approval from the Nuclear Regulatory Commission, hazardous waste container storage permit closure from TDEC, a transformer inventory and test results, radon survey test results for the Depot and letters to the BCT regarding parcel boundary designations.

1.1 ENVIRONMENTAL RESPONSE OBJECTIVES

The Memphis Depot Caretaker Division is responsible for the management and overall implementation of environmental programs at the Depot. The U.S. Army Corps of Engineers Engineering and Support Center, Huntsville (CEHNC), manages remedial investigations/feasibility studies (RI/FS) 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 facility. In addition, the CEHNC manages other environmental investigation, removal design, remedial design and corrective measures design activities. The U.S. Army Corps of Engineers South Atlantic Division - Mobile (CESAM) provides support to the CEHNC for removal action, remedial action and corrective measures implementation as well as compliance program support.

The combined objectives of the BCT, CEHNC and other supporting agencies for the environmental restoration and compliance program at the Depot are as follows:

- Protect human health and the environment;
- Continue compliance with existing statutes and regulations;
- Conduct ongoing environmental restoration program activities in accordance with CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA); RCRA; the State of Tennessee 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 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 Remedial Actions (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 the Depot; and
- Advise the Army Materiel Command (AMC) 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 the Depot's environmental restoration programs;
- Present a comprehensive strategy for implementing response actions necessary to protect human health and the environment; and
- Present schedules for restoration and compliance activities.

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

This BCP was prepared with information available as of September 2000. Certain information presented in this BCP is derived from the final EBS, (November 1996), final Remedial Investigation Sites Letter Reports (May 1998), final Screening Sites Letter Reports (March 1998), revised final BRAC Parcel Summary Reports (October 1998), Main Installation Remedial Investigation Report (January 2000), Main Installation Feasibility Study (July 2000), and the Main Installation Proposed Plan (August 2000). Changes to information derived from these documents will be reflected in subsequent versions of the BCP. 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 cleanup 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 Depot BCT was established in December 1995, and the Depot's BRAC Environmental Coordinator (BEC) coordinates meetings. 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) Division of Superfund. A project team consisting of technical, operational, reuse and administrative specialists, as needed,

supports the BCT. A list of the BCT and project team members and 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 the Depot.

1.4.1 Site Description

The Depot 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 Depot was placed on the National Priorities List in October 1992. The Depot 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 the Depot, representatives of the Depot, the CEHNC, EPA and TDEC divided the facility into four potential Operable Units (OUs) (Figure 1-2), and seven Functional Units (FUs) based on similar historical use for conducting baseline risk assessments (Figure 1-2a). The Main Installation is divided into three OUs (2 through 4) and six FUs (1 through 6 with groundwater being FU-7). OU-2 is located in the southwestern quadrant of the Main Installation area of the Depot and is characterized as an industrial area where maintenance and repair activities took place. OU-3 is located in the southeastern quadrant of the Main Installation area and contains the entire southeastern watershed and golf course. OU-4 is located in the north-central section of the Main Installation area where material storage took place. Dunn Field, located north of the Main Installation and identified as OU-1, is the only known and documented burial area on the Depot. The local reuse authority (LRA), originally known as the Memphis Depot Redevelopment Agency (MDRA) and now the Depot Redevelopment Corporation (DRC), further subdivided the Depot property into parcels and further divided parcels into subparcels to delineate buildings and CERCLA sites.

1.4.2 Installation History and Mission

The 642 acres on which the Depot is located were originally used for producing cotton until purchased by the U.S. Army in 1940. The initial mission and function of the Depot 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, the Depot served as an internment center for 800 prisoners of war and performed supply missions for the Signal and Ordnance Corps. From 1963 until closure on September 30, 1997, the Depot was a principal distribution center for the Defense Logistics Agency (DLA) (formerly the Defense Supply Agency) for shipping and receiving a variety of materials including hazardous substances (pesticides, swimming pool chemicals, firearm cleaning and rust preventative chemicals), textile products, food products, electronic equipment, construction materials, and industrial, medical and general supplies. The Depot received, warehoused and distributed supplies common to all U.S. military services in the southeastern United States, Puerto Rico and Panama. Approximately four million line items were received and shipped by the Depot annually. The Depot shipped 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 the Depot. For the EBS, an electronic record search of federal and state environmental databases was conducted for properties adjacent to the Depot. In addition, visual inspections by automobile were performed on properties and facilities adjacent to the Depot. Recent groundwater samples collected in monitoring wells up gradient from the southwest and southeast corners of the Main Installation contained detectable levels of chlorinated solvents. The Tennessee Department of Environment and Conservation has initiated an investigation to identify the source of the chlorinated solvents at the request of the Environmental Protection Agency.

1.6 ENVIRONMENTAL SETTING

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

1.6.1 Physical Setting

The Depot 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 facility is located in a mixed residential, commercial and industrial land use area.

Generally, the Depot is described as consisting of two geographic areas — the Main Installation and Dunn Field. The Main Installation consists of 578 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 is highly developed and contains most of the buildings and material storage yards for the facility. At the time of closure, there were approximately 118 buildings, 26 miles of railroad tracks and 28 miles of paved streets at the Depot. Approximately 126 acres were used for covered storage space and approximately 138 acres are used for open storage space. Dunn Field is located just to the north, across Dunn Road from the northwest quadrant of the Main Installation. Dunn Field consists of 64 acres of mostly undeveloped land that has historically been used for storage of bauxite and fluorspar and for waste disposal.

1.6.2 Demographics

The Depot 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 the Depot and single-family residences south and west of the Depot. 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 the Depot 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 the Depot. Most are small groceries or convenience stores that serve their immediate neighborhoods. Memphis Light, Gas, and Water operates a large substation located northwest of the Depot along Person Avenue.

The Frisco Railroad and Illinois Central Gulf Railroad rail lines are north of the Depot. 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 the Depot along Dunn Road also contains several industrial firms.

Most of the land surrounding the Depot is highly developed; however, three relatively large, undeveloped sites exist in the general area. The largest site is located north of the Depot at Person Avenue and Kyle Street. The other undeveloped areas are located south of the Depot along Ball Road and Ketchum Road in the vicinity of the Orchid Manor Apartments, and east of the Depot 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 Depot property is zoned Light Industrial. This designation extends to several contiguous land parcels located east of the Depot 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 the Depot is zoned for residential use.

The 1990 census data for 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 Depot 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 the Depot is 3.4 inches (Law Environmental 1990b). Prevailing winds are from the southwest.

1.6.4 Hydrology

Surface drainage at the Depot is accomplished by overland flow to swales, ditches, concrete-lined channels and a storm drainage system. The majority of surface drainage at Dunn Field is achieved by overland flow to a storm drainage system that flows west of the facility (Figure 1-4). The northeast quadrant of Dunn Field drains to a concrete-lined channel that flows 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 either Tarrant Branch or Cane Creek, tributaries of Nonconnah Creek. Nonconnah Creek drains into Lake McKellar, a tributary of the Mississippi River. Where exposed, undisturbed surface soils are predominantly grassed, fine-grained semi-cohesive materials that tend to promote large volumes of rapid runoff. Paved and built-up sections of the facility also tend to generate significant amounts of runoff.

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

Two permanent surface water bodies exist at the Depot. The larger is Lake Danielson at approximately four acres in size. Lake Danielson receives a significant amount of the facility's stormwater runoff, primarily from the area where the "20 Typicals" (Buildings 229, 230, 250, 329, 330, 349, 350, 429, 430, 449, 450, 529, 530, 549, 550, 629, 630, 649 and 650) 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. Lake and pond overflow is directed to culverts extending beneath N Street and Ball Road and is then directed to Nonconnah Creek via unnamed tributaries.

1.6.5 Geology and Soils

Topographically, the Depot is situated in an area of gently rolling loess hills. Most of the Depot 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 the Depot: 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 Main Installation primarily consist of filled land (CH2M Hill 1995b).

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

Subsurface soils at the Depot consist of moderately 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 at Dunn Field consist of a loess layer underlain by fluvial deposits of sand and gravel that includes a perched water element.

The Depot 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 the Depot 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 the Depot. 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 and is the uppermost unconfined aquifer beneath the Depot. The saturated thickness of the fluvial aquifer varies from 5.7 feet to 18 feet at the Depot, 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 for Memphis.

The Memphis Sand Aquifer underlies the fluvial aquifer and is the primary source of drinking water for 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 the Depot 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 the Depot 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 Tennessee-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 southeastern most Shelby County, Tennessee, although the unit's outcrop continues south into Mississippi and north into Kentucky.

The Fort Pillow Sand Aquifer underlies the Depot 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 November 1998 potentiometric surface map of the fluvial aquifer at the Depot (CH2M Hill 1998a).

Two general groundwater flow regimes occur in the fluvial aquifer at the Depot. At Dunn Field, 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 a 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 near Gate 15. 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 was conducted as part of the RI/FS. Additional investigation will be conducted during the pre-design phase of the Main Installation groundwater remedial action.

1.7 HAZARDOUS SUBSTANCES AND WASTE MANAGEMENT PRACTICES

Past activities conducted at the Depot include a wide range of storage, distribution, and maintenance practices. Historically Dunn Field was used as a landfill, as a pistol range, for storage

of mineral stockpiles, and for periodic testing of flamethrowers, smoke generators and smoke pots using diesel fuel and fog oil. The pistol range house also was used for pesticide and herbicide storage. The mineral stockpiles have remained over the years and have been managed by the Defense National Stockpile. These stockpiles were sold to private industry and removed. The primary activities conducted at the Main Installation included material storage and shipping. Other activities conducted at the Main Installation included hazardous substance repackaging for storage or shipment; sandblasting and painting; vehicle maintenance; polychlorinated biphenyl (PCB) transformer storage; pesticide and herbicide storage and use; and treatment of wood products with pentachlorophenol. During the 1940s and 1950s prior to its construction, part of the golf course was used as a pistol range.

1.7.1 Hazardous Substance Activities

As a result of the Depot's complex site-utilization history, large quantities of industrial chemicals or hazardous substances were received, stored, repackaged and shipped. Some of these items were spilled or leaked at the Main Installation or landfilled at Dunn Field.

The following types of hazardous substances were received, stored and shipped at the Depot:

- Flammable liquids
- Flammable solids
- Corrosives (acids and bases)
- Poisons (including insecticides)
- Compressed gases (nonflammable and flammable)
- Class C explosives
- Oxidizers
- Low-level radioactive materials (watch dials, compasses, smoke detectors, etc.)
- Other regulated substances

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

Until 1985, mission chemical stock items in packages smaller than 55-gallon drums were stored in Building 629, which was constructed on a concrete foundation with seven bays separated by concrete walls and fire doors Mission chemical stock items in 55-gallon drums were stored at open storage areas X02, X03, X11, X12, X13, X15, X17, X19, X21, X23, X25 and X27. Some mission chemical stock items also were stored in Building 319. In 1994, Building 319, Bays 1 and 2 became the hazardous waste storage area for the Defense Reutilization and Marketing Office (DRMO). Building 319 had a concrete berm and was 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 Bay 6 at the west end of the building. The building was equipped with explosion-proof lighting and spill booths of similar construction to those in Building 629. Hazardous substances requiring temperature-controlled environments and medical items classified as hazardous substances were stored in Building 359. Security control at Buildings 319 and 359 was stringent.

Beginning in 1985 and continuing until closure, the majority of mission chemical stock items in packages smaller than 55-gallon drums were stored in Building 835. This building was constructed on a concrete foundation without floor drains and contained five bays separated by concrete walls and fire doors. Spill booths containing absorbent materials and cleanup equipment were located in each bay area. The bays were marked to preclude incompatible chemicals being placed in the same bay.

The X25 area, located on the northwest side of the facility, was an open storage area with an earthen berm until a concrete bermed, concrete pad was built in approximately July 1976. The X25 area was used to store Class 1 flammable liquids. These liquids were usually stored in 55-gallon drums and included a wide range of industrial grade organic solvents. A tension-fabric roof structure was constructed over the bermed, concrete pad in 1986 and stored flammable liquids in 55-gallon drums. Building 925 was built in 1994 over this area and was used for the storage of flammable liquids in 55-gallon drums.

Nonflammable petroleum, oil and lubricant (POL) mission chemical stock items were stored in 55-gallon drums at open storage areas X11, X12, X13, and X15 and X17. Flammable mission chemical products such as chlorinated solvents and fuels in 55-gallon drums were stored at open storage areas X13, X15, X17, X19, X21, X23, X25 and X27. POL products for operations use (i.e. transformers, motor oil) were stored at open storage area X07 and at vehicle maintenance Buildings 253 and 770. Building 873 was an open-sided shed used for storage of mission POL products, acids and corrosives, and for overflow mission chemical stock items. Until construction in 1985 of Building 865, the hazardous substance recoupment facility, hazardous substances in damaged containers were stored and repackaged at the south end of Building 873. Records also indicate hazardous substances were historically repackaged under a lean-to at the corner of E Street and 21st Street in open storage area X21 as well as at the southern end of open storage area X02 adjacent to Building 873.

The Depot is a RCRA generator of hazardous wastes in the Tennessee under generator number TN 4210020570. The majority of hazardous wastes generated by the Depot consist of hazardous substances that have reached shelf-life expiration dates and can no longer be used by the military services and from vehicle maintenance. The Depot also generated hazardous wastes from the cleanup of small hazardous substance spills. Of the approximately 100,000 hazardous substances transfers conducted per year at the Depot, only an estimated 50 transfers per year result in a spill or release. More than 90 percent of these events resulted from packaging failures during transport. The remaining events were attributed to accidents during handling at the Depot (Harland Bartholomew & Associates, Inc. 1988).

The former Defense Property Disposal Office was redesignated the Defense Reutilization and Marketing Organization (DRMO). The DRMO was a tenant of the Depot and provided property disposal services for hazardous substances and hazardous wastes generated by the Depot, the Naval Air Station Millington and the Air Force Air National Guard. The Depot applied for a Part B permit from EPA to allow the storage of hazardous wastes for up to 180 days based on construction of a Conforming Storage Facility. Until construction of the facility, DRMO maintained 90-day storage in Building 308 under interim status. Construction of the Conforming Storage Facility did not occur prior to closure. Hazardous substances in the DRMO's possession were stored in Building 308 until 1994 when TDEC approved two bays of Building 319 for hazardous waste storage and DRMO moved their operations. The Depot applied for closure of the container storage portion of its Part B permit in April 1997. TDEC approved closure of the container storage portion of the permit effective October 22, 1998.

1.7.2 Waste Management Activities

From 1940 until 1948, an area at the southwest section of Dunn Field was used to landfill outdated or damaged foodstocks and supertropical bleach. The northwest section of Dunn Field area was used as the landfill site for unusable, nonhazardous subsistence stocks from the late 1940s to mid 1960s. Additionally, small quantities of hazardous substances (e.g., acids, mixed chemicals, and chemical agent identification sets) were buried in the northwest section Dunn Field. The Depot used municipal landfills for sanitary solid waste disposal. Small quantities of nonhazardous mission stock items such as sterile water, isotonic saline and liquid soap were discharged to the sanitary sewer. The Depot normally obtained permission from the City of Memphis Public Works Department before discharging items into the sanitary sewer.

TABLE 1-1
BRAC CLEANUP TEAM/PROJECT TEAM MEMBERS

NAME	AFFILIATION	TELEPHONE NUMBER	ROLE/ RESPONSIBILITY
BRAC Cleanup Team Members			
Shawn Phillips	MDC	(901) 544-0617	BEC/DLA Representative
James Morrison	TDEC	(901) 368-7953	TDEC Representative
Turpin Ballard	EPA Region IV	(404) 562-8553	EPA Representative
Project Team Members (* indicates people on BRAC Cleanup Plan distribution list)			
Brian Deeken	TDEC	(901) 368-7955	Project Geologist
Denise Cooper	MDC	(901) 544-0610	Env. Protection Assistant
Jack Kallal	MDC	(901) 544-0614	Env. Protection Specialist
Mike Lee	MDC	(901) 544-0612	Env. Protection Specialist
* John Whiting	CESAM	(334) 694-4216	Construction Program Manager
* Dorothy Richards	CEHNC	(205) 895-1463	IRP Program Manager
Robert Thorstrick	CEHNC	(205) 895-1512	CWM Program Manager
Scott Bradley	CEHNC	(205) 895-1637	Environmental Scientist
David Ladd	USGS	(615) 837-4773	Project Geologist
*Rick Bowlus	USACHPPM	(410) 436-5208	Communications Contract PM
Terry Flynn	Frontline	(888) 848-9898	Corporate Communications PM
Trevor Smith Diggins	Frontline	(888) 848-9898	Corporate Communications PM
Alma Moore	Frontline	(901) 544-0613	Community Relations Specialist
*Steve Offner	CH2M Hill	(770) 604-9182	Investigation/Design Contractor PM
Greg Underberg	CH2M Hill	(423) 483-9032	Project Hydrogeologist
Vijaya Mylavarapu	CH2M Hill	(352) 335-7991	Risk Assessor
Charles Riggs	Jacobs Engineering Group	(314) 770-4137	Construction Contractor PM
Virgil Jansen	Jacobs Engineering Group	(314) 770-4025	Construction Contractor Site PM
Frank Johnson	UXB International	(205) 430-2892	CWM Removal Contractor PM
BRAC Cleanup Plan distribution list (in addition to BRAC Cleanup Team/Project Team)			
Richard Isaac	AEC	(410) 436-6823	AEC Representative
Jeanne Masters	DLA	(703) 767-2672	DLA BRAC Office
Karen Moran	DLA	(703) 767-6237	DLA Environmental Office
Mike Dobbs	DDC	(717) 770-6950	DDC Environmental Office
Ron Marichak	DDC	(717) 770-7760	DDC BRAC Office
Jackie Noble	DDC	(717) 770-6223	DDC Public Affairs Officer
Jeff McCauslin	DDSP	(717) 770-7421	Deputy Director of Installations
John DeBack	MDC/ DODBTFO	(901) 544-0622	Site Manager/Base Transition Coordinator
Jim Covington	DRC	(901) 942-4939	Executive Director

603 33

TABLE 1-1
BRAC CLEANUP TEAM/PROJECT TEAM MEMBERS

Notes:

AEC	Army Environmental Center	DRC	Depot Redevelopment Corporation
BEC	BRAC Environmental Coordinator	EPA	Environmental Protection Agency
BRAC Program	Base Realignment and Closure	IRP	Installation Restoration
CWM	Chemical warfare materiel	PM	Project Manager
DDC:	Defense Distribution Center	MDC	Memphis Depot Caretaker
DDSP.	Defense Distribution Depot Susquehanna, PA	DLA	Defense Logistics Agency
DODBTFO	Department of Defense Base Transition Field Office		
TDEC	Tennessee Department of Environment and Conservation		
USACHPPM	U.S Army Center for Health Promotion and Preventive Medicine		

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 reuse activity and property transfer methods.

2.1 STATUS OF DISPOSAL PLANNING PROCESS

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

- 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 identified 642 acres at the Depot that would be excess to its needs following closure. The Depot ceased mission operations on September 30, 1997.

The U.S. Army and DLA initiated the BRAC parcel transfer process for the Depot and coordinated actions with the Local Reuse Authority (LRA). This process involves three interrelated activities: (1) developing a redevelopment plan; (2) developing a disposal process; and (3) meeting requirements of the NEPA process. The design of this three-part disposal process integrates goals held by the U.S. Army, DLA, the City of Memphis and Shelby County to provide for the efficient transfer of the Depot mission within DLA, and to minimize the impact of closure on the community.

2.1.1 Redevelopment Plan

The reuse process began in 1995 when the Department of Defense (DOD) and Office of Economic Adjustment (OEA) approached Memphis to form a reuse committee. Memphis and Shelby County created the Memphis Depot Redevelopment Agency (MDRA) operated under the auspices of the Memphis/Shelby County Office of Planning and Development. The MDRA with its board of directors acted as the local reuse authority (LRA) representing a broad spectrum of community interests in the reuse of the Depot. The MDRA completed the redevelopment planning process in April 1997 with completion and approval of the Depot Redevelopment Plan.

In April 1997, the Depot Redevelopment Corporation (DRC) formed as a public corporation to implement the plan developed by the MDRA. The DRC is chartered under Tennessee law and recognized by the federal government as the local reuse authority to enter into agreements with the federal government for lease or conveyance of the Depot property.

Memphis and Shelby County authorities approved the Depot Redevelopment Plan in March 1997. The BCT reviewed this plan and uses it to make cleanup decisions. The Department of Housing and Urban Development (HUD) completed a review and approved the redevelopment plan for homeless consideration in September 1997. In addition to identifying the general land use for the future of the property, the Depot Redevelopment Plan provides an implementing strategy for the DRC.

The MDRA set the following goals for redevelopment and the DRC continues to support these goals:

- 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; and
- Generate early cash flow through interim leases and other means of support maintenance, improvements, and marketing efforts.

Prior to property transfer, the U.S. Army provided an interim lease for the Main Installation to the DRC in September 1997. Properties became available for sublease by the DRC through a series of findings of suitability to lease documents (FOSL) prepared by DLA and approved by the

Army. The final FOSL (8) included all property on the Main Installation that had not been included on a previous FOSL and was approved in August 1999. Since October 1997, the DRC completed 14 subleases under the master lease accounting for the reuse of more than 1 million square feet of covered facilities and the production of over 950 jobs. AMC is reviewing a Finding of Suitability to complete a Housing and Urban Development (HUD) sponsored transfer of Parcel 2 to a veteran service organization. This parcel consisting of 6.51 acres of land and seven buildings will provide housing for veterans.

The timing and conveyance of parcels to the private sector by the DRC 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 Process

The disposal process continues for the Depot. The disposal process considers BRAC requirements and environmental cleanup schedules, U.S. Army transfer goals and the redevelopment planning goals of the local community. The process incorporated relevant U.S. Army BRAC transfer 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 as amended.

The process includes the following actions:

- Offer facility to DOD agencies for use.
- Offer facility to other federal agencies.
- Offer facility under the 1994 Redevelopment Act (excluding property taken by DOD agencies) to sponsoring organizations and qualified homeless assistance providers.
- Offer facility to state and local government agencies through public benefit discount conveyance.
- Offer facility to a redevelopment agency at or below fair market value through an economic development conveyance.

- 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. Approval of the Depot Redevelopment Plan by HUD in September 1997 concluded this requirement for homeless consideration.

2.1.3 National Environmental Policy Act Documentation

To comply with NEPA, a disposal and reuse environmental assessment (EA) for the Depot was prepared by CESAM. The EA process began in April 1996 with a scoping meeting conducted on July 23, 1996. A scoping report was completed in October 1996. The final EA for master interim lease that included a description of the proposed disposal action and alternatives was completed in October 1996. The final EA for disposal and reuse was completed in February 1998, and the AMC signed a Finding of No Significant Impact (FONSI) on March 13, 1998. A 30-day public comment period began in March 1998. The public comment period was extended in response to a request by public comment This extension period concluded in October 1998.

The EAs evaluated several disposal and reuse alternatives following DA policy on the preparation of U.S. Army disposal and reuse documents. 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 transfers 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 existing deed restriction could cause additional encumbrances.

- **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. After transfer of the caretaker cadre mission, the U.S. Army would maintain and preserve the vacated area. The property would be available for the U.S. Army use if needed.

The DRC submitted the final Memphis Depot Redevelopment Plan to CESAM for consideration of the impacts of proposed reuse actions. The EA addressed a range of high, medium and low reuse intensities identified in the Memphis Depot Redevelopment Plan. An appendix to the EA includes the Memphis Depot Redevelopment Plan. Proposed reuses are cross-referenced to the reuse scenarios addressed in the final EA for disposal and reuse. The following three reuse scenarios were considered in the disposal and reuse EA:

- **High-Intensity Reuse Scenario:** This scenario assumes use at maximum feasible intensity for the Depot property. 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 of the Depot property would be used at a moderate level of intensity. This scenario most reflects the goals of the DRC.

- **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

Consistent with proposed community reuse goals, the disposal process at the Depot is under way. The following actions have occurred:

- Closure actions at the Depot began immediately after the BRAC 95 decision and culminated with the cessation of mission operations on September 30, 1997.
- A government caretaker force retained several facilities pending final transfer of the properties.
- The DA prepared and published a report of excess.
- Federal screening to identify facility uses by other non-DOD entities was completed in March 1996.
- Homeless assistance screening was completed and HUD approved the redevelopment plan in September 1997.
- This included four military housing units to be used by a local homeless provider and one warehouse (Building 972) to be used by a homeless assistance provider.

2.2 RELATIONSHIP TO ENVIRONMENTAL PROGRAMS

Disposal and reuse activities at the Depot are 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, and
- 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 stated 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 stated 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 disclosure 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 Depot, and the remediation of the site according to future use are factored into the property disposal and reuse process at the Depot. This is accomplished in the following manner:

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

- The environmental restoration program at the Depot uses the investigative and restoration processes of the CERCLA remedial action program. These processes include the completion of a Remedial Investigation (RI) and risk assessment according to future land use (commercial and light industrial). The redevelopment plan prepared by MDRA and the description of proposed action and alternatives in the disposal and reuse EA provide the current, best estimation of the future land use scenarios at the Depot.

- The Depot is proceeding with the investigation phase of the environmental restoration program. A RI for OU-1 through OU-4 and was completed in 1990, but did not fully define the nature and extent of impacts from hazardous substances releases. The 1990 RI also evaluated human health and ecological impacts at each suspected release site. The baseline risk assessment considered human health and ecological impacts of current and potential on-site and off-site receptors. RI field investigations are complete for the Main Installation and continue for Dunn Field. The Main Installation Remedial Investigation report was completed in January 2000. The Main Installation Feasibility Studies (FS) for Soil and Groundwater evaluated the effectiveness of remedial actions in mitigating risk according to the proposed reuses of the property. These documents provide sufficient data for the BCT to make cleanup decisions.

- DLA solicited and will continue to solicit input from the community on proposed reuse scenarios and redevelopment plan implementation through communication with the DRC 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 plans and activities.

- The presence of residual contamination at the Depot after closure will be considered in the development of real estate transfer documentation. Remediation of contaminated groundwater at the Depot will continue well beyond the Depot's closure date of September 30, 1997. DOD will not transfer land until the CERCLA requirements are met. DOD and regulator access to leased or conveyed property for environmental remedial actions and long term monitoring will be ensured through the establishment of easements and conditions or covenants in the real estate documents.

- The strategy and schedule for the Depot presented in this document are designed to streamline and expedite the necessary response actions associated with contaminated parcels identified at the Depot, in order to facilitate the earliest possible transfer and reuse activities. Because of the need to differentiate between areas suitable for transfer and those that are not, the Depot BCT has developed maps showing the environmental condition of property using data from the base-wide EBS (see text and figures in Section 3.4) and subsequent sampling results. The BCT will continue to update and refine the maps showing the environmental condition of property and property suitable for transfer for the Depot as data becomes available and as site restorations are completed.

The requirement for complying with CERCLA Section 120(h) and the possibility of residual contamination are two factors considered during the Depot property transfer and reuse. Table 2-1 summarizes information on the Depot 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 DRC priorities for property transfer and an estimated schedule to clean up the parcel. The Depot considers a parcel available for transfer on the date when the associated Finding of Suitability to Transfer (FOST) has been signed by AMC. In order for a FOST to receive EPA and AMC approval, restoration activities must be complete.

Currently, AMC plans to transfer property to the DRC 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 stating 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 when hazardous substances were disposed or released on the property. 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 transfer decisions in the EA for disposal and reuse as well as the Memphis Depot Redevelopment Plan accepted by the DA in September 1997. The various transfer methods being used or considered in the transfer process at the Depot are described in the sections below. 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 Depot are also identified.

2.3.1 Federal Transfer of Property

Screening of the Depot BRAC parcel for use by other federal agencies was completed in March 1996. No other federal agencies identified a need for the Depot 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 1998, DA screened the Depot properties for eligible state and local interests. Formal requests were received from the Department of Education, Department of Justice,

Department of Transportation and the Department of Interior/National Park Service (see Table 2-1).

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. There are no negotiated sales planned for Depot properties.

2.3.4 Widening of Public Highways

There are two road-widening projects associated with the Depot. The City of Memphis has a project on Hayes Road (adjacent to Dunn Field) between Dunn Avenue and Person Road. Following the Depot Redevelopment Plan, the DRC will widen "G" Street into a four lane divided roadway from Airways Boulevard to Sixth Street This project includes the demolition of two large warehouses, some lesser facilities, and building of main utility corridors along the new four lane divided roadway. Completion of this project will enhance traffic safety, improve vehicle access and upgrade utility services.

2.3.5 Donated Property

As of October 1998, DA screened excess properties for state and local interests, and no property donations have been initiated on any Depot properties.

2.3.6 Interim Leases

Pre-disposal 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. Prior to any leasing or permitting, the U.S. Army must complete a Finding of Suitability to Lease (FOSL) documenting that the property is safe to use. Leased properties may be transferred by deed to future owners after disposal decisions are made. To facilitate the reuse of surplus property, and in accordance with DA policy and the Memphis Depot Redevelopment Plan goals, the U.S. Army entered into an interim master lease with the DRC in September 1997.

2.3.7 Competitive Public Sale

Sale to the public would occur through either an invitation for bids or an auction. As of September 2000, no competitive public sale of facilities or property has been initiated at the Depot.

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. 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 DA describing its proposed economic development and job creation program. The DOD has recognized the DRC as the LRA for the Depot. The DRC submitted an EDC application to DA in Mar 1998. DA accepted this application in Sep 98. Agreement on the terms of the EDC and the acceptance of a memorandum of agreement (MOA) for implementation has been stalled since December 1999. The DA plans to transfer the majority of Depot property to the DRC through an EDC.

2.3.9 Caretaker of Property until Disposal

Utility systems not required for continued Depot 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." Upon closure, a caretaker cadre of 56 personnel remained at the Depot to meet the requirements of AR 210-17 and PL 500-126 pending transfer of the properties. The current strength of 25 personnel assigned to the caretaker cadre in September 2000 reflects the shrinking maintenance responsibility of the government as reuse activity increases. The caretaker cadre is scheduled for elimination effective June 2001.

3.0 INSTALLATION-WIDE ENVIRONMENTAL PROGRAM STATUS

This section summarizes the current status of environmental restoration projects and ongoing compliance activities at the Depot. 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 Depot facility

3.1 ENVIRONMENTAL PROGRAM STATUS

The BRAC Environmental Coordinator (BEC) is responsible for establishing and maintaining all environmental programs, compliance programs and remediation efforts at the Depot. The community relations aspect of the environmental program is managed by the BEC with rigorous oversight from the Defense Distribution Center. This oversight includes all decision making for community relations. The Memphis Depot Caretaker Environmental Office executes these programs. Three principal U.S. Army components assist the Depot's effort· CEHNC provides support in areas including RI/FS, remedial design, remedial action and compliance programs; CESAM provides support to BRAC activities at the installation as well as for construction of remedial actions; CEHNC, with assistance from the U.S. Army Program Manager for Chemical Demilitarization and the U.S. Army Technical Escort Unit, provides support to the Depot's chemical warfare materiel removal action. The Depot is a National Priorities List site. TDEC and EPA provide regulatory guidance and management for the environmental restoration program. This BCP, and specifically the schedules and site descriptions, fulfills the Site Management Plan requirements of the Federal Facilities Agreement signed by the Depot, EPA and TDEC.

Environmental restoration programs at the Depot are currently conducted under the environmental restoration programs in compliance with DLA, DA, DOD, local, state and federal statutes and regulations and in accordance with a Federal Facilities Agreement. Environmental compliance programs at the Depot are conducted in compliance with applicable DA and DOD regulations and local, 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, CERCLA and SARA. There are no remaining aspects of compliance for the Clean Air Act, Safe Drinking Water Act, and Toxic Substances Control Act.

SECTION THREE INSTALLATION-WIDE ENVIRONMENTAL PROGRAM STATUS

An environmental restoration program has been in place at the Depot for approximately 19 years. An overview of some of the major milestones in the program and associated compliance programs for the installation is provided below

- Several environmental assessments were conducted at the Depot, beginning with an initial Installation Assessment completed in 1981.
- The Depot is listed on the National Priorities List. The Depot, EPA and TDEC signed a Federal Facilities Agreement
- 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 the Depot. Four CERCLA OUs have been designated installation-wide.
- Several early actions and interim actions have been completed at the Depot. They include metals-, dieldrin-, pentachlorophenol- and petroleum-contaminated soil removals, underground and above ground storage tank removals and construction of the groundwater pump and discharge system at Dunn Field.
- The Depot has instituted programs to ensure compliance with other environmental programs applicable to the current status of the Depot. The Depot requested and received closure of its air permits, UST permits and hazardous waste container storage permit. The Depot currently maintains a stormwater discharge permit and provides quarterly discharge monitoring reports to TDEC.
- In 1995, the Generic Remedial Investigation/Feasibility Study Work Plan was prepared to indicate how the remedial investigation and feasibility study would be accomplished; RI/FS field sampling plans were approved by EPA and TDEC for each OU (CH2M Hill 1995c, 1995d, 1995e, 1995f) and the Screening Sites (CH2M Hill 1995h), and a draft no-further-action report was prepared for 13 sites (CH2M Hill 1994).
- In 1996, EPA approved a final ROD for an Interim Remedial Action (IRA) for Groundwater at Dunn Field (CH2M Hill 1995g).

- In 1997, sampling of RI, Screening and BRAC sites occurred on the Main Installation. The BCT began reviewing this sampling data and changing the environmental condition of property categories for subparcels.

- In 1998, construction of the IRA pump and discharge system was completed and the system became operational. Addendums to the 1995 field sampling plans were completed for OUs 2, 3 and 4 as well as for groundwater at the Main Installation. Soil and groundwater sampling for chemical warfare materiel (CWM) at Dunn Field was completed.

- In 1999, action memorandums were prepared and signed for removal actions at the old paint shop and maintenance area as well as for CWM disposal locations at Dunn Field. Additional monitoring wells were installed west of Dunn Field to provide more information on the hydrogeology of the area. Additional recovery wells for the IRA pump and discharge system were approved by the BCT and installed by the end of 1999. The Depot also completed remedial investigation fieldwork at the Main Installation and started fieldwork for Dunn Field.

- In 2000, the Depot completed the removal action at the old paint shop and maintenance area and began the removal action for CWM disposal locations at Dunn Field. The Depot also completed and provided to the public the Main Installation Remedial Investigation Report, Feasibility Studies for Soil and Groundwater, and Main Installation Proposed Plan. The Depot provided the draft Dunn Field Remedial Investigation Report for BCT review. The BCT approved a sampling plan addendum for groundwater at Dunn Field that called for additional monitoring wells and soil borings to provide more information on the hydrogeology of the area and the extent of the contaminant plume. This information will be incorporated into a final Remedial Investigation report for Dunn Field in 2001.

3.1.1 Restoration Sites

Past operations at the Depot have included the storage of various hazardous substances as well as the generation of various types of wastes from maintenance operations and their disposal and/or release across the installation. Efforts related to these sites under the environmental restoration program are described in this section.

SECTION THREE INSTALLATION-WIDE ENVIRONMENTAL PROGRAM STATUS

The Depot was placed on the National Priorities List and must fulfill requirements under CERCLA, as amended by SARA, 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 managed by the BCT. The Depot and CEHNC implement BCT decisions regarding the RI/FS process. To assist further investigations, representatives of the Depot, 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, the Main Installation has been grouped into areas of similar past use called Functional Units (Figure 1-2a). Each FU represents an area where human health exposure is generally uniform due to consistent past use. Sources of potential contamination at the Depot are further grouped into remedial investigation (RI) sites, proposed early removal (ER) sites, screening

sites, proposed no further action (NFA) sites, chemical warfare materiel (CWM) sites, and Topographic Engineering Center (TEC) sites that are areas identified from historical U.S. Army aerial photographs of the Depot.

RI 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 the Depot is to remove contamination at selected ER sites as soon as possible, thus expediting clean up 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 restoration 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 a 1990 remedial investigation report (Law Environmental 1990b) are: (1) areas where hazardous substances were managed and where there is potential for substance releases to have occurred, or (2) minor waste disposal areas used during past operations, 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).

Twelve 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

The Depot prepared a draft proposed NFA report (CH2M Hill 1994). A draft Basis for No Further Action Recommendations technical memorandum was prepared and documents the available information on these sites and the rationale for the proposed NFA recommendation. The Main Installation Proposed Plan includes institutional controls to be applied across the Main Installation to restrict residential development and drinking water well installation. Since institutional controls are considered a remedial action per the NCP, the NFA sites will be included in the Main Installation record of decision for remedial action

There are four locations within Dunn Field where chemical warfare materiel (CWM) was suspected to have been disposed. After the field investigation and continued document review, CEHNC determined that two of the sites did not contain CWM. The CWM sites being removed from Dunn Field are listed below:

- Mustard bomb decommissioning site (Site 24A and 24B)
- Chemical Agent Identification Sets (CAISs) burial site (Site 1)

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

These three agencies 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 waste components of the project includes the three-phased approach described below.

1. Conduct an initial investigation focused on the known and suspected CWM sites at the facility to evaluate and delineate the presence, nature and extent of potential CWM contamination at Dunn Field and to provide information for CEHNC to prepare a Site Safety Submission for review by the Department of Army (DA) and the Department of Health and Human Services (DHHS). The field investigation activities were conducted in 1998. The DA and the DHHS approved the Site Safety Submission in 2000.

2. Prepare an addendum to the Remedial Investigation OU-1 Field Sampling Plan and Screening Site Field Sampling Plan to include data resulting from a soil gas evaluation. Conduct RI and screening site sampling practicing avoidance of areas identified by CEHNC as suspected CWM sites. The RI and screening site sampling was conducted in 1998.

3 Conduct necessary CWM removal actions based on the results of the initial field investigation. Soil samples will be collected from the CWM removal action excavations and the analyses used in the Dunn Field RI/FS. The action memorandum for the CWM removal action was signed in April 2000

Upon a review of historical aerial photographs provided by the U.S. Army Topographic Engineering Center, four areas were identified as potential sources of contamination. The four additional sites are listed below:

- TEC Site 90 - Old Pond Area. Evident in photographs from 1945 until 1952, this area consisted of a pond approximately 200 feet long by 100 feet wide with its long axis in the northwest/southeast direction. The pond was located southeast of the current K Street and northwest of the current location of Building 689.

- TEC Site 91 - Former Container Storage Strip. Evident in photographs from 1945 through 1946, this area consisted of containers approximately 10 feet wide by less than 20 feet long oriented east to west between the current locations for Buildings 670 and 560. The contents and purpose of these containers is unknown.

- TEC Site 92 - Former Magazines. Evident in photographs from 1945 until 1963, this area consisted of two small buildings labeled SF2 and SF2-1 on a 1959 facilities map located east of the Lake Danielson drainage ditch on the east side of 2nd Street. The contents, purpose and demolition date of these buildings is unknown, but former employees indicated the buildings were used to store lawn maintenance equipment, fertilizer and insecticide during the last years before the buildings were demolished.

- TEC Site 93 - Mallory Avenue Ground Star. Evident in photographs from 1949 until 1953, this area consisted of disturbed ground in the grassy area between the

Depot fenceline and Perry Road directly east of Mallory Street. The nature of the soil disturbance has not been determined.

The following sections describe the potential contamination at the Depot by OU. For purposes of this report, references to site numbers correspond to the 1995 Generic RI/FS Work Plan site numbers with the exception of the TEC sites that were identified after completion of the 1995 work plan (CH2M Hill 1995b).

OU-1: Dunn Field

Dunn Field, OU-1, is an open, unpaved area located north of and across Dunn Road from the Main Installation. Dunn Field is the only known and documented burial area on the Depot. 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 Depot has documented the burial of wastes, documented in other environmental studies or discovered during the 1990 RI (Law Environmental 1990b). Soil samples collected in Dunn Field during previous investigations indicated the presence of pesticides at concentrations up to 0.48 milligrams per kilogram (mg/kg) and polynuclear 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 RI fieldwork conducted from 1989 through 1990. Groundwater monitoring data collected during the 1990 RI fieldwork and presented in the 1990 RI report (Law Environmental 1990b) indicated 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 fieldwork, monitoring wells were installed in the fluvial aquifer and the Memphis Sand Aquifer. Contaminants of potential concern in groundwater collected from the Dunn Field monitoring wells screened in the fluvial aquifer include the following:

- Volatile organic compounds

- Carbon tetrachlonde
- 1,2-Dichloroethylene
- 1,1,2,2-Tetrachloroethane
- 1,1-Dichloroethylene
- Tetrachloroethylene
- Trichloroethylene

• Metals

- Arsenic
- Barium
- Chromium
- Lead
- Nickel

The contaminants of potential 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 Law Environment's remedial investigation, 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, the drinking water aquifer for the city of Memphis.

In 1993, an engineering design report was prepared for the Depot. 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 Law Environmental 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 for Groundwater at Dunn Field (OU-1) was prepared for the Depot (CH2M Hill 1995g). The Depot received EPA concurrence on this ROD in May 1996.

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

- Evaluation of aquifer characteristics that may include installation of a pump test well (A pump test was performed in 1992.);
- Installation of additional monitoring wells to locate the western edge of the groundwater plume (Since 1996, the Depot has installed more than 50 monitoring wells on and off the Depot to define the extent of the groundwater plume and to better define the hydrogeology of the area.);
- Installation of recovery wells along the leading edge of the plume (The recovery wells were installed along the western fenceline of Dunn Field to create a hydraulic barrier to prevent further migration and to remove contaminated groundwater. EPA and TDEC, during BCT meeting IRA design discussions and via design reviews, approved the well locations. Construction was completed in September 1998 and the system was fully operational in October 1998. Four additional recovery wells were installed in 1999 to enhance the systems performance. Construction of the associated discharge piping system necessary for the wells to become operational is scheduled to be completed and the system operational by January 2001.);

- 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 (Permit obtained and pump system discharge connection to sanitary sewer completed in 1998);

- 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 includes parameters to be monitored and frequency of monitoring. The Depot provides the city with monthly chemical analysis reports per the permit. After the first year of pumping, the reporting frequency will be quarterly. In September 2000, the Depot requested the city to modify the sampling requirements of the discharge permit.);

- 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.

The Depot completed remedial investigation fieldwork at Dunn Field and drafted the report. The final Dunn Field Remedial Investigation Report is scheduled for March 2001. The BCT has not fully evaluated the investigation results due to additional groundwater concerns from a newly installed well to the immediate west of Dunn Field. The Depot prepared an addendum to the Dunn Field sampling plan because of this new well to further characterize and monitor the groundwater plume and to provide additional information regarding the hydrogeology of the area.

OU-2: Southwestern Quadrant, Main Installation

Operable Unit 2 is geographically located in the southwestern quadrant of the Main Installation area of the Depot and is characterized primarily as an industrial area where maintenance and repair activities took place. The OU-2 boundaries are based on the geographic proximity of potential contamination sites and the maintenance activities that occurred. OU- 2 includes the potential

contamination sites shown on Table 3-1 and Figure 3-2 and, for baseline risk assessment purposes, Functional Units 3 and 7 (groundwater under the Main Installation) as shown on Table 1-2a.

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).

During late calendar year 1996 and early 1997, sampling and analysis was conducted as prescribed by the 1995 OU-specific RI field sampling plans, the 1995 Screening Sites sampling plan and the Sampling and Analysis Recommendations report (Woodward-Clyde, 1997) prepared as part of the EBS process. An addendum to the OU-2 Field Sampling Plan was provided to EPA and TDEC in August 1998. Additional soil and groundwater sampling occurred in 1998 to further define the source, nature and extent of groundwater contamination at the Main Installation. In 1999, The Depot completed remedial investigation fieldwork and baseline risk assessment for the Main Installation and distributed the final Main Installation Remedial Investigation Report in January 2000.

The contaminants of concern in groundwater identified at the Main Installation are tetrachloroethylene (PCE) and trichloroethylene (TCE). Although PCE and TCE occur in groundwater above the Safe Drinking Water Act maximum contaminant levels of 5 ug/L, they do not present significant current health risks because no one is drinking the water and the water table is approximately 80 feet below land surface. The contaminants of concern in soil at the Main Installation are lead, arsenic and dieldrin. Lead, dieldrin and arsenic levels in surface soil in some areas present unacceptable risks for hypothetical future residents. Lead is above the industrial health protective level in one area (adjacent to south end of Building 949).

The Depot distributed the final Main Installation Feasibility Studies for Soil and Groundwater in July 2000. The Main Installation Proposed Plan public comment period ended on October 13 2000. The preferred alternative in the Main Installation Proposed Plan calls for institutional controls across the entire Main Installation to restrict residential land use (except at the former military

family housing area) and day care operations, to restrict the use of fluvial aquifer groundwater for potable water, to maintain a boundary fence around the golf course and recreational area. The preferred alternative also calls for the soil around the south end of Building 949 to be removed due to unacceptable lead levels as well as for enhanced bioremediation of the PCE and TCE in the fluvial aquifer and long term groundwater monitoring.

In 2000, the Depot completed a removal action at the old paint shop and maintenance area to bring lead levels in soil to within EPA's acceptable risk-based concentrations.

Because the facility was divided into subparcels to facilitate property transfer, information regarding OU-2 is organized by subparcel and may be found in Section 3.4, Environmental Condition of Property. OU-2 consists of the following parcels in their entirety: 24, 25, 26, 27, 28 and 35. OU-2 consists of portions of parcels 23 and 29.

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

The boundaries of Operable Unit 3 are based on its geographic location and a desire to encompass the entire southeastern watershed. OU-3 contains the only surface water bodies on the Depot, so it was practical to keep the majority of the sampling and analysis associated with surface water and sediments within the same OU. OU-3 includes the potential contamination sites shown on Table 3-1 and Figure 3-3 and, for baseline risk assessment purposes, Functional Units 2, 5, 6, most of 1 and 7 (groundwater under the Main Installation) as shown on Table 1-2a. In general, soil samples collected in OU-3 (seven surface soil 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 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 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).

During late calendar year 1996 and early 1997, sampling and analysis was conducted as prescribed by the 1995 OU-specific RI field sampling plans, the 1995 Screening Sites sampling plan and the Sampling and Analysis Recommendations report (Woodward-Clyde, 1997) prepared as part of the EBS process. An addendum to the OU-3 Field Sampling Plan was provided to EPA and TDEC in August 1998.

Additional soil and groundwater sampling occurred in 1998 to further define the source, nature and extent of groundwater contamination at the Main Installation. Additional fish tissue sampling also occurred in 1998 using different methods of catching aquatic life to ensure any edible species were sampled. No edible species were captured. The final Baseline Risk Assessment for Golf Course Impoundments indicated pesticide levels in fish tissue did not pose an unacceptable risk. A bioremediation pilot study to determine the effectiveness of energizing naturally occurring bacteria to reduce dieldrin levels in soil at the golf course began in 1998 and was completed in 1999. The study indicated that the regular application of a specific plant-based substance as part of a landscape management program energized bacteria and reduced dieldrin levels. The final Streamlined Risk Assessment Parcel 3 Technical Memorandum indicated dieldrin levels did not pose an unacceptable risk to golfers or to children and teenagers playing on the softball field or playground.

Two removal actions were completed in 1999. Soil with dieldrin levels above EPA's residential risk-based concentration was removed from the former military family housing area (Subparcel 2.7). This removal action is documented in the Post Removal Report, Family Housing Area, Memphis Depot, Tennessee, Volumes I and II, and the EPA and TDEC have concurred that the action was successfully completed. Soil impacted by PCBs was removed from around Building 274, "J" Street Cafe (Subparcel 5.2). This removal action is documented in the Post Removal Report, Cafeteria Building, Memphis Depot, Tennessee, and the EPA and TDEC have concurred that the action was successfully completed. In 1999, The Depot completed remedial investigation fieldwork and baseline risk assessment for the Main Installation and distributed the final Main Installation Remedial Investigation Report in January 2000.

The contaminants of concern in groundwater identified at the Main Installation are tetrachloroethylene (PCE) and trichloroethylene (TCE). Although PCE and TCE occur in groundwater above the Safe Drinking Water Act maximum contaminant levels of 5 ug/L, they do not present significant current health risks because no one is drinking the water and the water table is approximately 80 feet below land surface. The contaminants of concern in soil at the Main Installation are lead, arsenic and dieldrin. Lead, dieldrin and arsenic levels in surface soil in some areas present unacceptable risks for hypothetical future residents. Lead is above the industrial health protective level in selected areas (adjacent to south end of Building 949).

The Depot distributed the final Main Installation Feasibility Studies for Soil and Groundwater in July 2000. The Main Installation Proposed Plan is currently in the public comment period, which is scheduled to end in October 2000. The preferred alternative in the Main Installation Proposed Plan

calls for institutional controls across the entire Main Installation to restrict residential land use (except at the former military family housing area) and day care operations, to restrict the use of fluvial aquifer groundwater for potable water, to maintain a boundary fence around the golf course and recreational area. The preferred alternative also calls for the soil around the south end of Building 949 to be removed due to unacceptable lead levels. The preferred alternative also calls for enhanced bioremediation of the PCE and TCE in the fluvial aquifer and long term groundwater monitoring.

Because the facility was divided into subparcels to facilitate property transfer, information regarding OU-3 is organized by subparcel and may be found in Section 3.4, Environmental Condition of Property. OU-3 consists of the following parcels in their entirety: 1, 2, 3, 4, 5, 6, 7, 8, 9, 16, 17, 18, 19, 20, 21, 22 and 34. OU-3 consists of portions of parcels 10, 11 and 23.

OU-4: North-Central Area, Main Installation

Operable Unit 4 is located in the northern and central sections of the Main Installation. 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 that have been conducted at OU-4, the Depot has investigated the groundwater at the Main Installation and the potential communication at OU-4 between the fluvial aquifer and the Memphis Sand Aquifer. OU-4 includes the potential contamination sites shown on Table 3-1 and Figure 3-4 and Functional Units 4 and 7 (groundwater at the Main Installation) as well as a small portion of 1 as shown on Figure 1-2a.

The most prominent IRP feature of OU-4 is the former hazardous materials warehouse (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 1990 RI (Law Environmental 1990b). OU-4 also contained the former pentachlorophenol dip vat area sites (near Building 737). Remediation conducted during 1985 and 1986 at this site included the removal of the pentachlorophenol dip vat, associated underground storage tank and surrounding soils This area was then used for storage and mixing of pesticides, herbicides and insecticides (Building 737) as well as storage of transformers (PCB and non-PCB containing) used for facilities maintenance.

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).

During late calendar year 1996 and early 1997, sampling and analysis was conducted as prescribed by the 1995 OU-specific RI field sampling plans, the 1995 Screening Sites sampling plan and the Sampling and Analysis Recommendations report (Woodward-Clyde, 1997) prepared as part of the EBS process. An addendum to the OU-4 Field Sampling Plan was provided to EPA and TDEC in August 1998. Additional soil and groundwater sampling occurred in 1998 to further define the source, nature and extent of groundwater contamination at the Main Installation.

In 1999, The Depot completed remedial investigation fieldwork and baseline risk assessment for the Main Installation and distributed the final Main Installation Remedial Investigation Report in January 2000.

The contaminants of concern in groundwater identified at the Main Installation are tetrachloroethylene (PCE) and trichloroethylene (TCE). Although PCE and TCE occur in groundwater above the Safe Drinking Water Act maximum contaminant levels of 5 ug/L, they do not present significant current health risks because no one is drinking the water and the water table is approximately 80 feet below land surface. The contaminants of concern in soil at the Main Installation are lead, arsenic and dieldrin. Lead, dieldrin and arsenic levels in surface soil in some areas present unacceptable risks for hypothetical future residents. Lead is above the industrial health protective level in selected areas (south end of Building 949). The Depot distributed the final Main Installation Feasibility Studies for Soil and Groundwater in July 2000. The Main Installation Proposed Plan is currently in the public comment period, which is scheduled to end in October 2000. The preferred alternative in the Main Installation Proposed Plan calls for institutional controls across the entire Main Installation to restrict residential land use (except at the former military family housing area) and day care operations, to restrict the use of fluvial aquifer groundwater for potable water, to maintain a boundary fence around the golf course and recreational area. The preferred alternative also calls for the soil around the south end of Building 949 to be removed due to unacceptable lead levels. The preferred alternative also calls for enhanced bioremediation of the PCE and TCE in the fluvial aquifer and long term groundwater monitoring. Because the facility was divided into subparcels to facilitate property transfer, information regarding OU-3 is organized by subparcel and may be found in Section 3.4, Environmental Condition of Property. OU-4

consists of the following parcels in their entirety: 12, 13, 14, 15, 30, 31, 32, and 33. OU-4 consists of portions of parcels 10, 11, and 29.

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 the Depot, as discussed in Section 3.1.1. Spill response sites are potential contamination sites where hazardous substances were spilled during handling or where storage containers leaked. Table 3-2 summarizes the sites that were identified through a review of the Spill Response Checklists provided by Depot 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 substances have occurred since the RFA and the Law Environmental RI were completed in 1990. The most recent assessments, on-site visual inspections and a records review were conducted in 1996 as part of the BRAC EBS process. 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 the Depot. These include asbestos, PCB, radon, and radiological surveys. The results of these surveys and the current status of these environmental programs are described in Section 3.2.

Reviews of sampling results conducted by the BCT as part of the BRAC environmental restoration process revealed the following additional areas of concern: soil at the former military family housing units (removed in 1998), soil at the golf course (risk assessment indicated no unacceptable risk for recreational use) and soil south of Building 873 (risk assessment indicated no unacceptable risk for industrial use). These areas of concern were addressed according to the strategy described in Section 4. As part of the current Main Installation Remedial Investigation, aerial photographs of the Depot, including Dunn Field, taken by the U.S. Army (currently maintained by the U.S. Army Topographic Engineering Center [TEC]) from 1942 until 1996 revealed the following areas of concern: old pond area northwest of Building 689, former container storage strip between current Buildings 670 and 560, former magazines east of 2nd Street at the golf course, and Mallory Avenue ground star at the grass area between the Depot fenceline and Perry Road across from Mallory Avenue. These new areas of concern were addressed according to the strategy described in Section 4.

3.2 COMPLIANCE PROGRAM STATUS

Compliance activities at the Depot are conducted in coordination with the Depot's environmental restoration program. General compliance activities address the management of USTs, hazardous materials, asbestos, PCBs, and air and water discharges. Compliance-related restoration actions at the Depot include removal of USTs and abatement of friable asbestos.

The statutory/regulatory basis for environmental restoration activities at the Depot 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 that have been or would be conducted for the normal operation of the Depot 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 transfer.

Several compliance-related activities at the Depot were completed in order to reduce or eliminate potential contamination at the Depot. These actions involved UST removal/closure, PCB transformer removal and asbestos abatement.

The Depot has maintained various permits and registrations with federal, state and local agencies in compliance with environmental regulations. These include UST permits, hazardous waste generator activities permit, an industrial wastewater discharge agreement, a stormwater permit, and air emission permits. The stormwater permit and industrial wastewater discharge agreement are still active at the Depot. The last of the Depot's air permits were closed in May 1997. The Depot's hazardous waste container storage permit was closed by TDEC effective October 22, 1998. The remaining two permitted USTs were removed in 1998, and the Depot received closure approval from TDEC in December 1998. The Depot does not plan to transfer permits to future tenants, but will address this issue if desired by future tenants.

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

3.2.1 Storage Tanks

Both USTs and ASTs at the Depot 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 are currently 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 the Depot were removed or closed in place. All soil contamination discovered during removal/closure of the tanks was removed.

In 1998, the two remaining regulated USTs were removed. TDEC approved the Depot's closure applications in December 1998.

In 2000, a UST documented as closed by filling with sand was removed during the old paint shop and maintenance area removal action. It was found to contain approximately 800 gallons of used oil and hydraulic fluid. The UST was in good condition and no soil staining was observed. Confirmation sample results indicated no release to the surrounding soil. The contents of the tank were removed and disposed while the tank was dismantled, cleaned, and disposed.

A complete inventory of the USTs on the Depot 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 the Depot are conducted under federal requirements including 40 Code of Federal Regulations (CFR) Parts 110, 112 and 116, and TDEC oil pollution prevention regulations.

There are five ASTs present on the Depot. An inventory of the ASTs on the facility including tank size, contents and status is provided in Table 3-5. Two ASTs remain active in support of the

Depot's fire suppression system and computer network emergency generator. The remaining three ASTs will be relocated by the DRC to the staging area at the east end of Building 360 during construction of the entrance boulevard. The Depot no longer maintains these three ASTs. According to the DRC, these ASTs are empty and inactive.

In compliance with 40 CFR Part 112 and TDEC oil pollution regulations, the Depot 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

Use and storage of operations-related hazardous substances decreased due to closure of the Depot. Prior to closure on September 30, 1997, the Depot conducted a closeout survey program established for facilities being vacated. Hazardous substances found abandoned during these closeout surveys were identified, and arrangements were made for the proper disposal of the materials in compliance with regulatory requirements.

Maintenance activities currently conducted on the Depot involve the management of a small amount of hazardous substances. These substances include paints and thinners, boiler treatment chemicals and janitorial supplies.

Hazardous substances present at the Depot 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. The Depot maintains material safety data sheets as required by the Occupational Safety and Health Administration (OSHA) for all hazardous substances used by Depot personnel.

Prior to closure, hazardous substances as specified in SARA, Title II, Section 302, were stored in sufficient quantities at the Depot to require reporting under SARA Title III, Section 312 (Tier reporting), and SARA Title III, Section 313 (Toxic Chemical Release Form R reporting). Mission-related hazardous substances were transferred from the Depot to other DLA storage depots or were turned into the DRMO for proper disposal. The Depot no longer stores extremely hazardous substances and therefore is no longer required to report under SARA Title III, Sections 312 and 313.

3.2.3 Lead-based Paint

Lead-based paint (LBP) at the Depot is currently managed in accordance with the DOD memorandum entitled "Asbestos, Lead Paint, and Radon Policies at BRAC Properties," dated October 31, 1994, and with the DA memorandum entitled "Guidance for Lead-Based Paint Hazard Management During Transfer of Army Property," dated August 26, 1998. 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 subparcel, 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 subparcel. 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 was conducted at the Depot in 1995. Lead-based paint abatement occurred at the former military family housing area in 1997, 1998 and 1999.

3.2.4 Hazardous Waste Management

Hazardous waste compliance programs at the Depot 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. and TDEC hazardous waste management rules. The EPA has delegated responsibility

for the RCRA Subtitle C program to TDEC. The TDEC Division of Solid Waste Management administers the state program.

The Depot was 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 Depot has been reclassified as a small quantity generator and continues to operate under EPA identification number TN4210020570.

The Depot'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.

TDEC closed the Depot's hazardous waste container storage permit effective October 22, 1998. A very small amount of used oil continues to be generated at the Depot. Used oil from grounds keeping equipment maintenance operations is stored in appropriate drums and transported offsite for recycling via a contracted licensed waste vendor.

3.2.5 Solid Waste Management

Solid waste management compliance programs at the Depot 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 TDEC solid waste regulations.

Municipal solid waste currently generated at the Depot 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 the Depot are conducted under DLAM 6050.1, the federal requirements found in 40 CFR 761, Department of Transportation regulations and TDEC PCB regulations. The PCB management practices at the Depot 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 the Depot. Appendix E provides a comprehensive inventory of these regulated transformers. Since 1993, the

Depot has removed all PCB-containing transformers and disposed the equipment through a DRMO waste contract

All remaining fluorescent light ballasts that may or may not contain PCBs are handled as if they do contain PCBs and are collected and transported for recycling/disposal via contract with a licensed waste vendor.

3.2.7 Asbestos

The EPA, OSHA and the Memphis/Shelby County Health Department regulate asbestos-containing material (ACM). The Depot manages ACM in compliance with the DA guidance and the DOD memorandum entitled "Asbestos, Lead Paint, and Radon Policies at BRAC Properties," dated October 31, 1994.

An asbestos survey (The Pickering Firm, 1993a through c, 1994a through k) was performed at the Depot. The survey included the results for suspected ACM and recommendations for management based on the condition of the ACM.

The information reported in this survey is summarized in Appendix E, and includes the subparcel 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, were demolished since the 1993 survey or were built after the 1993 survey. 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 the Depot 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 the Depot are managed under the installation hazardous waste management program and environmental restoration program in accordance with DOD directives, CERCLA and TDEC hazardous waste regulations. Specific investigation and restoration requirements for solid waste management units at the Depot are included in the CERCLA environmental restoration process.

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

3.2.10 Wastewater Discharges

Point source wastewater discharges generated at the Depot are regulated under the federal Water Pollution Control Act, Clean Water Act, National Pollutant Discharge Elimination System (NPDES) permit program (40 CFR Parts 122, 125, and 136), TDEC wastewater discharge permit regulations, and two city of Memphis industrial wastewater discharge agreements - one for domestic sewage discharge and one for the interim remedial action for groundwater at Dunn Field discharge. Point source wastewater and domestic sewage are discharged via the city's sanitary sewer to the city's treatment facilities.

3.2.11 Oil/Water Separators

Three oil/water separators operated at the Depot. The oil/water separators were 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; TDEC oil pollution prevention regulations; and DOD directives. The separators were cleaned regularly and the wastewater from the units was pumped and discharged to the city's wastewater lagoon. The discharge from the unit was sampled regularly to ensure proper operation and compliance with regulatory requirements. One oil/water separator was removed in 1999 by the DRC during construction of the entrance boulevard. The other two units remain, but are used only to wash grass off lawn maintenance equipment.

3.2.12 Pollution Prevention

Pollution prevention at the Depot was 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, TDEC hazardous waste management rules and DLAM 6050.1. Plan elements included 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 collected for off-site recycling included used oil.

3.2.13 Medical Waste

Medical waste generated from storage of medical items was disposed of as special waste in the local sanitary landfill. Prior to 1980, records indicate medical waste generated from storage of medical items was incinerated at either the incinerator in Building 359 or at the Memphis Zoo.

3.2.14 Unexploded Ordnance

The properties to be offered for reuse at the Depot have not been used regularly for the storage, maintenance or demilitarization of explosive ordnance. There are three areas at the Depot that were identified as having potential concerns related to unexploded ordnance (UXO). Two areas were used as pistol ranges. One pistol range was located near the ninth hole of the golf course and Main Installation remedial investigation results indicated no unexploded ordnance. The second pistol range was located in the Dunn Field area. The third area, an ordnance burn area, was also located in the Dunn Field area.

3.2.15 NEPA

To comply with NEPA, an Environmental Assessment (EA) for Master Interim Lease of the Defense Distribution Depot Memphis, Tennessee was completed in September 1996 by the CESAM. An EA for Disposal and Reuse of the Defense Distribution Depot Memphis, Tennessee was completed in February 1998 by CESAM. A Finding of No Significant Impact resulting from disposal and reuse of the Depot was signed by AMC in March 1998. A more complete description of the disposal and reuse scoping process is provided in Section 2.1.

3.2.16 Air Emissions

Immediately prior to closure, the Depot maintained air permits from the Memphis/Shelby County Health Department to operate three air emission sources at the Depot. These sources included two paint spray booths and one sand blast unit. These air emission permits were closed in May 1997.

3.3 STATUS OF NATURAL AND CULTURAL RESOURCES

The following is a brief summary of natural and cultural resources at the Depot. For more information, refer to the EA for Disposal and Reuse for the Depot completed in February 1998.

3.3.1 Vegetation

The Depot 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 former military family housing area

3.3.2 Wildlife

Because the Depot is in a highly developed area it offers limited habitat. Ducks, geese, frogs, goldfish and Arkansas shiners 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 the Depot was completed by the USACE, Memphis District in July 1996. Survey results indicated that there are no regulated wetlands on the Depot.

3.3.4 Designated Preservation Areas

There are no designated preservation areas at the Depot.

3.3.5 Rare, Threatened, and Endangered Species

No federally listed or proposed threatened or endangered species have been observed on the Depot (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 the Depot, although the area was occupied by a variety of Native American groups. In May 1997, USACE, Ft. Worth District, conducted an archeological survey of two parcels identified in "A Cultural Resources Inventory and Assessment at the Defense Distribution Depot Memphis, Tennessee" as having the potential for archeological sites. These parcels, the golf course area and Dunn Field, were found to contain no archeological resources (Prewitt & Associates, Inc. 1997).

Historical Resources

There are currently no sites or structures located on the Depot property that are listed on the National Register of Historic Places (Harland Bartholomew & Associates, Inc. 1988). In April 1997, USACE, Ft. Worth District, conducted a cultural resources survey. The final report entitled "A Cultural Resources Inventory and Assessment at the Defense Distribution Depot Memphis, Tennessee," dated June 6, 1997, indicated that the World War II-era warehouses known as the 20 Typicals were eligible for inclusion on the National Register of Historic Places (NRHP). The Tennessee State Historic Preservation Officer (TNSHPO) agreed with the report's assessment on the 20 Typicals and also determined that three World War II-era guard stations were also eligible for inclusion on the NRHP. No nominations to the NRHP have been made.

In June 1998, AMC, TNSHPO and the Advisory Council on Historic Places signed a Memorandum of Agreement regarding these NRHP-eligible buildings and received DRC concurrence.

3.4 ENVIRONMENTAL CONDITION OF PROPERTY

During the EBS, the Depot was divided into subparcels to facilitate decision-making regarding the environmental condition of specific areas. As defined in the EBS, a subparcel is an area of BRAC property that can be segregated from its surrounding areas, based on the environmental condition of the property. The subparcels and corresponding categorizations are identified on Figure 3-5, Environmental Condition of Property Map Main Installation and Figure 3-6, Environmental Condition of Property Map Dunn Field. Areas containing or potentially containing non-CERCLA substances are identified and delineated separately with the letter "Q" as qualified subparcels.

Qualified subparcels 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 Revised DOD BCP Guidebook (September 1996), are as follows:

Category 1. Areas where no release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).

Category 2. Areas where only release or disposal of petroleum products has occurred.

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

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

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

Category 6. Areas where release, disposal and/or migration of hazardous substances has occurred, but required actions have not yet been implemented.

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

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

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 to facilitate the following subparcel discussion by geographically locating the various subparcels. Subparcel boundaries were drawn using the best available information regarding the extent of contamination and do not follow map grid lines. Circular 0.25-acre subparcels centered on the area, as stipulated in DOD guidance, delineated small areas of release or storage, such as USTs. For consistency and to facilitate the summation of acreages, subparcel 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 subparcel descriptions. The BRAC subparcels in this table have been presented in order by CERFA category. A brief summary of subparcels is provided in the following sections.

3.4.1 Areas Where No Release or Disposal Has Occurred

Woodward-Clyde's survey and subsequent parcelization of the Depot in 1996 identified 38 subparcels, totaling 6 2 acres, as uncontaminated, Category 1 subparcels. Review by the BRAC Cleanup Team from August 1997 through September 1998 has identified several additional Category 1 subparcels, bringing the total to 56 subparcels and the acreage to 57.43 acres of Category 1 subparcels. These subparcels are areas where there has been no documented release or disposal, or migration from an adjacent property of hazardous substances or petroleum products. The EPA has concurred with these Category 1 subparcels via letter dated October 20, 1998 (Appendix E). The designated Category 1 subparcels are summarized in Table 3-7.

3.4.2 Areas Where Only Petroleum Release or Disposal Has Occurred

The Category 2 subparcels listed below are areas where only release or disposal of petroleum products has occurred. Information regarding releases was obtained from the Depot's Spill Response Checklists maintained by the Memphis Depot Caretaker Division environmental office. A total of 7 subparcels, totaling 8.01 acres, have been designated as Category 2.

Subparcel Number and Label 4.6(2)

CERFA Map Location 29,9

This subparcel is associated with Building 254 and a portion of the open land area/underground storage tank (UST) field west of the building. The DRC demolished this building during construction of the entrance boulevard. The EBS visual inspection noted that petroleum products, oils, lubricants and antifreeze were stored in this building as well as leaking drums and ground staining. In addition, a 5-gallon diesel spill was reported on March 20, 1995, from a tank outside the southwest corner of Building 254. The Spill Team responded, applied absorbent and disposed of all residue in accordance with federal, state and local regulations. A 1,110-gallon gasoline tank was removed in December 1989 from the UST field. Two USTs were removed in 1998 from the UST field behind Building 254. At the September 1997 meeting, the BCT changed this subparcel to a Category 6 due to the scheduled underground storage tank removal project. Upon receipt of UST closure approval by TDEC-UST in December 1998, the BCT agreed that this subparcel change from ECP Category 6 to Category 2.

Subparcel Number and Label 4.7(2)

CERFA Map Location 28,10

This subparcel is associated with Buildings 256 and 257 and Screening Site 67. The DRC demolished both buildings during construction of the entrance boulevard. Building 257 was fumigated in the past. Air sampling conducted during the BRAC sampling effort in the winter of 1997 indicated no human health hazards from 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. The Spill Team responded, took the appropriate action and disposed of all residue in accordance with federal, state and local regulations. In addition, fuel dispensing and storage have been ongoing at Building 257 since 1942 (two 1,000-gallon ASTs are located at this building and a 2,580-gallon gasoline tank was removed December 1989). One soil sample taken during the 1990 Law RI detected PAHs, dieldrin and metals. During Screening Site sampling, two surface soil and two shallow soil boring samples were collected (CH2M Hill, 1998c). Samples indicated arsenic and dieldrin in surface soils at levels that exceeded BCT screening criteria. Two underground storage tanks (18,000 and 20,000 gallons) were removed in 1998 from the open land area south of Bldg. 257. At the September 1997 meeting, the BCT changed this subparcel to a Category 6 due to the scheduled underground storage tanks removal project. Additional soil samples were collected after completion of the tank removal project and

results indicated no levels that exceeded BCT screening criteria Upon receipt of UST closure approval from TDEC-UST in December 1998, the BCT agreed this subparcel should change from ECP Category 6 to Category 2.

Subparcel Number and Label 20.1(2)PR

CERFA Map Location 21,5

This subparcel is associated with Building 489. A 1-gallon oil spill was reported on November 3, 1995 at the north dock of Building 489, Section 4. The Spill Team responded, applied absorbent and disposed of the residue in accordance with federal, state and local regulations. This subparcel became a Category 2 due to the Category definition change that occurred after the 1996 Environmental Baseline Survey categorized this subparcel as a Category 3. In December 1998, the BCT concurred that this subparcel change to a Category 2 based on the new ECP definitions and release of a petroleum product. This subparcel became a Category 2 due to the Category definition change that occurred after the 1996 Environmental Baseline Survey.

Subparcel Number and Label 23.9(2)

CERFA Map Location 4,2

This subparcel is associated with a gasoline spill reported on September 13, 1993, adjacent and to the northwest of Building 995. The Spill Team responded, applied absorbent, removed stained soil and disposed of it in accordance with federal, state and local regulations. One BRAC soil boring and surface soil sample was collected from the center of the suspected spill area. Petroleum hydrocarbons were detected at 3.2 mg/kg, well below the Tennessee clean-up level of 100 mg/kg. In October 1997, the BCT concurred that this subparcel changed to a Category 3. October 1997 discussions regarding this subparcel did not take the definition change into account when determining this parcel's ECP category. In December 1998, the BCT concurred that this subparcel change from ECP Category 3 to Category 2 based on the new ECP definitions and release of a petroleum product. This subparcel became a Category 2 due to the ECP definition change that occurred after the 1996 Environmental Baseline Survey.

Subparcel Number and Label 26.2(2)

CERFA Map Location 6,4

This subparcel is associated with Building 970. An oil-fired generator that had leaked oil onto the concrete pad was observed at Building 970, Section 6, during the EBS visual inspection. This release consisted of only petroleum products. Absorbent was applied and the residue disposed in

accordance with federal, state and local regulations In October 1997, the BCT concurred that this subparcel change from ECP Category 7 to Category 2 based on the release of a petroleum product.

Subparcel Number and Label 33.6(2)HR

CERFA Map Location 13,13

This subparcel is associated with the open land area outside Building 737 and proposed No Further Action Site 44 (Former Wastewater Treatment Unit). A 50-gallon mineral oil (<1 ppm PCB) spill was reported on November 9, 1995, outside of Building 737. The Spill Team responded, excavated contaminated material and disposed of it in accordance with federal, state and local regulations. Proposed No Further Action Site 44 (Former Waste Water Treatment Unit) was a temporary unit used to treat rainwater mixed with PCP-contaminated oil and rinse waters from decontamination during the soil removal of the PCP dip vat system in 1985. Sample results of the treated wastewater in the portable pool were acceptable for discharge into the Memphis sanitary sewer. No evidence of release was identified during the 1990 RCRA Facilities Assessment. The November 1996 Environmental Baseline Survey categorized this subparcel as a Category 4. In 1997 the ECP category definitions changed so that Category 4 was no longer appropriate for petroleum product releases. In December 1998, the BCT agreed Category 4 was not appropriate, as the release involved a petroleum product, and agreed the subparcel should change from an ECP Category 4 to a Category 2.

Subparcel Number and Label 33.11(2)

CERFA Map Location 14,9

This subparcel is associated with the 1,000-gallon diesel above ground storage tank outside Building 756. The original 1,000-gallon underground storage tank supplying the emergency generator in Building 756 was removed in June 1994. Soil was sampled for Total Petroleum Hydrocarbons and found to be less than 20 ppm. The 1996 Final Environmental Baseline Survey determined this subparcel to be an ECP Category 2 and the BCT concurred.

3.4.3 Areas Where Release, Disposal and/or Migration Has Occurred, but No Remedial Action is Required

The Category 3 subparcels listed below are areas where release, disposal and/or migration of hazardous substances has occurred, but at concentrations that do not require removal or remedial action. Information regarding releases was obtained from the Depot's Spill Response Checklists

maintained by the Memphis Depot Caretaker Division environmental office. A total of 22 subparcels, encompassing 59.78 acres, have been identified as Category 3.

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

CERFA Map Location 30,9

This subparcel is associated with Building 260, proposed No Further Action Site 41 (Satellite Drum Accumulation Area) and proposed No Further Action Site 30 (Safety Kleen Units). The RCRA Facility Assessment visual inspection noted staining on the floor in the sign shop of this building. The Safety Kleen unit was removed prior to closure. Absorbent was applied to released Safety Kleen solvent and disposed in accordance with federal, state and local regulations. The 1996 Final Environmental Baseline Survey determined this subparcel to be ECP Category 3 and the BCT concurred.

Subparcel Number and Label 4.8(3)

CERFA Map Location 30,9

This subparcel is associated with Building 263, which has been used as attendants' room for the dispensing of petroleum, oil and lubricant to vehicles and as a vehicle grease rack since the 1940s, and to Screening Site (SS) 68 (POL-Building 263). Records do not indicate any release, disposal or migration. In addition, this building was fumigated. Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation. Soil borings were sampled during the Screening Site Sampling Program. Sample results indicate no levels that exceeded BCT screening criteria (CH2M Hill, 1998c). After the December 1997 BCT decision to change fumigated buildings to Category 1, the BCT conferred and concurred via telephone calls that this subparcel would become a Category 3 based on the concern that petroleum products and antifreeze may have been released (CH2M Hill, 1998c). In June 1998, the BCT again concurred that this subparcel changed from an ECP Category 7 to a Category 3.

Subparcel Number and Label 5.1(3)

CERFA Map Location 29,7

This subparcel is associated with Building 272 and the surrounding open land area. This subparcel contains grassed areas that were historically sprayed with herbicides and pesticides. One Remedial Investigation soil sample (associated with Site 58 - Pad 267) and one BRAC soil sample were collected. Sample results indicated no levels that exceeded the BCT screening criteria. At the

September 1997 meeting, the BCT concurred that this subparcel changed from ECP Category 7 to a Category 3.

Subparcel Number and Label 6.2(3)HR

CERFA Map Location 29,11

This subparcel is associated with Building 250 and may have been fumigated. Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation (CH2M Hill, 1998c). Staining due to acid leaks from batteries in the forklift area was observed during the EBS visual inspection. After the December 1997 BCT decision to change fumigated buildings to Category 1, the BCT conferred and concurred via telephone calls that this subparcel would become a Category 3 based on the release of battery acid. In June 1998, the BCT again concurred that this subparcel changed from an ECP Category 7 to a Category 3.

Subparcel Number and Label 6.4(3)HR

CERFA Map Location 26,11

This subparcel is associated with Building 350 and may have been fumigated. Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation (CH2M Hill, 1998c). Staining due to acid leaks from batteries in the forklift area was observed during the EBS visual inspection. After the December 1997 BCT decision to change fumigated buildings to Category 1, the BCT conferred and concurred via telephone calls that this subparcel would become a Category 3 based on the release of battery acid. In June 1998, the BCT again concurred that this subparcel changed from an ECP Category 7 to a Category 3.

Subparcel Number and Label 9.3(3)HR

CERFA Map Location 23,13

This subparcel is associated with Building 430 and may have been fumigated. Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation (CH2M Hill, 1998c). Staining due to acid leaks from batteries in the forklift area was observed during the EBS visual inspection. After the December 1997 BCT decision to change fumigated buildings to Category 1, the BCT conferred and concurred via telephone calls that this subparcel would become a Category 3 based on the release of battery acid. In June 1998, the BCT again concurred that this subparcel changed from an ECP Category 7 to a Category 3.

Subparcel Number and Label 10.1(3)HR

CERFA Map Location 16,12

This subparcel is associated with 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 Spill Team responded, applied absorbent and disposed of all residue in accordance with federal, state and local regulations. The 1996 Final Environmental Baseline Survey determined this subparcel to be ECP Category 3 and the BCT concurred based on the cleanup of the spills.

Subparcel Number and Label 10.5(3)

CERFA Map Location 19,11

This subparcel is associated with Building 550 and may have been fumigated. Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation (CH2M Hill, 1998c). Staining due to acid leaks from batteries in the forklift area was observed during the EBS visual inspection. After the December 1997 BCT decision to change fumigated buildings to Category 1, the BCT conferred and concurred via telephone calls that this subparcel would become a Category 3 based on the release of battery acid. In June 1998, the BCT again concurred that this subparcel changed from an ECP Category 7 to a Category 3.

Subparcel Number and Label 11.2(3)

CERFA Map Location 19,15

This subparcel is associated with Building 529 and may have been fumigated. Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation (CH2M Hill, 1998c). Antifreeze, firefighting foam and photographic chemicals were stored in the west end of the building. Records indicate several spills of firefighting foam. The Spill Team responded, applied absorbent and disposed of all residue in accordance with federal, state and local regulations. Staining due to acid leaks from batteries in the forklift area was observed during the EBS visual inspection. After the December 1997 BCT decision to change fumigated buildings to Category 1, the BCT conferred and concurred via telephone calls that this subparcel would become a Category 3 based on the release of battery acid and firefighting foam. In June 1998, the BCT again concurred that this subparcel changed from an ECP Category 7 to a Category 3.

Subparcel Number and Label 15.2(3)

CERFA Map Location 26,18

This subparcel is associated with 308 and Screening Site 35 (Building 308 - Hazardous Waste Storage). Law Environmental surface soil sample SS-5 (100 feet downslope and southeast of Building 308) detected arsenic in surface soil. Three screening site soil borings taken from around the building were sampled. Sample results indicated arsenic in surface soil below the BCT screening criteria as well as chromium and lead in subsurface soil near background levels. All levels appear to be naturally occurring. SS 35 does not exhibit waste accumulation-related contamination. The Preliminary Risk Evaluation indicates SS 35 does not pose a human health concern for industrial or residential scenarios and recommends the subparcel change to a Category 3. Also, air sampling conducted in this building to assess the impact from storage of hazardous materials indicated no human health hazards. At the September 1997 meeting, the BCT reviewed the data and determined that no levels exceeded BCT screening criteria, but no category change was mentioned. In June 1998, the BCT concurred that this subparcel changed from an ECP Category 7 to a Category 3.

Subparcel Number and Label 15.4(3)

CERFA Map Location 14,18

This subparcel is associated with Screening Site 79, adjacent to Building 702, which was demolished in February 1998. A soil boring at Site 79 indicated elevated levels of PAHs, dieldrin and chromium. The BCT determined at its September 1997 meeting that Site 79 required a risk assessment to determine future actions. PAHs and dieldrin will be evaluated on a site-wide basis. In February 1999, the BCT concurred that Subparcel 15.4 change from an ECP Category 7 to a Category 3 because the building has been demolished and the soils surrounding the building will be addressed during further investigation/risk assessments for Subparcel 15.6.

Subparcel Number and Label 18.2(3)

CERFA Map Location 19,8

This subparcel is associated with the open land area surrounding Building 560. This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000. One BRAC soil sample was collected. Sample results indicated no levels that exceeded the BCT screening criteria. At the September 1997 meeting, the BCT concurred that this subparcel changed from an ECP Category 7 to a Category 3.

Subparcel Number and Label 19.1(3)

CERFA Map Location 21,8

This subparcel is associated with Building 467 (a fabric tension structure that was removed in 1996), Building 468 and the open land area surrounding Buildings 465, 468 and 469. Facility maintenance equipment was stored in Building 468. This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000. This subparcel also contains a small grassed area and a small gravel area that were historically sprayed with herbicides and pesticides. In February 1998 the BCT conducted a walk-through of the buildings and looked at BRAC sampling data from adjacent Parcels 18.2 and 34.2 that indicated one chlordane level that exceeded BCT screening criteria. The Preliminary Risk Evaluation indicated the level to be below one in a million risk for industrial and residential scenarios. A 1,000-gallon oil/water separator is located in Subparcel 19.1 and is connected to the vehicle wash at Building 465. The separator is connected to the sanitary sewer and was routinely cleaned out. In March 1999, the BCT concurred that Subparcel 19.1 change from an ECP Category 7 to Category 3.

Subparcel Number and Label 19.2(3)

CERFA Map Location 22,7

This subparcel is associated with Building 465, a vehicle wash rack. Chemical engine cleaners/degreasers may have been used or released in this building. This building contains a floor drain/sump connected to an oil/water separator, which is physically located in Subparcel 19.1. No sampling has been conducted at this subparcel. In February 1999, the BCT conducted a walk through of Building 465, determined that the sump had been cleaned upon facility closure and used since then only to wash grounds keeping equipment. In May 1999, the BCT concurred that this subparcel changed from an ECP Category 7 to a Category 3.

Subparcel Number and Label 23.6(3)

CERFA Map Location 12,2

This subparcel is associated with open land areas south of Buildings 690 and 490 including parking lots and grassy areas, the open land area surrounding Buildings 783, 787 and 793 as well as Sentry Stations at Gates 8 and 7. This subparcel is also associated with Screening Site (SS) 82 (Flammables - Building 783 and 793). This subparcel contains grassed areas that were historically sprayed with herbicides and pesticides. Four screening site surface soil, four screening site subsurface soil and one BRAC surface soil samples were collected. Sample results indicate arsenic

levels in surface soil (20.2 and 24.3 mg/kg) near the range of background levels (20 mg/kg), but below BCT screening criteria. In October 1997, the BCT concurred that this subparcel changed to from an ECP Category 7 to a Category 3.

Subparcel Number and Label 23.7(3)

CERFA Map Location 11,5

This subparcel is associated with Building 783, which previously stored flammable items and ordnance material and is Screening Site 82. Four screening site surface soil, four screening site subsurface soil and one BRAC surface soil samples were collected in Subparcel 23.6, the grassed area surrounding the building. Sample results indicate arsenic levels in surface soil (20.2 and 24.3 mg/kg) near the range of background levels (20 mg/kg), but below BCT screening criteria. In March 1999, the BCT concurred that this subparcel change from ECP Category 7 to a Category 3 based on a BCT visual inspection of the building's interior to determine its condition and on results of screening site samples taken in Subparcel 23.6.

Subparcel Number and Label 23.8(3)

CERFA Map Location 11,3

This subparcel is associated with Building 793, which previously stored flammable items and ordnance material and is Screening Site 82. Four screening site surface soil, four screening site subsurface soil and one BRAC surface soil samples were collected in Subparcel 23.6, the grassed area surrounding the building. Sample results indicate arsenic levels in surface soil (20.2 and 24.3 mg/kg) near the range of background levels (20 mg/kg), but below BCT screening criteria. In March 1999, the BCT concurred that this subparcel change from ECP Category 7 to a Category 3 based on a BCT visual inspection of the building's interior to determine its condition and on results of screening site samples taken in Subparcel 23.6.

Subparcel Number and Label 23.10(3)

CERFA Map Location 8,2

This subparcel is associated with the open gravel storage area south of Buildings 873 and 875 in area X01, which was reportedly a small lake when the Depot opened in 1942. This subparcel consists of a gravel area that was historically sprayed with waste oil containing PCP, pesticides and herbicides. Records also indicate transformers possibly containing PCBs may have been stored at this area. There is no documentation of releases from the transformers. One BRAC surface soil sample and one BRAC soil boring were collected. Sample results indicate that no levels exceeded

the BCT screening criteria. In October 1997, the BCT concurred that this subparcel changed from an ECP Category 7 to a Category 3.

Subparcel Number and Label 28.1(3)
CERFA Map Location 2,7

This subparcel contains the open storage area X04 north of Building 1089. This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000. According to Depot personnel, this area was used for the storage of feed stock material and not hazardous materials. Four BRAC soil samples, two surface and two subsurface, were collected. Sample results indicate aluminum and iron in surface soil near the range of the BCT screening criteria and lead within the background value range. The Preliminary Risk Evaluation indicated that carcinogenic risks were below acceptable levels for both industrial worker and residential scenarios of one in a million; noncarcinogenic risks were above one in a million due to the inorganic chemicals aluminum and iron in both subsurface and surface, but the concentrations of these constituents in surface soils only did not pose significant health risks In October 1997, the BCT concurred that this subparcel changed from an ECP Category 7 to a Category 3.

Subparcel Number and Label 32.1(3)
CERFA Map Location 9,14

This subparcel is associated open storage areas X13 and X15 that are to the west and north of Building 835. This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000. Four BRAC soil samples (two surface and two subsurface) were collected. Sample results indicate that no levels exceeded the BCT screening criteria. In October 1997, the BCT concurred this subparcel change from an ECP Category 7 to a Category 3.

Subparcel Number and Label 33.8(3)
CERFA Map Location 10,10

This subparcel is associated with Building 863. The building contained a battery charging station. Material handling equipment (forklifts) was also stored in the building. The EBS visual inspection observed considerable oil stains on the concrete floor of Building 863. The BCT requested samples be taken from a nearby drainage point to determine if any releases occurred from the building.

Samples results indicated no levels that exceeded the BCT screening criteria. In February 1999, the BCT concurred that this subparcel changed from an ECP Category 7 to a Category 3.

Subparcel Number and Label 34.2(3)

CERFA Map Location 24,7

This subparcel is associated with the open land area surrounding Building 360. This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000. This subparcel also contains grassed areas that were historically sprayed with pesticides and herbicides. One BRAC soil sample was collected. Sample results indicate chlordane at levels that exceeded the BCT screening criteria. The Preliminary Risk Evaluation indicated that the carcinogenic and noncarcinogenic risks were well below the acceptable levels of one in a million for both industrial worker and residential scenarios. In October 1997, the BCT concurred that this subparcel changed from an ECP Category 7 to a Category 3.

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

The Category 4 subparcels listed below are areas where release, disposal and/or migration of hazardous substances has occurred, and all removal or remedial actions necessary to protect human health and environment have been taken. Information regarding releases was obtained from the Depot's Spill Response Checklists maintained by the Memphis Depot Caretaker Division Environmental Office. A total of 21 subparcels, encompassing 67.37 acres, have been designated as Category 4.

Subparcel Number and Label 2.7(4)

CERFA Map Location 33,6

This subparcel is associated with the open land area surrounding the former military family housing units and garages in Parcel 2. Four BRAC soil samples were collected and sample results indicated levels of chlorinated hydrocarbon pesticides (dieldrin, DDE, DDT and gamma-chlordane) above BCT screening criteria. At the September 1997 meeting, the BCT changed this subparcel to a Category 6 due to the presence of pesticides, particularly dieldrin and the DRC's high priority for reuse of this subparcel. A removal action project was completed and post removal reports provided to EPA, TDEC and the public via the Information Repositories. In May 1999, the BCT

concurred that the removal action was complete and that this subparcel change from an ECP Category 6 to a Category 4 based on the successful completion of this removal action.

Subparcel Number and Label 4.12(4)HS/HR

CERFA Map Location 31,10

This subparcel is associated with Building 251. The DRC demolished this building during construction of the boulevard construction. Building 251 had a floor drain connected to the sanitary sewer. One surface soil sample was taken from the sump beneath the floor drain. Results indicate elevated concentrations of many metals and polynuclear aromatic hydrocarbons. The Preliminary Risk Evaluation indicated these concentrations had a risk ratio above acceptable levels for residential and industrial worker scenarios. In December 1997, the BCT recommended that the sump be cleaned and, if appropriate, grouted closed and that upon completion of this action, the subparcel should change to a Category 4. The action was completed in January 1998. The ECP Category 7 changed to Category 4.

Subparcel Number and Label 4.13(4)HS/HR

CERFA Map Location 31,8

This subparcel is associated with Building 265 that has a floor drain that is connected to the sanitary sewer. One surface soil sample was taken from the sump beneath the floor drain. Results indicate elevated concentrations of many metals and polynuclear aromatic hydrocarbons. The Preliminary Risk Evaluation indicated these concentrations had a risk ratio above acceptable levels for residential and industrial worker scenarios. In May 1998, the BCT recommended that the sump be cleaned and, if appropriate, grouted closed and that upon completion of this action, the subparcel should change to a Category 4. The action was completed in June 1998 and the ECP Category 7 changed to Category 4.

Subparcel Number and Label 5.2(4)

CERFA Map Location 29,7

This subparcel is associated with Building 274, "J" Street Café, and the open land area surrounding the building. This subparcel is also associated with Remedial Investigation (RI) Site 48 (The former PCB Transformer Area). Building 274 was constructed after transformer storage ceased. 1990 Law RI soil samples detected PAHs and DDT (and breakdown products). A groundwater sample (CH2M Hill 1995b, 1995e) in MW-26 detected tetrachloroethane and carbon tetrachloride and will be further evaluated in the Main Installation groundwater investigation. In 1997, five

Remedial Investigation surface soil samples were collected (CH2M Hill, 1997) from the grassy areas directly outside of Building 274. Sample results indicated levels of PCBs and dieldrin that exceeded BCT screening criteria. The DRC identified this subparcel as a high priority for reuse. In August 1997, the BCT agreed this subparcel should undergo a removal action of surface soils. At the September 1997 meeting, the BCT concurred that this subparcel changed to a Category 6. In 1998 a removal action was completed and the post removal reports provided to EPA, TDEC and the public via the Information Repositories. In May 1999, the BCT concurred that the removal action was complete and that this subparcel change from an ECP Category 6 to a Category 4 based on successful completion of the removal action.

Subparcel Number and Label 7.2(4)HS/HR

CERFA Map Location 29,12

This subparcel is associated with Building 249 that was formerly used as a storage facility for clothing treated with impregnite (XXCC-3), a chemical used as a preventive to the effects of chemical warfare agents on skin. A battery acid spill was reported on April 15, 1993, at Building 249, North dock. The Spill Team responded, applied sodium bicarbonate and disposed of all residue in accordance with federal, state and local regulations. This building may have been fumigated. Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation (CH2M Hill, 1998c). After the December 1997 BCT decision to change fumigated buildings to Category 1, the BCT conferred and concurred via telephone calls that this subparcel would become a Category 4 based on the cleanup of the battery acid. In June 1998, the BCT again concurred that this subparcel changed from an ECP Category 7 to a Category 4.

Subparcel Number and Label 12.2(4)HS/HR

CERFA Map Location 16,15

This subparcel is associated with Building 629 - formerly a 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. The Spill Team responded, applied sodium bicarbonate and disposed of all residue in accordance with federal, state and local regulations. The soil surrounding Building 629 is in Subparcel 12.1, is associated with Remedial Investigation Site 57 and will be further evaluated during the Remedial Investigation process. This building may have been fumigated. Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation. After the December 1997 BCT decision to change fumigated buildings to Category 1, the BCT conferred and concurred via telephone calls

that this subparcel would become a Category 4 based on the cleanup of the nitric acid. In January 1998, the BCT again concurred that this subparcel changed from an ECP Category 7 to a Category 4.

Subparcel Number and Label 15.3(4)

CERFA Map Location 26,16

This subparcel is associated with Building 319, a storage facility for various hazardous substances including flammables and toxics (cyanide). Low-level radioactive materials were also stored in the western bay of Building 319. Beginning in 1994, the eastern end of Building 319 was used for hazardous waste storage by DRMO. In addition, a xylene spill was reported on November 18, 1991, inside Building 319, Section 4. In 1996 an inspection of the western bay was conducted as required for closure of the Defense Distribution Center's Nuclear Regulatory Commission permit for storage of low-level radioactive materials at the Depot. The inspection determined that approximately 8 feet of wall space within the western bay required remediation for low-level radioactive impacts. The remediation occurred in 1997. Soil samples collected in 1997 indicated chromium and lead at levels well below the 1 in a million risk ratio for both residential and industrial scenarios. The NRC approved the building remediation/permit closure documentation and deleted the Memphis Depot from the DDC's permit. Building 319 was released for use with no NRC restrictions. In June 1999, the BCT received the NRC permit closure approval documentation and concurred that this subparcel change from an ECP Category 7 to a Category 4 based on the cleanup of both the xylene spill and the low-level radioactivity.

Subparcel Number and Label 17.3(4)HS/HR

CERFA Map Location 25,9

This subparcel is associated with Building 359 and proposed No Further Action Site 49 (Medical Waste Storage Area). The DRC demolished this building during construction of the entrance boulevard. This building was used for storage of medical supplies, medical supply waste (expired shelf life medical supplies), sodium chloride, petroleum products and low level radiological items (watch dials, lantern mantels and compasses). The 1997 Radiological Survey concluded this building was available for unrestricted use as no evidence of radiological contamination was found. A sulfuric acid spill was reported on August 27, 1993 inside Building 359, Section 2. The Spill Team responded, applied sodium bicarbonate and disposed of all residue in accordance with federal, state and local regulations. An out of service incinerator was also located in this building. This building was fumigated. Air sampling conducted during the BRAC sampling effort indicated

no human health hazards from fumigation. After the December 1997 BCT decision to change fumigated buildings to Category 1, the BCT conferred and concurred via telephone calls that this subparcel would become a Category 4 based on the cleanup of the sulfuric acid. In June 1998, the BCT again concurred that this subparcel changed from an ECP Category 7 to a Category 4.

Subparcel Number and Label 18.1(4)HS/HR

CERFA Map Location 17,8

This subparcel 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 inside Building 560, Section 3. The Spill Team responded, applied absorbent and disposed of all residue in accordance with federal, state and local regulations. The 1996 Final Environmental Baseline Survey determined this subparcel to be an ECP Category 4 and the BCT concurred.

Subparcel Number and Label 19.3(4)

CERFA Map Location 22,8

This subparcel is associated with Building 469, which was the battery repair/charge shop. Acids, parts cleaning fluids and petroleum products were stored and used in Building 469. This subparcel is associated with No Further Action Sites 40 (Safety-Kleen Units) and 41 (Satellite Drum Accumulation Areas). A self-contained Safety-Kleen unit was used in Building 469. Building 469 was also a satellite drum accumulation area for waste petroleum products and sulfuric acid. There is no evidence of releases from the units or accumulation area. On December 16, 1993, a transformer oil spill was reported at Building 469. Approximately 6 ounces of material was spilled on the south wall and floor near the entrance. The sheet rock wall and concrete floor absorbed some of the oil. The Spill Team responded, applied absorbent and disposed of the residue in accordance with federal, state and local regulations. Samples were collected from the absorbent and concrete and results indicated PCB-1242. According to the Spill Team Leader on the scene at the time of the spill and during sampling, the effected area was removed during sampling operations In February 1999, the BCT conducted a walk through and was unable to locate the spill area. In May 1999, the BCT concurred that no further evidence of the spill remained, that a remedial action occurred, and that this subparcel should change from an ECP Category 7 to a Category 4 based on the cleanup of the spill.

Subparcel Number and Label 20.2(4)HS/HR

CERFA Map Location 17,6

This subparcel is associated with Building 670. Significant corrosion was observed during the EBS visual inspection due to acid leaks at the battery charging station. Sodium bicarbonate was applied and disposed in accordance with federal, state and local regulations. A 1-gallon spill of hydraulic fluid was reported on August 30, 1995, inside Building 670, Section 1. The Spill Team responded, applied absorbent and disposed of all residue in accordance with federal, state and local regulations. The 1996 Final Environmental Baseline Survey determined this subparcel to be an ECP Category 4 and the BCT concurred.

Subparcel Number and Label 20.3(4)HS/HR

CERFA Map Location 20,7

This subparcel is associated with Building 470. Corrosion was observed during the EBS visual inspection due to acid spills at the battery charging station. Sodium bicarbonate was applied and disposed in accordance with federal, state and local regulations. The 1996 Final Environmental Baseline Survey determined this subparcel to be an ECP Category 4 and the BCT concurred.

Subparcel Number and Label 20.4(4)HS/HR

CERFA Map Location 21,5

This subparcel is associated with Building 489. Corrosion was observed during the EBS visual inspection due to acid spills at the battery charging station. Sodium bicarbonate was applied and disposed in accordance with federal, state and local regulations. The 1996 Final Environmental Baseline Survey determined this subparcel to be an ECP Category 4 and the BCT concurred.

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

CERFA Map Location 23,3

This subparcel is associated with Building 490 and proposed No Further Action Site 40 (Safety Kleen Units). The Safety Kleen unit was removed prior to closure. Corrosion was observed during the EBS visual inspection due to acid spills at the battery charging station. Sodium bicarbonate was applied and disposed in accordance with federal, state and local regulations. A 1-gallon spill of sulfuric acid/battery acid was reported on December 15, 1995, inside Building 490, Section 5. The Spill Team responded, applied sodium bicarbonate and disposed of all residue in accordance with federal, state and local regulations. Petroleum products and microfiche developing chemicals were

stored and used in Building 490. The 1996 Final Environmental Baseline Survey determined this subparcel to be an ECP Category 4 and the BCT concurred.

Subparcel Number and Label 21.3(4)HS/HR

CERFA Map Location 15,5

This subparcel is associated with Building 689, Screening Site 78 (Alcohol, Acetone, Toluene, Naphtha, Hydrofluoric Acid Spills) and proposed No Further Action Site 40 (Safety Kleen Units). Building 689 historically staged alcohol, acetone, toluene, and hydrofluoric acid before transport. The Safety Kleen unit was removed prior to closure. Eleven spills are documented from May 8, 1990 through November 16, 1995 and included nitric acid, corrosion removing compound, hydraulic fluid, oil and sulfuric acid. The Spill Team responded, took the appropriate action and disposed of all residue in accordance with federal, state and local regulations. Four soil borings were taken from the concrete parking lot immediately adjacent to and outside of Building 689. Cadmium was detected in one sample and appeared to be an isolated occurrence. TCE was detected at depths of 1 to 20 feet in one sample and may require further investigation for groundwater impacts. Groundwater under this building was evaluated in the RI. The 1996 Final Environmental Baseline Survey determined this subparcel to be an ECP Category 4 and the BCT concurred.

Subparcel Number and Label 21.4(4)HS/HR

CERFA Map Location 15,4

This subparcel is associated with Building 685. Corrosion was observed during the EBS visual inspection due to acid spills at the battery charging station. Sodium bicarbonate was applied and disposed in accordance with federal, state and local regulations. The 1996 Final Environmental Baseline Survey determined this subparcel to be an ECP Category 4 and the BCT concurred.

Subparcel Number and Label 25.1(4)HS/HR

CERFA Map Location 9,4

This subparcel is associated with Building 873 and Remedial Investigation Site 27 (Former Recoupment Area - Building 873). Building 873 stored hazardous materials such as chlorinated solvents, corrosives, petroleum, oils and lubricants. The southern end of the building and the gravel area east of the building were used as the hazardous materials recoupment area (remove hazardous materials from damaged containers then repackage the materials) until the current Recoup Building was constructed in 1987/1988. Thirteen spills are documented from March 10, 1990 through

November 29, 1993 and included tetrachloroethylene, sulfuric acid, hydraulic fluid and descaling compound. The Spill Team responded, took the appropriate action and disposed of all residue in accordance with federal, state and local regulations. Samples associated with RI Site 27 were taken outside of the building in Subparcel 25.2 and were evaluated in the RI. At the September 1997 meeting, the BCT concurred that this subparcel change from an ECP Category 7 to a Category 4 based on the cleanup of the spills.

Subparcel Number and Label 27.2(4)

CERFA Map Location 4,4

This subparcel is associated with Building 972 and Screening Site 84 (Flammables, Solvents, Waste Oil - Building 972). The building once stored flammable materials, solvents and waste oil as an open shed building. Building 972 was converted to a closed building and stored and constructed wooden packing materials, which involved the use of petroleum products (oils and lubricants), paints and spray adhesives. Small operational spills occurred and were cleaned when they occurred. In addition, oil stained areas were observed in the building during the EBS visual inspection. The building recently had the floor cleaned and resealed, which removed the stains. Screening site soil samples were taken outside the building in Subparcel 27.1 and were evaluated in the RI. At the October 1997 meeting, the BCT concurred that this subparcel change from an ECP Category 7 to a Category 4 based on the cleanup of operational spills.

Subparcel Number and Label 30.1(4)

CERFA Map Location 4,14

This subparcel is associated with Building 925. This building served as the Bulk Flammable Materials warehouse and stored 55-gallon drums of flammable materials such as xylene, toluene, acetone, methyl ethyl ketone, methanol and ethanol Prior to construction of Building 915, this area was a bermed open storage location (X25) for petroleum products and flammable materials. A fabric tension structure was erected over this bermed area and warehoused flammable materials. On January 19, 1988, the fabric tension structure collapsed during a storm resulting in about 325 gallons of flammable materials being released in the bermed area and mixing with about 30,000 gallons of rainwater. The Spill Team and the Memphis Fire Department responded. The material was contained and removed to an appropriate disposal facility. The containment and clean up of this spill has been documented by the Depot and the Memphis Fire Department. The current Building 925 was constructed after this incident over a portion of the original fabric tension structure area. At the September 1997 meeting, the BCT concurred that this subparcel change from

an ECP Category 7 to a Category 4 based on the spill not occurring in the current building and the volatilization of any spilled material over the past nine years. Additional sampling will occur in the spill area south of Building 925 (Subparcel 30 2).

Subparcel Number and Label 30.2(4)

CERFA Map Location 4,13

This subparcel is associated with the former X25 open storage area, a 1988 spill and proposed No Further Action (NFA) Site 53. In the past, flammable materials were stored in 55-gallon drums within an earthen bermed area, which was later converted to a concrete bermed area. A fabric tension structure was erected over the concrete berm area. In 1988, the structure collapsed during heavy winds releasing approximately 327 gallons of flammable material (xylene, toluene, and methyl ethyl ketone) that mixed with approximately 30,000 gallons of water. The Memphis Fire Department Hazmat Team joined the Depot's Spill Team in cleaning up the spill. The material/water waste was pumped out of the bermed area and disposed of according to federal, state and local regulations. Building 925 was constructed over a portion of the area in 1994. Samples were collected and results indicated levels of PAHs that exceeded residential criteria and will be further addressed in a site-wide risk assessment. At the February 1999 meeting, the BCT concurred that this subparcel change from an ECP Category 7 to a Category 4 based on cleanup of the spill and sample results.

Subparcel Number and Label 32.2(4)

CERFA Map Location 9,13

This subparcel is associated with 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. The Spill Team responded, took the appropriate action and disposed of all residue in accordance with federal, state and local regulations. Also, air sampling conducted in this building to assess the impact from storage of hazardous materials indicated no human health hazards. At the September 1997 meeting, the BCT concurred that this subparcel change from an ECP Category 7 to a Category 4 based on cleanup of these spills and air sample results.

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

The Category 5 subparcel listed below is associated with an area where release, disposal or migration of hazardous substances has occurred, and removal or remedial actions are under way, but all required actions have not yet been implemented. Information regarding releases was obtained from the Depot's Spill Response Checklists maintained by the Memphis Depot Caretaker Division Environmental Office. A total of 1 subparcel, encompassing 2.0 acres, has been designated Category 5.

Subparcel Number and Label 24.1(5)HR
CERFA Map Location 10,3

This subparcel is associated with the southern end of open storage area X02, which is the gravel area to the east of Remedial Investigation (RI) Site 27 (Former Recoupment Area - Building 873). The southern end of X02 was used as a hazardous materials recoupment area (remove hazardous materials from damaged containers then repackage the materials) until the current Recoup Building was constructed in 1987/1988. Remediation of soil contamination from previous spills (DDT, DDE, and aldrin) took place in 1985. Three RI surface soil and five RI soil boring samples were collected. Sample results indicated elevated levels of vanadium and polynuclear aromatic hydrocarbons. PAHs will be addressed in the sitewide risk evaluation. The 1996 Final Environmental Baseline Survey determined this subparcel to be a Category 5 and the BCT concurred based on the removal action that occurred, but that further investigation is needed to determine if further action is required.

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

The Category 6 subparcels listed below are areas where release, disposal and/or migration of hazardous substances have occurred, but the required removal or remedial actions have not yet been taken. Information regarding releases was obtained from the Depot's Spill Response Checklists maintained by the Environmental Division. A total of 13 subparcels, encompassing 46.81 acres, have been identified as Category 6.

Subparcel Number and Label 7.1(6)

CERFA Map Location 29,13

This subparcel is associated with the open land area surrounding Building 249 and Screening Site (SS) 65 (XXCC-3, Building 249). Five surface soil samples and three soil borings associated with SS 65 were collected (CH2M Hill, 1998c). Samples indicated levels of PAHs [particularly benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene and indeno(1,2,3-cd)pyrene] that exceeded BCT screening criteria. At least one detection of each of these PAHs was two orders of magnitude above the risk based concentration. The high levels of PAHs were found on the south side of Building 249 near the railroad tracks. One sample detected levels of DDE and DDT. In September 1997, the BCT concurred that this subparcel should change from an ECP Category 7 to a Category 6 due to PAH levels that may require some type of remedial action. PAHs, DDE and DDT were evaluated in the RI and the preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel.

Subparcel Number and Label 15.5(6)

CERFA Map Location 23,18

This subparcel is associated with the open land area around Buildings 308, 309 and 720; Screening Site 36 (DRMO Hazardous Waste Concrete Storage Pad); Screening Site 37 (DRMO Hazardous Waste Gravel Storage Pad); Screening Site 38 (DRMO Damaged/Empty Hazardous Materials Drum Storage Area); and Screening Site 39 (DRMO Damaged/Empty Lubricant Container Area). One 1990 Law RI surface soil sample taken just outside this subparcel boundary detected PAHs, dieldrin and metals. During the 1997 Screening Site Sampling Program, thirteen soil boring samples were taken. Sample results indicated PAHs no longer occurring, arsenic at risk ratios above 1 in a million for both industrial and residential scenarios, and levels of 1,1,2,2-tetrachloroethane, DDT and other metals. At the September 1997 meeting, the BCT concurred that this subparcel should change from an ECP Category 7 to a Category 6 due to contaminant levels that may require some type of remedial action. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel.

Subparcel Number and Label 25.2(6)

CERFA Map Location 8,7

This subparcel is associated with Building 875, the open land area surrounding 875 and 873, and Remedial Investigation (RI) Site 27 (Former Recoupment Area/Building 873). This subparcel also contains railroad tracks that were historically sprayed with pesticides, herbicides and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000. A 1,000-gallon heating oil tank was closed in place in July 1994 outside Building 875. One BRAC and two RI surface soil samples and one BRAC soil boring were collected from this subparcel (CH2M Hill, 1998c). The RI samples were taken from south of Building 873. The RI sample results indicated levels of polynuclear aromatic hydrocarbons (PAHs) that exceeded the BCT screening criteria. This area of Subparcel 25.2 may be a removal action candidate, or could go through a risk assessment due to the moderate level of PAHs. The BRAC sample results indicated chlordane in the surface soils and lead at a depth of zero to 4 feet, and the Preliminary Risk Evaluation indicated carcinogenic and non-carcinogenic risk ratios of less than 1 in one million. At the September 1997 meeting, the BCT concurred that this subparcel should change from an ECP Category 7 to a Category 6 due to contaminant levels that may require some type of remedial action. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel.

Subparcel Number and Label 28.2(6)

CERFA Map Location 3,5

This subparcel is associated with Building 1089, the open land area surrounding Building 1089 and Screening Site (SS) 89 (Acids - Building 1089). Building 1089 was used to store acids, paints and cleaning solvents. Eight SS surface soil samples and four SS soil borings were collected. Surface soil sample results indicated lead, arsenic and chromium levels that exceeded BCT screening criteria. Subsurface soil samples indicated no levels that exceeded BCT screening criteria. Monitoring well 21 (MW-21) is also associated with this subparcel. Groundwater samples taken from MW-21 detected VOCs and metals. Due to the presence of metals in surface soils, this subparcel requires further Remedial Investigation or should proceed through a removal action. At the October 1997 meeting, the BCT concurred that this subparcel should change from an ECP Category 7 to a Category 6 and proceed through the removal action process due to metal levels and the DRC's high priority for reuse of this subparcel. An Engineering Evaluation/Cost Analysis was prepared and an Action Memorandum signed to support a non-time critical removal action for this

subparcel. The Depot completed the removal action in August 2000. However, the preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel. So, this subparcel remains a Category 6.

Subparcel Number and Label 30.3(6)

CERFA Map Location 4,15

This subparcel is associated with open storage area X23 and the open land area surrounding Buildings 925 and 949. This subparcel is also associated with former open storage area X25 where drums of flammable materials were stored. Buildings 925 and 949 were constructed on former open storage area X25. This subparcel contains railroad tracks, open storage areas and other gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000. In 1999, samples were collected from this subparcel and results indicated levels of metals above BCT screening criteria. The remedial investigation and feasibility study for the Main Installation is complete. The preferred alternative identified in the Main Installation Proposed Plan calls for soil to be removed from this subparcel due to unacceptable levels of lead at the south end of this subparcel adjacent to Building 949. The Proposed Plan is currently in the public comment period. The BCT concurred via email that this subparcel change from a Category 7 to a Category 6 based on the proposed remedial action.

Subparcel Number and Label 30.5(6)

CERFA Map Location 4,10

This subparcel is associated with Screening Site 83 (Dried Paint Disposal Area), which is the former spray paint area south of Building 949. According to interviews with Depot personnel, spray painting and sand blasting occurred at this location until the early 1980s. In 1997, samples were collected and results indicated levels of antimony, barium, beryllium, cadmium, chromium, iron, lead and zinc that exceeded BCT screening criteria. Even though analytical results indicated these metals levels exceeded BCT screening criteria, these levels appear fairly consistently across the Depot and are being regarded as naturally occurring. The remedial investigation for the Main Installation is complete. The preferred alternative identified in the Main Installation Proposed Plan calls for soil to be removed from this subparcel due to unacceptable levels of lead. The Proposed Plan is currently in the public comment period. The BCT concurred via email that this subparcel change from a Category 7 to a Category 6 based on the proposed remedial action.

Subparcel Number and Label 35.1(6)

CERFA Map Location 3,3

This subparcel is associated with Building 1090, which was used to store paint thinner, lubricating oil, P-19 preservation oil, and corrosion preservation compound. In February 1999, the BCT concurred that this building be cleaned during the proposed removal action for the surrounding area (Subparcel 35.5) and that the subparcel change from an ECP Category 7 to a Category 6. An Engineering Evaluation/Cost Analysis was prepared and an Action Memorandum signed to support a non-time critical removal action for this subparcel. The Depot completed the removal action in August 2000 However, the preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel. So, this subparcel remains a Category 6.

Subparcel Number and Label 35.2(6)

CERFA Map Location 3,5

This subparcel 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). Soil samples indicated levels of arsenic, chromium, lead, cadmium, dieldrin and petroleum above the BCT screening criteria. Dieldrin will be evaluated on a site-wide basis. At the February 1999 meeting, the BCT concurred that this subparcel should change from an ECP Category 7 to a Category 6 and proceed through the removal action process due to metal levels and the DRC's high priority for reuse of this subparcel. An Engineering Evaluation/Cost Analysis was prepared and an Action Memorandum signed to support a non-time critical removal action for this subparcel. The Depot completed the removal action in August 2000. However, the preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel. So, this subparcel remains a Category 6.

Subparcel Number and Label 35.3(6)

CERFA Map Location 3,5

This subparcel is associated with proposed NFA Site 30 at Building 1086, which contained a permitted-spray paint booth and was used to store hazardous materials from 1959 through 1984. The EBS visual inspection noted that this building has a sump. Samples were collected from the

sump, and results indicated levels of metals and naphthalene. The BCT determined that the sump should be cleaned during proposed removal actions at the surrounding parcels. At the February 1999 meeting, the BCT concurred that this subparcel should change from an ECP Category 7 to a Category 6 due to metal levels and the DRC's high priority for reuse of this subparcel. An Engineering Evaluation/Cost Analysis was prepared and an Action Memorandum signed to support a non-time critical removal action for this subparcel. The Depot completed the removal action in August 2000. However, the preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel. So, this subparcel remains a Category 6.

Subparcel Number and Label 35.4(6)

CERFA Map Location 3,3

This subparcel 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. This subparcel also includes gravel areas that were historically sprayed with herbicides and pesticides. Surface soil samples were collected and results indicated levels of PAHs, pesticides and metals that exceeded BCT screening criteria. Groundwater samples were collected from MW-22 and detected VOCs, SVOCs and metals, which were evaluated as part of the RI. At the February 1999 meeting, the BCT concurred that this subparcel should change from an ECP Category 7 to a Category 6 and proceed through the removal action process due to metal levels and the DRC's high priority for reuse of this subparcel. An Engineering Evaluation/Cost Analysis was prepared and an Action Memorandum signed to support a non-time critical removal action for this subparcel. The Depot completed the removal action in August 2000. However, the preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel. So, this subparcel remains a Category 6.

Subparcel Number and Label 35.5(6)

CERFA Map Location 2,2

This subparcel is associated with Buildings 1091 and 1088 as well as the open land area surrounding these buildings but not included in Parcels 35.1 through 35.4. This subparcel is also associated with Remedial Investigation (RI) Site 32 (Sandblasting Waste Accumulation Area). Fourteen surface soil samples (five samples were associated with Screening Site 33 which is included in Subparcel 35.4) and three soil borings (one associated with SS 33) were collected in Subparcel 35.5. Sample results associated with RI site 32 indicated levels of chromium, lead, arsenic, and polynuclear aromatic hydrocarbons (PAHs) that exceeded BCT screening criteria. Surface soil sample results associated with Screening Site 33 indicated levels of metals and PAHs that exceeded BCT screening criteria. PCBs were detected in Site 33 samples taken during the Law Environmental study in 1991. PCBs were not detected in Site 33 samples taken during the screening site sampling in the winter of 1997. At the October 1997 meeting, the BCT concurred that this subparcel should change from an ECP Category 7 to a Category 6 and proceed through the removal action process due to metal levels and the DRC's high priority for reuse of this subparcel. An Engineering Evaluation/Cost Analysis was prepared and an Action Memorandum signed to support a non-time critical removal action for this subparcel. The Depot completed the removal action in August 2000. However, the preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel. So, this subparcel remains a Category 6.

Subparcel Number and Label 36.16(6)

CERFA Map Location 29,9

This subparcel is associated with a suspected chemical warfare materiel burial location, Site 1 (Mustard and Lewsite Training Sets Burial Site). Nine sets of Chemical Agent Identification Sets were reportedly buried at this subparcel in 1955. In 1998, sampling of surface soil, subsurface soil and groundwater around this site indicated no migration of chemical warfare materiel. In order to transfer the property with a low human health or environmental risk in the future due to the chemical warfare materiel, the Army determined the CWM must be removed. In June 1999 via email, the BCT concurred that this subparcel should change from an ECP Category 7 to a Category 6 and proceed through the removal action process. An Engineering Evaluation/Cost Analysis and Action Memorandum were prepared and an Action Memorandum signed to support a non-time

critical removal action at this subparcel. The CWM removal action is scheduled to be completed by May 2001.

Subparcel Number and Label 36.29(6)

CERFA Map Location 23,9

This subparcel is associated with suspected chemical warfare materiel disposal location, Site 24 (Former Burn Site - 1946). This subparcel is also associated with Proposed No Further Action Sites 23 (Construction Debris and Food Burial Site) and 63 (Fluorspar Storage - Southeastern quadrant). In 1946, railcars carrying captured German bomb casings containing sulfur mustard were enroute to Pine Bluff Arsenal, AR from Mobile, AL. Three cars began leaking mustard, and the train was rerouted to the Memphis Depot. Upon examination of the cars, 29 bomb casings were identified as leaking. These casings were taken to one pit at Dunn Field and drained into and neutralized by a chlorinated lime (supertropical bleach) slurry. The drained casings were placed in the pit and destroyed by dynamite in case a burster remained intact in a casing. In 1998, sampling of surface soil, subsurface soil and groundwater around this site indicated no migration of chemical warfare materiel. In order to transfer the property with a low human health or environmental risk due to the chemical warfare materiel in the future, the Army determined the CWM must be removed. In June via email, the BCT concurred that this subparcel changed from an ECP Category 7 to a Category 6 and proceed through the removal action process. An Engineering Evaluation/Cost Analysis and Action Memorandum were prepared and an Action Memorandum signed to support a non-time critical removal action at this subparcel. The CWM removal action is scheduled to be completed by May 2001.

3.4.7 Unevaluated Areas or Areas Requiring Additional Evaluation

The Category 7 subparcels listed below are areas that have not been evaluated or require additional evaluation. Information regarding releases was obtained from the Depot's Spill Response Checklists maintained by the Environmental Division. A total of 68 subparcels, encompassing 400.81 acres, have been designated as Category 7.

Subparcel Number and Label 1.8(7)

CERFA Map Location 33,12

This subparcel is associated with the parking lots and open land area surrounding Building 144 as well as Buildings 143, 146 and 147. Both the north and south Parking Lots in this subparcel are the location of former housing units. These housing units were demolished and the potential impacts

from these units are unknown. This subparcel includes grassed areas that were historically sprayed with pesticides and herbicides. 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 Spill Team responded, took the appropriate action and disposed of all residue in accordance with federal, state and local regulations. Based on BRAC sample results, this subparcel will remain a Category 7 and will be addressed in the upcoming sitewide risk assessment for dieldrin. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 3.5(7)

CERFA Map Location 29,4

This subparcel is associated with the recreational area including the golf course, playground, softball field, volleyball and tennis courts, wading pool, Buildings 194, 197 and 398, and the open land area surrounding the community club complex extending to Ball Road. . This subparcel contains grassed areas that were historically sprayed with pesticides and herbicides. In an effort to evaluate health risks associated with the historical use of pesticides at the recreational area of the Depot, which includes parcels 3.5, 3.6, 3.7, 3.8, 3.9, 3.10 and 3.11, the BRAC Cleanup Team had a streamlined risk assessment conducted. Results of this assessment are contained in the Final Streamlined Risk Assessment Parcel 3 Technical Memorandum (CH2M Hill, January 1999). From late 1996 through 1998, over 50 surface soil samples from throughout these parcels were collected, analyzed, and the results processed through several risk assessment scenarios reflected of intended, similar reuse of the recreational area. The assessment concluded that risks associated with pesticides on the softball field or the playground for small children or adolescence youths were below the acceptable exposure level [(40 CFR 300.430 (e)(2)(i)(A)(2)] as defined by the Environmental Protection Agency meaning the area is safe for children and teenagers. The assessment also concluded that risks associated with pesticides on the golf course for golfers were within the acceptable exposure level [40 CFR 300.430 (e)(2)(i)(A)(2)] as defined by the Environmental Protection Agency. When compared with other golf courses, pesticide levels at the Depot were typical. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 3.6(7)

CERFA Map Location 26,6

Lake Danielson is located in the northwest corner of the Golf Course and receives stormwater runoff from the 20 Typical warehouse area. . Health risks associated with surface water, sediments and aquatic animals in Lake Danielson (Subparcel 3.6) and the Golf Course Pond (Subparcel 3.8) were assessed in an expedited manner. Final results are included in the final Baseline Risk Assessment for Golf Course Impoundments at the Defense Distribution Depot Memphis, Tennessee (Radian International, May 1999). The surface water, sediments and aquatic animals from these two impoundments were sampled, analyzed, and evaluated to determine the risk associated with consumption of the fish and the frog legs. It is important to note that the only aquatic animals collected from either impoundment were frogs, goldfish and a forage fish known as a shiner (Notropis girardi). Many different sample collection techniques were utilized to collect aquatic animals including angling, trapping and electroshocking. Frogs, goldfish and shiners were the only species collected. In correspondence from a certified Piscivarian Wildlife Biologist from the Tennessee Valley Authority (TVA), the Lessee was advised that no appreciable/viable populations of game fish species were within either impoundment. The assessment indicated risks associated with consumption of non-game fish and frog legs from the impoundments were below the acceptable exposure level [40 CFR 300.430 (e)(2)(i)(A)(2)] as defined by the Environmental Protection Agency. The assessment also indicates risks posed by exposure to surface water and sediments through swimming in the impoundments were below the acceptable exposure level [40 CFR 300.430 (e)(2)(i)(A)(2)] as defined by the Environmental Protection Agency. In 1986 due to unsupervised swimming and proximity to golf course fairways as well as preliminary sampling results, fishing and swimming in both impoundments was banned and signs to this effect were posted. Further sampling and risk assessments efforts have determined that there is no health risk reason from substances in surface water, sediments or aquatic life in the impoundments for this ban to continue. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 3.7(7)

CERFA Map Location 26,4

This subparcel is associated with the Lake Danielson outlet ditch that 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. Additional evaluation is necessary to determine the environmental condition of this subparcel. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 3.8(7)

CERFA Map Location 32,5

This subparcel is associated with the Golf Course Pond that receives surface water runoff from the eastern side of the golf course and the southeast portion of the installation. Health risks associated with surface water, sediments and aquatic animals in Lake Danielson (Subparcel 3.6) and the Golf Course Pond (Subparcel 3.8) were also assessed in an expedited manner. Final results are included in the final Baseline Risk Assessment for Golf Course Impoundments at the Defense Distribution Depot Memphis, Tennessee (Radian International, May 1999). The surface water, sediments and aquatic animals from these two impoundments were sampled, analyzed, and evaluated to determine the risk associated with consumption of the fish and the frog legs. It is important to note that the only aquatic animals collected from either impoundment were frogs, goldfish and a forage fish known as a shiner (Notropis girardi). Many different sample collection techniques were utilized to collect aquatic animals including angling, trapping and electroshocking. Frogs, goldfish and shiners were the only species collected. In correspondence from a certified Piscivarian Wildlife Biologist from the Tennessee Valley Authority (TVA), the Lessee was advised that no appreciable/viable populations of game fish species were within either impoundment. The assessment indicated risks associated with consumption of non-game fish and frog legs from the impoundments were below the acceptable exposure level [40 CFR 300.430 (e)(2)(i)(A)(2)] as defined by the Environmental Protection Agency. The assessment also indicates risks posed by exposure to surface water and sediments through swimming in the impoundments were below the acceptable exposure level [40 CFR 300.430 (e)(2)(i)(A)(2)] as defined by the Environmental Protection Agency. In 1986 due to unsupervised swimming and proximity to golf course fairways as well as preliminary sampling results, fishing and swimming in both impoundments was banned and signs to this effect were posted. Further sampling and risk assessments efforts have determined that there is no health risk reason from substances in surface water, sediments or aquatic life in the impoundments for this ban to continue. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation

Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 3.9(7)

CERFA Map Location 30,3

This subparcel is associated with the Golf Course Pond outlet ditch that 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. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 3.10(7)

CERFA Map Location 30,6

A 1947 installation map shows a pistol range directly behind where Building 271 now stands, near the 9th hole of the golf course. Soil samples indicate arsenic and dieldrin levels that exceeded BCT screening criteria. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 3.11(7)

CERFA Map Location 30,6

This area is within the Golf Course and was used to test flame-thrower fuels. Firefighting techniques were also practiced at this site after ignition of the fuel. Soil samples indicate dieldrin and benzo(a)pyrene at levels similar to those found elsewhere on the Depot. The remedial investigation is complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 4.5(7)

CERFA Map Location 30,8

This subparcel is associated with Building 261 and the open land area surrounding buildings in Subparcel 4. This subparcel contains grassed areas that were historically sprayed with herbicides and pesticides. A 5,000-gallon heating oil tank was removed in July 1994 outside of Building 253. Two 12,000-gallon and one 20,000-gallon gasoline USTs were removed in 1986 south of Building 257. One 18,000-gallon and one 20,000-gallon gasoline USTs that are actually in Subparcel 4.6, ECP Category 2, replaced these tanks. These tanks were removed in June 1998. Soil sampling conducted in accordance with TN UST removal procedures indicated no release of gasoline or diesel. Dieldrin and PAHs were evaluated in the RI. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 4.9(7)

CERFA Map Location 29,8

Pad 267 is a concrete slab currently used as a parking lot, 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. Surface soil samples indicated dieldrin at levels below BCT screening criteria. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 4.10(7)

CERFA Map Location 31,7

Building 273 was used for mixing golf course pesticides and herbicides. Surface soil samples (SS-37 and SS-50) detected VOCs, PAHs and pesticides. Soil samples indicated dieldrin at levels above BCT screening criteria. This area will be further evaluated under the remedial investigation. The remedial investigation is complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls

(considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 6.1(7)

CERFA Map Location 28,11

This subparcel is associated with the open land area surrounding Buildings 349, 350 and 250.. This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000. This subparcel also contains grassed areas that were historically sprayed with pesticides and herbicides. Soil samples indicate dieldrin and PCB 1260 at levels above the BCT screening criteria. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 8.1(7)

CERFA Map Location 28,14

This subparcel is associated with the open land area surrounding Buildings 229, 230, 329 and 330. This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP and grassed areas that were historically sprayed with herbicides and pesticides. The railroad tracks and ballasts were removed in 1999/2000. Soil samples indicated levels of dieldrin above the BCT screening criteria. Dieldrin was evaluated in the RI. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 9.1(7)

CERFA Map Location 23,13

This subparcel is associated with the open land area surrounding Buildings 429, 430, 449 and 450. This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000. This subparcel also contains grassed areas that were historically sprayed with pesticides and herbicides. Soil samples indicated levels of dieldrin above the BCT screening

criteria. Dieldrin was evaluated in the RI. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 10.2(7)

CERFA Map Location 18,11

This subparcel is associated with the open land area surrounding Buildings 549, 649, 550 and 650.. This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000. This subparcel also contains grassed areas that were historically sprayed with pesticides and herbicides. Soil samples indicated levels of dieldrin above the BCT screening criteria. Dieldrin was evaluated in the RI. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 10.3(7)

CERFA Map Location 17,10

A battery acid and hydraulic fluid spill were reported on March 18, 1993 between Buildings 550 and 650. The Spill Team responded, applied sodium bicarbonate and absorbent and disposed of all residue in accordance with federal, state and local regulations The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 11.1(7)

CERFA Map Location 18,14

This subparcel is associated with the open land area surrounding Buildings 529, 530 and 630. . This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. The railroad tracks and ballasts were removed in

1999/2000. This subparcel also contains grassed areas that were historically sprayed with pesticides and herbicides. Soil samples indicated levels of dieldrin above the BCT screening criteria. Dieldrin will be evaluated as part of the RI The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 12.1(7)

CERFA Map Location 17,15

This subparcel is associated with the open land area surrounding Building 629. This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000. This subparcel also contains grassed areas that were historically sprayed with pesticides and herbicides. Soil samples indicated levels of PAH compounds and dieldrin above the BCT screening criteria. PAHs and dieldrin was evaluated in the RI. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 13.5(7)

CERFA Map Location 33,16

This subparcel is associated with Building 211 and its associated emergency generator, Gates 23, 24 and 25, and the surrounding open land area extending to Airways Boulevard.. This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000. This subparcel also contains grassed areas that were historically sprayed with pesticides and herbicides. Soil samples indicated levels of dieldrin above the BCT screening criteria. Dieldrin was evaluated in the RI. The remedial investigation is complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 14.2(7)

CERFA Map Location 33,17

This subparcel is associated with Building 209 (demolished in 1998) and the surrounding open land area extending north to Dunn Road and east to Airways Boulevard. . This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000. This subparcel also contains grassed areas that were historically sprayed with pesticides and herbicides. In addition, this subparcel 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. Soil samples indicated levels of dieldrin above the BCT screening criteria. Dieldrin was evaluated in the RI. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 15.6(7)

CERFA Map Location 18,17

This subparcel is associated with open storage areas Y10, Y11, Y50, and Y60; Buildings 301, 304, 305, 306, 307, 309, T416, T417, 701 and 717; and includes three Screening Sites. The DRMO East Stormwater Runoff Canal (Screening Site 54) and the DRMO North Stormwater Runoff Canal (Screening Site 55) are canals that collect stormwater runoff from the DRMO Yard and other Depot 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 subparcel 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 subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. Soil samples indicated levels of dieldrin above the BCT screening criteria. Dieldrin was evaluated in the RI. In addition, this subparcel 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 subparcel is also associated with a 30-gallon solvent spill south of Building 309 that was reported on December 2, 1991. The Spill Team responded, applied absorbent, removed the stained soil and disposed of all residue in accordance with federal, state and local regulations. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 16.1(7)

CERFA Map Location 21,9

This subparcel is associated with the open land area surrounding Building 559. This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000. This subparcel also contains grassed areas that were historically sprayed with pesticides and herbicides. Soil samples indicated levels of dieldrin above the BCT screening criteria. Dieldrin was evaluated in the RI. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 17.2(7)

CERFA Map Location 22,9

This subparcel is associated with the open land area surrounding Building 359. This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000. This subparcel also contains grassed areas that were historically sprayed with pesticides and herbicides. Soil samples indicated levels of dieldrin above the BCT screening criteria. Dieldrin was evaluated in the RI. In addition, this subparcel 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. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 20.5(7)

CERFA Map Location 19,6

This subparcel is associated with the open land area surrounding Buildings 470, 489 and 670. This subparcel contains railroad track and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP and grassed areas that were historically sprayed with pesticides and herbicides. Soil samples indicated levels of dieldrin above the BCT screening criteria. Dieldrin was evaluated in the RI. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 20.6(7)

CERFA Map Location 20,4

This subparcel is associated with the location of a sulfuric acid spill that was reported on June 10, 1993, on the south dock of Bay 5, Building 489 (DDMT 1993). Sodium bicarbonate was applied to the material, all spill residue was gathered and disposed in accordance with local, state and federal regulations. Soil samples indicated levels of arsenic, PAH compounds and metals above the BCT screening criteria. PAHs were evaluated in the RI. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation

Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 21.5(7)

CERFA Map Location 19,3

This subparcel is associated with the open land area surrounding Buildings 490, 689 and 690. This subparcel contains gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP and grassed areas that were historically sprayed with pesticides and herbicides. This subparcel is also associated with Screening Site 76 (Unknown Wastes Near Building 690). Samples were collected and results indicated levels of chromium and lead in subsurface soils that exceeded BCT screening criteria. Dieldrin was detected, but was below screening criteria. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 22.1(7)

CERFA Map Location 18,4

This subparcel is associated with the open land area between east ends of Buildings 689 and 690. This subparcel contains gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. In 1997, samples were collected and results indicated levels of antimony and PAHs that exceeded BCT screening criteria. PAHs were evaluated in the RI. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 22.2(7)

CERFA Map Location 17,4

This subparcel is associated with Screening Site 77 (Unknown Wastes Near Buildings 689 and 690). Battery acid spilled during MHE battery charging procedures was washed out a nearby door onto the gravel area immediately east of Building 685. This subparcel contains gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. In 1997,

samples were collected and results indicated levels of antimony, arsenic, dieldrin and PAHs in surface soils that exceeded BCT screening criteria. Even though analytical results indicated these metals levels exceeded BCT screening criteria, these levels appear fairly consistently across the Depot and are being regarded as naturally occurring PAHs were evaluated in the RI. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 23.11(7)

CERFA Map Location 6,2

This subparcel is associated with the open land area surrounding Building 995. This subparcel contains grassed areas that were historically sprayed with pesticides and herbicides and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. In 1997, a sample was collected from Subparcel 23.9, a spill area within Subparcel 23.11. Results indicated lead in subsurface soils that slightly exceeded (24.3 mg/kg vs. 24 mg/kg) BCT screening criteria. Even though analytical results indicated this lead level exceeded BCT screening criteria, this level appears fairly consistently across the Depot and is being regarded as naturally occurring. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 24.2(7)

CERFA Map Location 11,6

This subparcel is associated with open storage areas X02 and X03, which were used for storage of POLs and flammable materials in 55-gallon drums until 1988. The areas then became steel storage. This subparcel contains railroad tracks, open storage areas and other gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000. In 1997, samples were collected and results indicated arsenic, PAHs and PCP levels in surface soils and lead in subsurface soils that exceeded BCT screening criteria. Even though analytical results indicated these metals levels exceeded BCT screening criteria, these levels appear fairly consistently across the Depot and are being regarded as naturally occurring. PAHs were evaluated in the RI. The remedial investigation and feasibility

study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 24.3(7)

CERFA Map Location 11,7

This subparcel 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 were 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:

- A 11,155-gallon diesel tank removed in July 1994
- A 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. Soil samples indicated levels of metals and PAH compounds that exceeded the BCT screening criteria. PAHs were evaluated in the RI. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 26.1(7)

CERFA Map Location 6,9

This subparcel is associated with the open land area surrounding Building 970. This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000. In 1997, samples were collected and results indicated no levels that exceeded BCT screening criteria. However, in October 1997 the BCT agreed that this subparcel remain an ECP Category 7 until surface soils could be further evaluated. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 27.1(7)

CERFA Map Location 4,9

This subparcel is associated with the open land area surrounding Building 972. This subparcel contains gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. In 1997, samples were collected and results indicated levels of chromium, PAHs and chlorinated pesticides in surface soils and chromium and lead in subsurface soils that exceeded BCT screening criteria. Even though analytical results indicated these metals levels exceeded BCT screening criteria, these levels appear fairly consistently across the Depot and are being regarded as naturally occurring. PAHs were evaluated in the RI. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 29.2(7)

CERFA Map Location 4,18

This subparcel is associated with open storage areas X27 and X30, Buildings 801 and 802, and the surrounding open land area extending north to Dunn Road and west to Perry Road. This subparcel contains railroad tracks, open storage areas and other gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP and grassed areas that were historically sprayed with pesticides and herbicides. The railroad tracks and ballasts were removed in

1999/2000. In 1997, samples were collected and results indicated levels of chromium, dieldrin, DDT and methylene chloride in surface soils that exceeded BCT screening criteria. Even though analytical results indicated these metals levels exceeded BCT screening criteria, these levels appear fairly consistently across the Depot and are being regarded as naturally occurring. Dieldrin was evaluated in the RI. Additional evaluation is necessary to determine the environmental condition of this subparcel. In addition, this subparcel 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 Spill Team responded, applied absorbent, removed any stained soil and disposed of all residue in accordance with federal, state and local regulations. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 29.3(7)

CERFA Map Location 2,11

This subparcel is associated with Screening Site 56, the west stormwater drainage canal that collects the stormwater runoff from the western portion of the Main Installation. In 1997, samples were collected and results indicated levels of metals in surface soil; lead in subsurface soil; PAHs, lead, p,pN-DDD and p,pN-DDE in sediments under the concrete lined ditch that exceeded BCT screening criteria. PAHs were detected in sediments at levels exceeding criteria, but below background values. Even though analytical results indicated these metals levels exceeded BCT screening criteria, these levels appear fairly consistently across the Depot and are being regarded as naturally occurring. Dieldrin was evaluated in the RI. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 31.1(7)

CERFA Map Location 6,13

This subparcel is associated with open storage areas X17, X19 and X21, and a portion of X23 and X15. These areas were used to store a variety of materials including POLs and hazardous materials. Records indicate that during the 1970s hazardous materials were recouped under a lean-to at the

corner of 21st Street and E Street in the X21 area. This subparcel contains railroad tracks and open storage areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000. In 1997, samples were collected and results indicated levels of metals, dieldrin, dibenz(ah)anthracene and PCBs that exceeded BCT screening criteria. Even though analytical results indicated these metals levels exceeded BCT screening criteria, these levels appear fairly consistently across the Depot and are being regarded as naturally occurring. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 32.3(7)

CERFA Map Location 9,10

This subparcel is associated with Screening Site 28 (Building 865, the Recoup Area Building) and the surrounding open land area. Building 865 is a handling area used to transfer hazardous substances/wastes or petroleum products/wastes from damaged or leaking containers into undamaged containers. A small fenced-in area is located on the southwest side of Building 865. The EBS visual inspection noted that this area contained various drums (5-, 10-, 15-, and 55-gallon) of old chemicals (oil, methyl ethyl ketone, and isopropanol), some with protruding rusting tops. This subparcel also includes gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. In 1997, samples were collected and results indicated levels of arsenic and lead that exceeded BCT screening criteria. Even though analytical results indicated these metals levels exceeded BCT screening criteria, these levels appear fairly consistently across the Depot and are being regarded as naturally occurring. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 33.7(7)

CERFA Map Location 13,7

This subparcel is associated with Screening Site 81 (Fuel Oil Building 765), a 12,000-gallon diesel fuel aboveground storage tank that was removed in 1994. This subparcel also contains a gravel

area that was historically sprayed with pesticides, herbicides and waste oil containing PCP. In 1997, samples were collected and results indicated levels of PAHs that exceeded BCT screening criteria. PAHs were evaluated in the RI. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 33.9(7)

CERFA Map Location 12,14

This subparcel is associated with open storage areas X05, X06, X07, X08, X09, X10 and X11; Buildings 720 and 737; and the open land area surrounding Buildings 720, 737, 753, 755, 756, 860 and 863. This subparcel is associated with Screening Site 42 (Former Pentachlorophenol (PCP) Dip Vat Area), Screening Site 43 (Former Underground PCP Tank Area), Screening Site 46 (Pallet Drying Area) and Screening Site 80 (Fuel and Cleaner Dispensing at Building 720). In 1985, the PCP dip vat, underground storage tank, associated piping and impacted soil were removed. According to interviews with Depot personnel, cleaners were not dispensed from Building 720; parts cleaning solutions were used in the building. No evidence was found of a 1,000-gallon waste oil tank inside Building 720. This subparcel contains railroad tracks, open storage areas and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP and grassed areas that were historically sprayed with pesticides and herbicides. The railroad tracks and ballasts were removed in 1999/2000. This subparcel also contained a 12,000-gallon diesel aboveground storage tank west of Building 720 that was removed in 1997 and a 200-gallon gasoline underground storage tank adjacent to Building 754 that was removed in 1986. Hazardous substances and petroleum products were historically stored in open storage areas X05, X06, X07, X08, X10, X11 and X12. Transformers containing mineral oil (non-PCB and PCB containing) were also stored in open storage area X07. Leaking 55-gallon drums of ethyl acetate/naphtha aromatic were reported to the Spill team, which responded, took the appropriate actions and disposed of all residue in accordance with federal, state and local regulations. In 1997, samples were collected and results indicated levels of lead, chromium, arsenic, PAHs, dieldrin and PCB-1260 that exceeded BCT screening criteria. Even though analytical results indicated these metals levels exceeded BCT screening criteria, these levels appear fairly consistently across the Depot and are being regarded as naturally occurring. The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation

Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.

Subparcel Number and Label 36.1(7)
CERFA Map Location 30,9

This subparcel is associated with a seven-pound jug of ammonia hydroxide and a one-gallon bottle of acetic acid that were buried here. This subparcel is associated with IRP Site 2. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.2(7)
CERFA Map Location 30,9

This subparcel is associated with three thousand quarts of unknown chemicals and five cubic feet of orthotoluidine dihydrochloride that were buried here. This subparcel is associated with IRP Site 3. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.3(7)
CERFA Map Location 30,9

This subparcel is associated with forty-five 55-gallon drums of discarded oil, grease, paints, and thinner that were buried in these two adjacent trenches. This subparcel is associated with IRP Sites 4 and 4.1. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.4(7)
CERFA Map Location 30,9

This subparcel is associated with three cubic feet of methyl bromide that were buried here in an unidentified container or containers. This subparcel is associated with IRP Site 5. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.5(7)

CERFA Map Location 30,8

This subparcel is associated with 1,700 quart bottles of nitric acid that were buried here. This subparcel is associated with IRP Site 7. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.6(7)

CERFA Map Location 30,8

This subparcel is associated with 3,768 one-gallon cans of methyl bromide that were buried to a depth of 7 feet. This subparcel is associated with IRP Site 8. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.7(7)

CERFA Map Location 31,9

This subparcel is associated with 1,433 one-ounce bottles of trichloroacetic acid that were buried at a depth of 6 feet. This subparcel is associated with IRP Site 11. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.8(7)

CERFA Map Location 27,8

This subparcel is associated with 30 pallets of discarded acid containers that were buried at these three locations at a depth of 8t feet. This subparcel is associated with IRP Sites 12 and 12.1. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.9(7)

CERFA Map Location 28,8

This subparcel is associated with 32 cubic yards of mixed chemicals and acids and 8,100 pounds of unnamed solids that were buried at a depth of 8 feet. This subparcel is associated with IRP Site 13. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.10(7)

CERFA Map Location 28,8

These sites contain unknown amounts of unnamed acid. This subparcel is associated with IRP Sites 16 and 16.1. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.11(7)

CERFA Map Location 28,8

This subparcel is associated with an unknown amount of chemicals and medical supplies that were buried. This subparcel is associated with IRP Site 17. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.12(7)

CERFA Map Location 23,11

This site contains one above-grade covered bauxite pile. The pile was removed in 1998. This subparcel is associated with IRP Site 62. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.13(7)

CERFA Map Location 27,11

This site contains two above-grade covered bauxite piles. The piles were removed in 1998. This subparcel is associated with IRP Site 62. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.14(7)

CERFA Map Location 31,11

This site is a former pistol range (Site 60) and impact area and includes Building 1184 (Site 85). The building was used for temporary pesticide storage. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.15(7)

CERFA Map Location 29,10

This subparcel is associated with the fluvial aquifer groundwater contamination identified at Dunn Field. An interim remedial action addressing the contamination has been implemented with the

installation of seven recovery wells along the western fenceline of Dunn Field. Groundwater from the fluvial aquifer is pumped out and discharged to the Memphis sanitary sewer for treatment at the publicly owned treatment works. The BCT has approved installation of four additional recovery wells to the system. In addition, this subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.17(7)

CERFA Map Location 30,9

This subparcel is associated with ashes and metals from the former burn site (Screening Site 24) that were buried here. This subparcel is associated with IRP Site 9. In 1998, samples were collected, but the BCT has not evaluated the data. The CEHNC ordnance division and the CWM field investigation contractor have determined this area does not contain CWM. See Appendix E for the documentation regarding this determination. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.18(7)

CERFA Map Location 28,9

This subparcel is associated with food items with expired shelf life that were buried here. Reportedly, CAIS sets were also buried here. This subparcel is associated with IRP Site 86. In 1998, samples were collected, but the BCT has not evaluated the data. The CEHNC ordnance division and the CWM field investigation contractor have determined this area does not contain CWM. See Appendix E for documentation regarding this determination. . The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.19(7)

CERFA Map Location 28,9

This subparcel is associated with food items with expired shelf life that were buried here. Reportedly, CAIS sets were also buried here. This subparcel is associated with IRP Site 86. In 1998, samples were collected, but the BCT has not evaluated the data. The CEHNC ordnance division and the CWM field investigation contractor have determined this area does not contain CWM. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.20(7)

CERFA Map Location 31,9

This subparcel is associated with 40,037 units of eye ointment that were buried here in 1955. This subparcel is associated with IRP Site 6. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.21(7)

CERFA Map Location 30,8

This site was discovered during the installation of monitoring well 10. Charred debris was encountered. This subparcel is associated with IRP Site 10. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.22(7)

CERFA Map Location 28,8

This municipal waste burial site reportedly contains paper, food, and other unnamed materials. This subparcel is associated with IRP Site 14. In 1998, samples were collected, but the BCT has not evaluated the data The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.23(7)

CERFA Map Location 28,8

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. This subparcel is associated with IRP Sites 15, 15.1 and 15.2. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.24(7)

CERFA Map Location 28,11

This site was used for the disposal of sanitary wastes, construction debris, smoke pots, and tear gas canisters from 1955 to 1960. This subparcel is associated with IRP Site 19. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.25(7)

CERFA Map Location 30,10

Reportedly, asphalt and roofing gravel were dumped in a surface fill at this location until 1981 when the debris was removed. This subparcel is associated with IRP Site 20. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.26(7)

CERFA Map Location 31,13

This site consists of two trenches with unknown depths. It is reported that XXCC-3 impregnate is buried here. This subparcel is associated with IRP Site 21. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.27(7)

CERFA Map Location 31,12

This concrete-lined drainage ditch collects stormwater runoff from surrounding areas. This subparcel is associated with IRP Site 50. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.28(7)

CERFA Map Location 30,9

This subparcel is associated with a stormwater drain that was installed in the mid-1950s and is used for stormwater conveyance. This subparcel is associated with IRP Site 61. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.30(7)

CERFA Map Location 28,12

This subparcel is associated with the open land area of Dunn Field excluding the areas included in other subparcels. This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field.

Subparcel Number and Label 36.31(7)

CERFA Map Location 28,13

This subparcel is associated with an open land area of Dunn Field along Hays Street from Person Avenue to Dunn Avenue excluding Subparcel 36.26. The DRC requested this subparcel due to a Memphis road works project to expand Hays Street. This subparcel contains grassy areas that were historically sprayed with pesticides and herbicides. In 1998, samples were collected, but the BCT has not evaluated the data. The remedial investigation continues at Dunn Field

3.4.8 Qualified Parcels

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

- If a building was not included in the 1993 asbestos survey, but was constructed prior to 1985 it was assumed to contain ACM. An "A(P)" for the possible presence of asbestos was used to qualify the subparcel.
- Since a LBP survey for non-residential reuse buildings 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 subparcel.
- 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 95 subparcels, totaling approximately 136.53 acres, identified as qualified subparcels as described in Table 3-8. Nine buildings totaling approximately 17.11 acres have been demolished since first identified as qualified subparcels in 1996. When a qualified subparcel is associated with a building/facility, the acreage presented corresponds to the footprint of the building/facility. The qualified subparcels are labeled as follows on Table 3-8:

Subparcel - Building Number or Area Q - Qualifier

For example, 1.1-1Q-A/L(P) represents Subparcel 1.1, Building 1, and asbestos and possible LBP qualifiers.

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; and
- A covenant warranting that appropriate remedial action will be taken.

Under SARA Title 1, Section 120 to CERCLA, those subparcels that 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 have unknown environmental impacts or 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 Depot has subparcels totaling approximately 192.59 acres classified as CERFA Category 1 through 4. These subparcels, described in Sections 3.4.1 through 3.4.4, are suitable for immediate transfer to a non-federal entity according to CERCLA. However, due to groundwater contamination in the fluvial aquifer underneath some of these areas, EPA considers 6.51 acres (Parcel 2, former military family housing area) suitable for transfer. Approximately 449.62 acres of the Depot, discussed in Sections 3.4.5 through 3.4.7, are classified as CERFA Category 5 through 7 subparcels. Category 6 and 7 subparcels cannot be transferred to a non-federal entity under

CERCLA until environmental restoration is initiated. Category 5 subparcels 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 subparcels also affect the suitability of BRAC property for transfer. The DOD has prepared guidance for dealing with the transfer of qualified subparcels, 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 the Depot include activities relating to BRAC, the environmental restoration program, 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 Depot has established information repositories at the Memphis Depot Community Outreach Room, the Memphis/Shelby County Public Library Cherokee Branch, the Hillview Village Neighborhood Network Systems, and the Memphis/Shelby County Health Department Pollution Control Division. The repositories contain information about environmental activities at the Depot. The Memphis Depot Community Outreach Room includes a computer linked to the Internet.

- **Administrative Record.** An administrative record has been established for the Depot in accordance with CERCLA requirements. Depot personnel maintain the administrative record. Documents included in the Administrative Record have also been scanned, the images placed on compact diskettes and are available at all the IRs. The Memphis Depot is working to provide access to documents included in the Administrative Record on the Memphis Depot web site.

- **Technical Review Committee.** A technical review committee (TRC) was formed in February 1994 to review and comment on the Depot's actions related to releases or threatened releases of hazardous substances at the installation. The TRC meetings served as working sessions of the involved Depot, CEHNC, EPA and TDEC remedial project managers to discuss progress and scheduling of investigations and cleanup actions with city and county officials, local health department officials, and Memphis Light, Gas and Water officials. The TRC evolved into the RAB.

- **Restoration Advisory Board.** On July 21, 1994, the Depot hosted the first RAB meeting. The Depot created the RAB to promote increased public involvement and enable continued flow of information, concerns, and needs between the community and the Depot. At the Depot, the RAB includes representatives of the Memphis City Council; Shelby County Commission; the Memphis/Shelby County Health Department; Memphis Light, Gas and Water; EPA; TDEC; a local environmental group; concerned citizens; and the Depot. The RAB holds monthly meetings to discuss environmental restoration and reuse issues. The public is encouraged to attend these meetings.

- **Community Relations Plan.** A final Community Relations Plan (Frontline, June 1999) was prepared for the Depot. The Community Relations Plan identifies issues of community concern and proposes site-specific activities to address these concerns.

- **Availability Sessions.** The Depot has conducted several availability sessions since August 1993. In 2000, the BCT hosted an Availability Session in conjunction with the Main Installation Proposed Plan public comment meeting. These sessions provide an opportunity for the public to communicate one-in-one with representatives of the Depot, EPA, TDEC, Memphis/Shelby County Health Department, Corps of Engineers, IRP contractors, Agency for Toxic Substances and Disease Registry, Memphis Light, Gas and Water, and other agencies involved with specific aspects of the Depot's environmental restoration program.

TABLE 3-1
POTENTIAL CONTAMINATION SITES ASSOCIATED WITH OPERABLE UNITS

INSTALLATION RESTORATION SITE NUMBER	DSERTS SITE NUMBER[a]	MDRA PARCEL NUMBER	DESCRIPTION	CURRENT DISPOSITION OF SITE
Operable Unit 1: Dunn Field				
1	1	36 16	Mustard and Lewisite Training Sets (9 sets) Burial Site (1955)	CWMP/ER
2	2	36 1	Ammonia Hydroxide (7 pounds) and Acetic Acid (1 gallon) Burial (1955)	RI
3	3	36 2	Mixed Chemical Burial Site (orthotoluidine dihydrochloride) (1955)	RI
4	4	36.3	POL Burial Site (thirteen 55-gallon drums of oil, grease, and paint)	RI
4.1	90	36.3	POL Burial Site (thirty-two 55-gallon drums of oil, grease, and thinner) (1955)	RI
5	5	36 4	Methyl Bromide Burial Site A (3 cubic feet) (1955)	RI
6	6	36 20	40,037 units ointment (eye) Burial Site (1955)	RI
7	7	36.5	Nitric Acid Burial Site (1,700 quart bottles) (1954)	RI
8	8	36 6	Methyl Bromide Burial Site B (3,768 1-gallon cans) (1954)	RI
9	9	36.17	Ashes and Metal Burial Site (burning pit refuse) (1955)	RI
10	10	36.21	Solid Waste Burial Site (near MW-10) (metal, glass, trash, etc.)	RI
11	11	36 7	Trichloroacetic Acid Burial (1,433 1-ounce bottles) (1965)	RI
12 & 12.1	12	36.8	Sulfuric and Hydrochloric Acid Burial (1967)	RI
13	13	36 9	Mixed Chemical Burial (Acid, 900 pounds, unnamed solids, 8,100 pounds)	RI
14	14	36.22	Municipal Waste Burial Site B (near MW-12) (food, paper products)	RI
15	15	36.23	Sodium Burial Sites (1968)	RI
15.1	91	36.23	Sodium Phosphate Burial (1968)	RI
15.2	92	36.23	14 Burial Pits Na_2PO_4, sodium, acid, medical supplies, and chlorinated lime	RI
16	16	36.10	Unknown Acid Burial Site (1969)	RI
16.1	93	36 10	Acid, date unknown	RI
17	17	36.11	Mixed Chemical Burial Site C (1969)	RI
18	18	36.30	Plane Crash Residue (Dunn Field)	Proposed NFA
19	19	36.24	Former Tear Gas Canister Burn Site (Dunn Field)	Screening
20	20	36.25	Probable Asphalt Burial Site (Dunn Field)	Screening
21	21	36.26	XXCC-3 Burial Site (Dunn Field)	Screening
22	22	36.30	Hardware Burial Site (nuts and bolts) (Dunn Field)	Proposed NFA
23	23	36.30	Construction Debris and Food Burial Site (Dunn Field)	Proposed NFA
24	24	36.29	Former Burn Site (1946)	CWMP/ER
50	50	36.27	Dunn Field Northeastern Quadrant Drainage Ditch	Screening
60	60	36.14	Pistol Range Impact Area/Bullet Stop	Screening
61	61	36.28	Buried Drain Pipe (Northwestern Quadrant of Dunn Field)	Screening
62	62	36 12/36 13	Bauxite Storage (Northeastern Quadrant of Dunn Field)	Screening
63	63	36 30	Fluorspar Storage (Southeastern Quadrant of Dunn Field)	Proposed NFA
64	64	36.29	Bauxite Storage (Southwestern Quadrant of Dunn Field) (1942 to 1972)	Screening
85	85	36 14	Old Pistol Range Building 1184/Temporary Pesticide Storage	RI
86	86	36 18/36 19	Food Supplies (Dunn Field)	RI
Operable Unit 2: Southwestern Quadrant, Main Installation				
27	27	24.1	Former Recoupment Area (Building 873)	PP (ICs)
29	29	35.2	Former Underground Waste Oil Storage Tank	ER complete/ PP (ICs)
30	30	24.3	Paint Spray Booths (2 of 3 total, Buildings 770 and 1086)	PP (ICs)
31	31	35.4	Former Paint Spray Booth (Building 1087)	ER complete/ PP (ICs)
32	32	35.4	Sandblasting Waste Accumulation Area	ER complete/ PP (ICs)

TABLE 3-1
POTENTIAL CONTAMINATION SITES ASSOCIATED WITH OPERABLE UNITS

INSTALLATION RESTORATION SITE NUMBER	DSERTS SITE NUMBER[a]	MDRA PARCEL NUMBER	DESCRIPTION	CURRENT DISPOSITION OF SITE
33	33	35.4	Sandblasting Waste Drum Storage Area (metal shed south of Building 1088)	ER complete/ PP (ICs)
34	34	24.3	Building 770 Underground Oil Storage Tanks	PP (ICs)
40	40	24 3	Safety Kleen Units - 5 of 9 total (all located in Building 770)	PP (ICs)
41	41	24.3	Satellite Drum Accumulation Areas - 1 of 4 total (vicinity Building 770)	PP (ICs)
47	47	33.6	Former Contaminated Soil Drum Storage Area (300 feet west of Building 689; removed 1988)	PP (ICs)
71	71	Multiple	Herbicide (All railroad tracks) (used to clear tracks)	PP (ICs)
82	82	23.7/23 8	Flammables (Buildings 783 and 793)	PP (ICs)
84	84	27.2	Flammables, Solvents, Waste Oil, etc (Building 972)	PP (ICs)
87	87	35.2	DDT, banned pesticides (Building 1084)	ER complete/ PP (ICs)
88	88	35.2	POL (Building 1085)	ER complete/ PP (ICs)
89	89	28 2	Acids (Building 1089)	ER complete/ PP (ICs)
Operable Unit 3: Southeastern Watershed And Golf Course, Main Installation				
25	25	3 8	Golf Course Pond	PP (ICs)
26	26	3 6	Lake Danielson	PP (ICs)
30	30	4.4	Paint Spray Booths (1 of 3 total - Building 260)	PP (ICs)
40	40	4, 19, and 21	Safety Kleen Units - 4 of 9 total units (Buildings 253, 469, 490, and 689)	PP (ICs)
41	41	4 and 19	Satellite Drum Accumulation Areas - 2 of 4 total areas (Buildings 260 and 469)	PP (ICs)
48	48	5 2	Former PCB Transformer Storage Area	ER complete/ PP (ICs)
49	49	17 3	Medical Waste Storage Area	PP (ICs)
51	51	3.7	Lake Danielson Outlet Ditch	PP (ICs)
52	52	3 9	Golf Course Pond Outlet Ditch	PP (ICs)
58	58	4.9	Pesticides, Herbicides (Pad 267)	PP (ICs)
59	59	4.10	Pesticides, Cleaners (Building 273)	PP (ICs)
65	65	7.2	XXCC-3 (Building 249)	PP (ICs)
66	66	4.11	POL (Building 253)	PP (ICs)
67	67	4.7	MOGAS (Building 257	PP (ICs)
68	68	4 8	POL (Building 263) (20 by 40 feet)	PP (ICs)
69	69	3 11	2,4-D, M2A1, and M4 Flamethrower Liquid Fuels (surface application)	PP (ICs)
73	73	Multiple	2,4-Dichlorophenoxyacetic Acid (all grassed areas)	PP (ICs)
75	75	21.5	Unknown Wastes near Building 689	PP (ICs)
76	76	21.5	Unknown Wastes near Building 690	PP (ICs)
77	77	22.2	Unknown Wastes near Buildings 689 and 690	PP (ICs)
78	78	21.3	Alcohol, Acetone, Toluene, Naphtha; Hydrofluoric Acid Spill	PP (ICs)
Operable Unit 4: North-Central Area, Main Installation				
28	28	32 3	Recoupment Area (Building 865)	PP (ICs)
35	35	15 2	DRMO Building S308 - Hazardous Waste Storage	PP (ICs)
36	36	15.5	DRMO Hazardous Waste Concrete Storage Pad	PP (ICs)
37	37	15 5	DRMO Hazardous Waste Gravel Storage Pad	PP (ICs)
38	38	15 5	DRMO Damaged/Empty Hazardous Materials Drum Storage Area	PP (ICs)
39	39	15.5	DRMO Damaged/Empty Lubricant Container Area	PP (ICs)
41	41	13.4	Satellite Drum Accumulation Area (1 of 4 total - Building 210)	PP (ICs)
42	42	33.9	Former pentachlorophenol Dip Vat Area	PP (ICs)
43	43	33.9	Former Underground pentachlorophenol Tank Area	PP (ICs)
44	44	33.6	Former Wastewater Treatment Unit Area	PP (ICs)

TABLE 3-1
POTENTIAL CONTAMINATION SITES ASSOCIATED WITH OPERABLE UNITS

INSTALLATION RESTORATION SITE NUMBER	DSERTS SITE NUMBER[a]	MDRA PARCEL NUMBER	DESCRIPTION	CURRENT DISPOSITION OF SITE
45	45	33 9	Former Contaminated Soil Staging Area	PP (ICs)
46	46	33.9	Former pentachlorophenol Pallet Drying Area	PP (ICs)
53	53	30.2	X-25 Flammable Solvents Storage Area (near Building 925)	PP (ICs)
54	54	15.6	Main Installation - DRMO East Stormwater Runoff Canal	PP (ICs)
55	55	15.6	Main Installation - DRMO North Stormwater Runoff Canal	PP (ICs)
56	56	29 3	Main Installation - West Stormwater Drainage Canal	PP (ICs)
57	57	12 1	Building 629 Spill Area	PP (ICs)
70	70	Multiple	POL, Various Chemical Leaks (railroad tracks 1, 2, 3, 4, 5, and 6)	PP (ICs)
71	71	Multiple	Herbicide (all railroad tracks) (used to clear tracks)	PP (ICs)
72	72	15.6	Waste Oil (DRMO yard) (surface application for dust control)	PP (ICs)
73	73	Multiple	2,4-Dichlorophenoxyacetic Acid (all grassed areas)	PP (ICs)
74	74	15.3	Flammables, Toxics (West End - Building 319)	PP (ICs)
79	79	15 4	Fuels, Miscellaneous Liquids, Wood, and Paper (Vicinity S702)	PP (ICs)
80	80	33 9	Fuel and Cleaners Dispensing (Building 720)	PP (ICs)
81	81	33 7	Fuel Oil AST (Building 765 – removed in 1994)	PP (ICs)
83	83	30.5	Disposal of Dried Paint Residues - South of Building 949	PP (ICs & soil removal)

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
ICs	Institutional Controls
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
PP	Proposed Plan
RFA.	RCRA facility assessment
RI/FS	Remedial investigation/feasibility study
RI	Remedial investigation
a	Defense Site Environmental Restoration Tracking System (DoD Database)

TABLE 3-6
SUBPARCEL DESCRIPTIONS

SUBPARCEL NUMBER AND LABEL	LOCATION (x, y coordinates)	APPROXIMATE SIZE (acres)	FACILITY	BASIS	REMEDIATION/ MITIGATION
Environmental Condition Category 1					
1 1(1)	32,10	0 01	Sentry Station/Gate 1	This subparcel is associated with the Sentry Station at Gate 1 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
1.2(1)	32,13	0 01	Sentry Station/Gate 2	This subparcel is associated with Sentry Station at Gate 2 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products. Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
1 3(1)	32,16	<0 01	Waiting Shelter/ Building 129	This subparcel is associated with Building 129 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel.	No remediation is necessary
1 4(1)	31,13	<0 01	Waiting Shelter/ Building 139	This subparcel is associated with Building 139 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
1.5(1)	34,12	0.31	Building 144	This subparcel is associated with Building 144 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
1.6(1)	32,13	0 02	Building 145	This subparcel is associated with Building 145 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

1 7(1) Demolished 1999	31,10	<0.01	Waiting Shelter/ Building 155	This subparcel is associated with Building 155 There has been no documented release or disposal of hazardous substances or petroleum products; nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
2 1(1)	34,6	0 11	Building 176	This subparcel is associated with Building 176 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
2.2(1)	34,6	0 03	Building 178	This subparcel is associated with Building 178 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
2 3(1)	34,5	0.11	Building 179	This subparcel is associated with Building 179 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
2 4(1)	34,5	0 11	Building 181	This subparcel is associated with Building 181. There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel.	No remediation is necessary
2 5(1)	34,4	0 11	Building 183	This subparcel is associated with Building 183 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel.	No remediation is necessary
2.6(1)	34,4	0.11	Building 184	This subparcel is associated with Building 184 There has been no documented release or disposal of hazardous substances or petroleum products; nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

3 1(1)	32,2	0 01	Building 193	This subparcel is associated with Building 193 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
3.2(1)	31,2	0 10	Building 195	This subparcel is associated with Building 195 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
3.3(1)	31,2	0 02	Building 196	This subparcel is associated with Building 196 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
3 4(1)	31,2	0 01	Building 198	This subparcel is associated with Building 198 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
4.1(1) Demolished 1999	30,10	0 19	Building 252	This subparcel is associated with Building 252 There has been no documented release or disposal of hazardous substances or petroleum products; nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
4 2(1)	31,7	0.33	Building 270	This subparcel is associated with Building 270 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
4 3(1)	31,7	0.03	Building 271	This subparcel is associated with Building 271. There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

4 11(1) Demolished 1999	29,9	0.22	Building 253	This subparcel is associated with Building 253, No Further Action Site 40 (Safety Kleen unit) and Screening Site (SS) 66 (POL Building 253) Petroleum products (55-gallon drums of hydraulic oil) and antifreeze were stored and used at Building 253 Records and visual evidence do not indicate any release, disposal or migration in this building -Safety Kleen- prior to closure removed the Safety Kleen unit in September 1997 One screening site surface soil and three soil boring samples were taken from around the outside of the building in Subparcel 4 5 Results indicated levels of poly aromatic hydrocarbons (PAHs) that exceeded the BCT screening criteria Also, this building was fumigated Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation At the September 1997 meeting, the BCT agreed to change the subparcel to a Category 6 based on soil sample results outside the building. In February 1998, the BCT concurred the subparcel (Building 253) would change to a Category 1 and that the issue of PAHs in the soil outside the building in Subparcel 4 5 would be further evaluated on a sitewide basis Per letter dated October 20, 1998, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
6 3(1)	27,12	2 8	Building 349	This subparcel is associated with Building 349, which may have been fumigated Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation In December 1997, the BCT concurred that this subparcel change to Category 1 Per letter dated October 20, 1998, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
8 2(1)	29,15	2 8	Building 229	This subparcel is associated with Building 229, which may have been fumigated Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation In December 1997, the BCT concurred that this subparcel change to Category 1 Per letter dated October 20, 1998, the EPA concurred with the Category 1 designation for this subparcel.	No remediation is necessary
8 3(1)	29,14	2.8	Building 230	This subparcel is associated with Building 230, which may have been fumigated. Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation In December 1997, the BCT concurred that this subparcel change to Category 1 Per letter dated October 20, 1998, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
8 4(1)	26,15	2.8	Building 329	This subparcel is associated with Building 329, which may have been fumigated Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation. In December 1997, the BCT concurred that this subparcel change to Category 1 Per letter dated October 20, 1998, the EPA concurred with the Category 1 designation for this subparcel.	No remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

8 5(1)	26,13	2.8	Building 330	This subparcel is associated with Building 330, which may have been fumigated Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation In December 1997, the BCT concurred that this subparcel change to Category 1 Per letter dated October 20, 1998, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
9 2(1)	23,15	2 8	Building 429	This subparcel is associated with Building 429, which may have been fumigated Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation. In December 1997, the BCT concurred that this subparcel change to Category 1 Per letter dated October 20, 1998, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary.
9 4(1)	23,12	2 8	Building 449	This subparcel is associated with Building 449, which may have been fumigated Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation. In December 1997, the BCT concurred that this subparcel change to Category 1 Per letter dated October 20, 1998, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
9 5(1)	23,11	2.8	Building 450	This subparcel is associated with Building 450, which may have been fumigated Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation In December 1997, the BCT concurred that this subparcel change to Category 1 Per letter dated October 20, 1998, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
10 4(1)	20,12	2 8	Building 549	This subparcel is associated with Building 549, which may have been fumigated Also, the west side of the building contains a fumigation chamber Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation In December 1997, the BCT concurred that this subparcel change to Category 1 Per letter dated October 20, 1998, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
10 6(1)	17,11	2 8	Building 650	This subparcel is associated with Building 650, which may have been fumigated. Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation In December 1997, the BCT concurred that this subparcel change to Category 1 Per letter dated October 20, 1998, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
11 3(1)	20,14	2 8	Building 530	This subparcel is associated with Building 530, which may have been fumigated. Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation. In December 1997, the BCT concurred that this subparcel change to Category 1 Per letter dated October 20, 1998, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

11 4(1)	16,13	2.8	Building 630	This subparcel is associated with Building 630, which may have been fumigated Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation In December 1997, the BCT concurred that this subparcel change to Category 1 Per letter dated October 20, 1998, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
13 1(1)	33,16	<0 01	Sentry Station/Gate 23	This subparcel is associated with the Sentry Station at Gate 23 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
13 2(1)	33,16	<0 01	Sentry Station/Gate 24	This subparcel is associated with the Sentry Station at Gate 24 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
13 3(1)	32,16	<0.01	Sentry Station/Gate 25	This subparcel is associated with the Sentry Station at Gate 25 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary.
13 4(1)HS	31,17	5 5	Building 210	This subparcel is associated with Building 210 and proposed No Further Action Site 41 (Satellite Drum Accumulation Area) The building also contained the base photographer's photo developing lab in Bay 7. There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products This subparcel became a Category 1 due to the Category definition change that occurred after the 1996 Environmental Baseline Survey categorized this subparcel as a Category 2 Per letter dated October 20, 1998, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
14 1(1)	27,19	<0 01	Sentry Station/Gate 22	This subparcel is associated with the Sentry Station at Gate 22 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

15 1(1)	10,18	<0 01	Sentry Station/Gate 15	This subparcel is associated with the Sentry Station at Gate 15 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
16 2(1) Demolished 1999	17,10	5.5	Building 559	This subparcel is associated with Building 559, which may have been fumigated Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation In December 1997, the BCT concurred that this subparcel change to Category 1. Per letter dated October 20, 1998, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
17 1(1)	22,10 Relocated to Parcel 30 adjacent to Building 925	0 09	Building 459	This subparcel is associated with Building 459 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel.	No remediation is necessary
21 1(1)	17,3	5 0	Building 690	This subparcel is associated with Building 690, which has been used to temporarily stage hazardous materials prior to shipment Screening Site (SS) 77, which is typically associated with this building, is adjacent to and not inside of the building There has been no documented release or, disposal of hazardous substances or petroleum products, nor has there been migration from adjacent properties of hazardous substances or petroleum products This subparcel became a Category 1 due to the ECP category definition change that occurred after the 1996 Environmental Baseline Survey categorized this subparcel as a Category 2 At the October 1997 meeting, the BCT concurred that this subparcel change to a Category 1 based on the new ECP definitions Per letter dated October 20, 1998, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
23 1(1)	19,2	<0 01	Sentry Station/Gate 7	This subparcel is associated with the Sentry Station at Gate 7 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
23 2(1)	13,2	0 02	Sentry Station/Gate 8	This subparcel is associated with the Sentry Station at Gate 8 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

23 3(1)	11,4	0 12	Building 787	This subparcel is associated with Building 787 There has been no documented release or disposal of hazardous substances or petroleum products; nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary.
23 4(1)	13,3	0 01	Waiting Shelter/ Building 795	This subparcel is associated with Building 795 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
23 5(1)	5,2	0 18	Building 995	This subparcel is associated with Building 995 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Groundwater under this subparcel has been found to contain VOCs This subparcel was originally proposed as an ECP Category 1 in a December 6, 1996 CERFA letter, however, EPA was unable to concur with the proposed ECP Category 1 due to the groundwater under the subparcel Upon further discussion based on recent EPA property transfer guidance and in a May 17, 1999 letter, EPA provided conditional concurrence with ECP Category 1 for this subparcel EPA will evaluate transfer of Subparcel 23 5 based on the environmental condition of soils in Parcel 23	No remediation is necessary. The groundwater under this subparcel will be further evaluated
29.1(1)	3,10	0.01	Sentry Station/Gate 9	This subparcel is associated with the Sentry Station at Gate 9 There has been no documented release or disposal of hazardous substances or petroleum products; nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
30 4(1)	4,11	1 4	Building 949	Short-term hazardous substance storage and possible fumigation in Building 949 Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation. In December 1997, the BCT concurred that this subparcel change to Category 1. Per letter dated October 20, 1998, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
33 1(1)	12,16	0 01	Building 727	This subparcel is associated with Building 727 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

33 2(1)	14,10	0 05	Building 754	This subparcel is associated with Building 754 There has been no documented release or disposal of hazardous substances or petroleum products; nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
33 3(1)	14,10	0 01	Building 755	This subparcel is associated with Building 755 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
33 4(1)	14,9	0.06	Building 756	This subparcel is associated with Building 756 There has been no documented release or disposal of hazardous substances or petroleum products; nor has there been migration from an adjacent property of hazardous substances or petroleum products. Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
33 5(1)	11,10	0 02	Building 860	This subparcel is associated with Building 860 There has been no documented release or disposal of hazardous substances or petroleum products, nor has there been migration from an adjacent property of hazardous substances or petroleum products Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary
33 10(1)	14,10	0.01	Building 753	This subparcel is associated with Building 753 There has been no documented release or disposal of hazardous substances or petroleum products; nor has there been migration from an adjacent property of hazardous substances or petroleum products This subparcel became a Category 1 due to the ECP category definition change that occurred after the 1996 Environmental Baseline Survey categorized this subparcel as a Category 2 At the October 1997 meeting, the BCT concurred that this subparcel change to a Category 1 based on the new ECP definitions. Per letter dated October 20, 1998, the EPA concurred with the Category 1 designation for this subparcel.	No remediation is necessary
34 1(1)	24,8	4 0	Building 360	This subparcel is associated with Building 360. This building was recently constructed and has not been used for storage There has been no documented release or disposal of hazardous substances or petroleum products; nor has there been migration from an adjacent property of hazardous substances or petroleum products. Per letter dated March 17, 1997, the EPA concurred with the Category 1 designation for this subparcel	No remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

Environmental Condition Category 2					
4 6(2) Demolished 1999	29,9	0 25	Building 254	This subparcel is associated with Building 254 and a portion of the open land area/underground storage tank (UST) field west of the building The EBS visual inspection noted that petroleum products, oils, lubricants and antifreeze were stored in this building as well as leaking drums and ground staining In addition, a 5-gallon diesel spill was reported on March 20, 1995 from a tank outside the southwest corner of Building 254 The Spill Team responded, applied absorbent and disposed of all residues in accordance with federal, state and local regulations A 1,110-gallon gasoline tank was removed in December 1989 from the UST field Two USTs were removal in 1998 from the UST field behind Building 254 At the September 1997 meeting, the BCT changed this subparcel to a Category 6 due to the scheduled underground storage tanks removal project Upon receipt of UST closure approval by TDEC-UST in December 1998, the BCT agreed that this subparcel should change from ECP Category 6 to Category 2.	UST closure approval from TDEC-UST received in December 1998. No further action is necessary
4 7(2) Demolished 1999	28,10	0 25	Buildings 256 and 257	This subparcel is associated with Buildings 256 and 257 and Screening Site 67 Building 256 was a small storage shed adjacent to Building 257 Building 256 and 257 were demolished in 1999 by the DRC during construction of the entrance boulevard Building 257 was fumigated in the past Air sampling conducted during the BRAC sampling effort in the winter of 1997 indicated no human health hazards from fumigation. Several spills are reported for this building The Spill Team responded, took the appropriate action and disposed of all residues in accordance with federal, state and local regulations In addition, fuel dispensing and storage have been ongoing at Building 257 since 1942 One soil sample taken during the 1990 Law RI detected PAHs, dieldrin and metals During Screening Site sampling, two surface soil and two shallow soil boring samples were collected (CH2M Hill, 1997) Samples indicated arsenic and dieldrin in surface soils at levels that exceeded BCT screening criteria Two underground storage tanks (18,000 and 20,000 gallons) were removed in 1998 from the open land area south of Bldg 257 At the September 1997 meeting, the BCT changed this subparcel to a Category 6 due to the scheduled underground storage tanks removal project Additional soil samples were collected after completion of the tank removal project and results indicated no levels that exceeded BCT screening criteria Upon receipt of UST closure approval from TDEC-UST in December 1998, the BCT agreed this subparcel should change from ECP Category 6 to Category 2	UST closure approval from TDEC-UST received in December 1998 No further action is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

20 1(2)PR	21,5	0 46	Building 489	This subparcel is associated with an oil spill on the north dock of Building 489 A 1-gallon oil spill was reported on November 3, 1995 at the north dock of Building 489, Section 4 The Spill Team responded, applied absorbent and disposed of the residue in accordance with federal, state and local regulations The 1996 Environmental Baseline Survey categorized this subparcel as a Category 3 In 1997, the ECP category definitions changed so that Category 3 was no longer appropriate for petroleum product releases In December 1998, the BCT concurred that this subparcel change to a Category 2 based on the new ECP definitions and release of a petroleum product	No remediation is necessary
23 9(2)	4,2	0 25	Spill area outside Building 995	This subparcel is associated with a gasoline spill reported on September 13, 1993, adjacent and to the northwest of Building 995 on the asphalt road The Spill Team responded, applied absorbent and disposed of all residues in accordance with federal, state and local regulations One BRAC soil boring and surface soil sample was collected from the center of the suspected spill area Petroleum hydrocarbons were detected at 3 2 mg/kg, well below the Tennessee clean-up level of 100 mg/kg In October 1997, the BCT concurred that this subparcel change to a Category 3, however, these discussions regarding this subparcel did not take the 1997 ECP category definition change so that Category 3 was no longer appropriate for petroleum product releases into account when determining this parcel's ECP category In December 1998, the BCT concurred that this subparcel change from ECP Category 3 to Category 2 based on the new ECP definitions and release of a petroleum product	No remediation is necessary The groundwater under this subparcel will be further evaluated
26 2(2)	6,4	6 3	Building 970	This subparcel is associated with Building 970 An oil-fired generator that had leaked oil onto the concrete pad was observed at Building 970, Section 6 during the EBS visual inspection. This release consisted of only petroleum products Absorbent was applied and the residue disposed in accordance with federal, state and local regulations In October 1997, the BCT concurred that this subparcel change from ECP Category 7 to Category 2	No remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

33 6(2)HR	13,13	0 25	Spill area west of Building 737	This subparcel is associated with a spill area west of Building 737. A 50-gallon mineral oil (non-PCB/<1 ppm) spill was reported on November 9, 1995 outside of Building 737 The Spill Team responded, excavated contaminated material and disposed of the residue in accordance with federal, state and local regulations This subparcel is also associated with proposed No Further Action Site 44 (Former Waste Water Treatment Unit) This was a temporary unit used to treat rainwater mixed with PCP-contaminated oil and rinse waters from decontamination during the soil removal of the PCP dip vat system in 1985 Sample results of the treated wastewater in the portable pool were acceptable for discharge into the Memphis sanitary sewer No evidence of release was identified during the 1990 RCRA Facilities Assessment The 1996 Environmental Baseline Survey categorized this subparcel as a Category 4 In 1997 the ECP category definitions changed so that Category 4 was no longer appropriate for petroleum product releases In December 1998, the BCT agreed Category 4 was not appropriate, as the release involved a petroleum product, and agreed the subparcel should change from an ECP Category 4 to a Category 2.	No remediation is necessary
33 11(2)	14,9	0 25	Outside Building 756	This subparcel is associated with the 1,000-gallon diesel above ground storage tank outside Building 756 The original underground storage tank supplying the emergency generator in Building 756 was removed in June 1994 At that time, soil was sampled for Total Petroleum Hydrocarbons and found to contain less than 20 ppm The 1996 Environmental Baseline Survey determined this subparcel to be an ECP Category 2 and the BCT concurred	No remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

Environmental Condition Category 3					
4 4(3)PS/PR/HS/ HR	30,9	0 15	Building 260	This subparcel is associated with Building 260, proposed No Further Action Site 41 (Satellite Drum Accumulation Area) and proposed No Further Action Site 30 (Safety Kleen Units). The RCRA Facility Assessment visual inspection noted staining on the floor in the sign shop of this building The Safety Kleen unit was removed prior to closure Absorbent was applied to released Safety Kleen solvent and disposed in accordance with federal, state and local regulations The 1996 Environmental Baseline Survey determined this subparcel to be ECP Category 3 and the BCT concurred	No further remediation is necessary
4 8(3)	30,9	0 02	Building 263	This subparcel is associated with Building 263, which has been used as attendants' room for the dispensing of petroleum, oil and lubricant to vehicles and as a vehicle grease rack since the 1940s, and to Screening Site (SS) 68 (POL-Building 263) Records do not indicate any release, disposal or migration In addition, this building was fumigated Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation Soil borings were sampled during the Screening Site Sampling Program Sample results indicate no levels that exceeded BCT screening criteria After the December 1997 BCT decision to change fumigated buildings to Category 1, the BCT conferred and concurred via telephone calls that this subparcel would become a Category 3 based on the concern that petroleum products and antifreeze may have been released In June 1998, the BCT again concurred that this subparcel change from ECP Category 7 to Category 3	No remediation is necessary
5 1(3)	29,7	0 49	Building 272 and surrounding open land area	This subparcel is associated with Building 272, a small shed that stored mulch, and the surrounding open land area This subparcel contains grassed areas that were historically sprayed with herbicides and pesticides One Remedial Investigation (associated with Site 58 - Pad 267) soil sample and one BRAC soil sample were collected Sample results indicated no levels that exceeded the BCT screening criteria. At the September 1997 meeting, the BCT concurred that this subparcel change from ECP Category 7 to a Category 3.	No remediation is necessary
6 2(3)	29,11	2.8	Building 250	This subparcel is associated with Building 250 and may have been fumigated. Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation Staining due to acid leaks from batteries in the forklift area were observed during the EBS visual inspection After the December 1997 BCT decision to change fumigated buildings to Category 1, the BCT conferred and concurred via telephone calls that this subparcel would become a Category 3 based on the release of battery acid. In June 1998, the BCT again concurred that this subparcel change from ECP Category 7 to a Category 3.	No remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

6 4(3)	26,11	2 8	Building 350	This subparcel is associated with Building 350 and may have been fumigated Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation Staining due to acid leaks from batteries in the forklift area were observed during the EBS visual inspection After the December 1997 BCT decision to change fumigated buildings to Category 1, the BCT conferred and concurred via telephone calls that this subparcel would become a Category 3 based on the release of battery acid. In June 1998, the BCT again concurred that this subparcel change from ECP Category 7 to a Category 3	No remediation is necessary
9 3(3)	23,13	2.8	Building 430	This subparcel is associated with Building 430 and may have been fumigated Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation Staining due to acid leaks from batteries in the forklift area were observed during the EBS visual inspection. After the December 1997 BCT decision to change fumigated buildings to Category 1, the BCT conferred and concurred via telephone calls that this subparcel would become Category 3 based on the release of battery acid. In June 1998, the BCT again concurred that this subparcel change from ECP Category 7 to a Category 3	No remediation is necessary
10 1(3)HR	16,12	2.8	Building 649	This subparcel is associated with Building 649 and may have been fumigated Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation. 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 Spill Team responded, applied absorbent and disposed of all residues in accordance with federal, state and local regulations The 1996 Environmental Baseline Survey determined this subparcel to be ECP Category 3 and the BCT concurred based on the cleanup of the spills	No remediation is necessary
10 5(3)	19,11	2 8	Building 550	This subparcel is associated with Building 550 and may have been fumigated. Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation Staining due to acid leaks from batteries in the forklift area were observed during the EBS visual inspection After the December 1997 BCT decision to change fumigated buildings to Category 1, the BCT conferred and concurred via telephone calls that this subparcel would become Category 3 based on the release of battery acid. In June 1998, the BCT again concurred that this subparcel change from ECP Category 7 to Category 3	No remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

11 2(3)	19,15	2 8	Building 529	This subparcel is associated with Building 529 and may have been fumigated Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation Antifreeze, firefighting foam and photographic chemicals were stored in the west end of the building Records indicate several spills of firefighting foam The Spill Team responded, applied absorbent and disposed of all residues in accordance with federal, state and local regulations Staining due to acid leaks from batteries in the forklift area were observed during the EBS visual inspection After the December 1997 BCT decision to change fumigated buildings to Category 1, the BCT conferred and concurred via telephone calls that this subparcel would become a Category 3 based on the release of battery acid and firefighting foam In June 1998, the BCT again concurred that this subparcel change from ECP Category 7 to Category 3	No remediation is necessary
15 2(3)	26,18	0 01	Building 308	This subparcel is associated with 308 and Screening Site 35 (Building 308 - Hazardous Waste Storage) Three screening site soil borings taken from around the building were sampled. Sample results indicated arsenic in surface soil below the BCT screening criteria as well as chromium and lead in subsurface soil near background levels All levels appear to be naturally occurring SS 35 does not exhibit waste accumulation-related contamination The Preliminary Risk Evaluation indicates SS 35 does not pose a human health concern for industrial or residential scenarios and recommends the subparcel change to a Category 3 Also, air sampling conducted in this building to assess the impact from storage of hazardous materials indicated no human health hazards At the September 1997 meeting, the BCT reviewed the data and determined that no levels exceeded BCT screening criteria, but no category change was mentioned In June 1998, the BCT concurred that this subparcel change from an ECP Category 7 to a Category 3	No remediation is necessary
15.4(3) Demolished 1998	14,18	0.28	Building 702	This subparcel is associated with Building 702, the Officer's Hobby Shop that was demolished in February 1998 Fuels/miscellaneous liquids were stored and use in Building 702 Site 79 is located in Subparcel 15 6 adjacent to Building 702 A soil boring at Site 79 indicated elevated levels of chromium The BCT determined at its September 1997 meeting that Site 79 required a risk assessment to determine future actions. In February 1999, the BCT concurred that Subparcel 15 4 change from an ECP Category 7 to a Category 3 because the building has been demolished and the soils surrounding the building would be addressed during further investigation/risk assessments for Subparcel 15 6.	No remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

18 2(3)	19,8	2.6	Open land area surrounding Building 560	This subparcel is associated with the open land area surrounding Building 560 This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides and waste oil containing PCP The railroad tracks and ballasts were removed in 1999/2000 This subparcel also contains grassed areas that were historically sprayed with herbicides and pesticides One BRAC soil sample was collected Sample results indicated no levels that exceeded the BCT screening criteria In September 1997, the BCT concurred that this subparcel change from an ECP Category 7 to a Category 3.	No remediation is necessary
19 1(3)	21,8	2 8	Buildings 467(fabric tension structure removed in 1996), 468, and open land area surrounding Buildings 465, 467, 468 and 469	This subparcel is associated with Building 467 (a fabric tension structure that was removed in 1996), Building 468 and the open land area surrounding Buildings 465, 468 and 469 Facility maintenance equipment was stored in Building 468 This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000 This subparcel also contains a small grassed area and a small gravel area that were historically sprayed with herbicides and pesticides In February 1998 the BCT conducted a walk-through of the buildings and looked at BRAC sampling data from adjacent Parcels 18 2 and 34 2 that indicated one chlordane level that exceeded BCT screening criteria The PRE indicated the level to be below one in a million risk for industrial and residential scenarios A 1,000-gallon oil/water separator is located in Subparcel 19 1 and is connected to the vehicle wash at Building 465. The separator is connected to the sanitary sewer and was routinely cleaned out In March 1999, the BCT concurred that Subparcel 19.1 change from an ECP Category 7 to Category 3	No remediation is necessary
19 2(3)	22,7	0 01	Building 465	This subparcel is associated with Building 465, a vehicle wash rack Chemical engine cleaners/degreasers may have been used or released in this building. This building contains a floor drain/sump connected to an oil/water separator, which is physically located in Subparcel 19 1 No sampling has been conducted at this subparcel. In February 1999, the BCT conducted a walk through of Building 465, determined that the sump had been cleaned upon facility closure and that the wash rack has been used since then only to wash grass cutting equipment. In May 1999, the BCT concurred that this subparcel change from an ECP Category 7 to a Category 3.	No remediation is necessary.

TABLE 3-6
SUBPARCEL DESCRIPTIONS

23 6(3)	12,2	20 6	Open land area surrounding buildings 783, 787 and 793 and Sentry Stations at Gates 7 and 8	This subparcel is associated with open land areas south of Buildings 690 and 490 including parking lots and grassed areas, the open land area surrounding Buildings 783, 787 and 793 as well as Sentry Stations at Gates 8 and 7 This subparcel is also associated with the open land area surrounding Screening Site (SS) 82 (Flammables - Buildings 783 and 793) This subparcel contains grassed areas that were historically sprayed with herbicides and pesticides Four screening site surface soil, four screening site subsurface soil and one BRAC surface soil samples were collected Sample results indicate arsenic levels in surface soil (20 2 and 24 3 mg/kg) near the range of background levels (20 mg/kg), but below BCT screening criteria In October 1997, the BCT concurred that this subparcel change to from an ECP Category 7 to Category 3	No remediation is necessary. The groundwater under this subparcel will be further evaluated
23 7(3)	11,5	0 05	Building 783	This subparcel is associated with Building 783 that previously stored flammable items and ordnance material and is Screening Site 82. Building 783 was used by the U S Army Chemical Warfare Service from 1942 until 1956 for storage of flammable materials including hexachlorethane smoke pots, burning-mixture chloracetophenone tear gas solution and phosphorus/ rubber-gasoline solution filled grenades The U S Army Corps of Engineer - St Louis District found no evidence of release or disposal at this building of chemical warfare materiel during research for preparation of the "Ordnance and Explosive Waste/Chemical Warfare Materiels Archive Search Report for Memphis Defense Depot " Four screening site surface soil, four screening site subsurface soil and one BRAC surface soil samples were collected in Subparcel 23 6, the grassed area surrounding the building Sample results indicate arsenic levels in surface soil (20 2 and 24 3 mg/kg) near the range of background levels (20 mg/kg), but below BCT screening criteria In March 1999, the BCT concurred that this subparcel change from ECP Category 7 to a Category 3 based on a BCT visual inspection of the building's interior to determine its condition and on results of screening site samples taken in Subparcel 23 6	No remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

23 8(3)	11,3	0.04	Building 793	This subparcel is associated with Building 793 that previously stored flammable items and ordnance material and is Screening Site 82 Building 793 was used by the U S Army Chemical Warfare Service from 1942 until 1956 for storage of flammable materials including hexachlorethane smoke pots, burning-mixture chloracetophenone tear gas solution and phosphorus/ rubber-gasoline solution filled grenades The U S. Army Corps of Engineer - St Louis District found no evidence of release or disposal at this building of chemical warfare materiel during research for preparation of the "Ordnance and Explosive Waste/Chemical Warfare Materiels Archive Search Report for Memphis Defense Depot " Four screening site surface soil, four screening site subsurface soil and one BRAC surface soil samples were collected in Subparcel 23 6, the grassed area surrounding the building Sample results indicate arsenic levels in surface soil (20 2 and 24 3 mg/kg) near the range of background levels (20 mg/kg), but below BCT screening criteria In March 1999, the BCT concurred that this subparcel change from ECP Category 7 to a Category 3 based on a BCT visual inspection of the building's interior to determine its condition and on results of screening site samples taken in Subparcel 23 6.	No remediation is necessary
23.10(3)	8,2	2.6	Area X01	This subparcel is associated with the open gravel storage area south of Buildings 873 and 875 in area X01, which was reportedly once a small lake This subparcel consists of a gravel area that was historically sprayed with waste oil containing PCP, pesticides and herbicides and a grassed area that were historically sprayed with pesticides and herbicides Records also indicate transformers possibly containing PCBs may have been stored at this area There is no documentation of releases from the transformers One BRAC surface soil sample and one BRAC soil boring were collected Sample results indicate that no levels that exceeded the BCT screening criteria. In October 1997, the BCT concurred that this subparcel change from an ECP Category 7 to Category 3	No remediation is necessary The groundwater under this subparcel will be further evaluated
28 1(3)	2,7	6.0	Area X04	This subparcel contains the open storage area X04 north of Building 1089 This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000 According to DDMT personnel, this area was used for the storage of feed stock material and not hazardous materials Four BRAC soil samples, two surface and two subsurface, were collected. Sample results indicate aluminum and iron in surface soil near the range of the BCT screening criteria and lead within the background value range The Preliminary Risk Evaluation indicated that carcinogenic risks were below acceptable levels for both industrial worker and residential scenarios of one in a million, noncarcinogenic risks were above one in a million due to the inorganic chemicals aluminum and iron in both subsurface and surface, but the concentrations of these constituents in surface soils only did not pose significant health risks In October 1997, the BCT concurred that this subparcel change from an ECP Category 7 to a Category 3	No remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

32 1(3)	9,14	4 6	Areas X13 and X15	This subparcel is associated open storage areas X13 and X15 that are to the west and north of Building 835 This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP The railroad tracks and ballasts were removed in 1999/2000 Four BRAC soil samples (two surface and two subsurface) were collected Sample results indicate that no levels exceeded the BCT screening criteria In October 1997, the BCT concurred this subparcel change from an ECP Category 7 to a Category 3	No remediation is necessary
33 8(3)	10,10	0 03	Building 863	This subparcel is associated with Building 863 The building contained a battery charging station Material handling equipment (forklifts) were also stored in the building The EBS visual inspection observed considerable oil stains on the concrete floor of Building 863 The BCT requested samples be taken from a nearby drainage point to determine if any releases occurred from the building Samples results indicated no levels that exceeded the BCT screening criteria In February 1999, the BCT concurred that this subparcel change from an ECP Category 7 to a Category 3	No remediation is necessary
34 2(3)	24,7	2 7	Open land area surrounding Building 360	This subparcel is associated with the open land area surrounding Building 360 This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP The railroad tracks and ballasts were removed in 1999/2000. This subparcel also contains grassed areas that were historically sprayed with herbicides and pesticides. One BRAC soil sample was collected Sample results indicate chlordane at levels that exceeded the BCT screening criteria The Preliminary Risk Evaluation indicated that the carcinogenic and noncarcinogenic risks were well below the acceptable levels of one in a million for both industrial worker and residential scenarios In October 1997, the BCT concurred that this subparcel change from an ECP Category 7 to a Category 3.	No remediation is necessary
Environmental Condition Category 4					
2 7(4)	33,6	5 93	Open land area surrounding the military family housing units and garages	This subparcel is associated with the open land area surrounding the military family housing units and garages in Parcel 2. This subparcel contains grassed areas that were historically sprayed with herbicides and pesticides Four BRAC soil samples were collected Samples indicated levels of chlorinated hydrocarbon pesticides (dieldrin, DDE, DDT and gamma-chlordane) above BCT screening criteria At the September 1997 meeting, the BCT changed this subparcel to a Category 6 due to the presence of pesticides, particularly dieldrin, and the Depot Redevelopment Corporation's high priority for reuse of this subparcel An early removal project was completed and post removal reports provided to EPA, TDEC and the public via the Information Repositories. In May 1999, the BCT concurred that the early removal action was complete and that this subparcel change from an ECP Category 6 to a Category 4 based on successful completion of the removal action.	No further remediation is necessary.

TABLE 3-6
SUBPARCEL DESCRIPTIONS

603 151

4.12(4) Demolished 1999	31,10	0 18	Building 251	This subparcel is associated with Building 251 that has a floor drain connected to the sanitary sewer This building was demolished in 1999 by the DRC during construction of the entrance boulevard One surface soil sample was taken from the sump beneath the floor drain Results indicate elevated concentrations of many metals and poly aromatic hydrocarbons The Preliminary Risk Evaluation indicated these concentrations had a risk ratio above acceptable levels for residential and industrial worker scenarios In December 1997, the BCT recommended that the sump be cleaned and, if appropriate, grouted closed and that upon completion of this action, the subparcel should change to a Category 4 The action was completed in January 1998 and the ECP Category 7 changed to Category 4.	No further remediation is necessary
4 13(4)	31,8	0 18	Building 265	This subparcel is associated with Building 265 that has a floor drain that is connected to the sanitary sewer One surface soil sample was taken from the sump beneath the floor drain Results indicate elevated concentrations of many metals and poly aromatic hydrocarbons The Preliminary Risk Evaluation indicated these concentrations had a risk ratio above acceptable levels for residential and industrial worker scenarios In May 1998, the BCT recommended that the sump be cleaned and, if appropriate, grouted closed and that upon completion of this action, the subparcel should change to a Category 4 The action was completed in June 1998 and the ECP Category 7 changed to Category 4	No further remediation is necessary
5 2(4)	29,7	1 5	Building 274 and open land area surrounding Building 274	This subparcel is associated with Building 274 ("J" Street Cafe) and the open land area surrounding the building This subparcel is also associated with Remedial Investigation (RI) Site 48 (The former PCB Transformer Area). Building 274 was constructed after transformer storage ceased 1990 Law RI soil samples detected PAHs and DDT (and breakdown products) A groundwater sample (CH2M Hill 1995b, 1995e) in MW-26 detected tetrachloroethane and carbon tetrachloride and will be further evaluated in the Main Installation groundwater investigation In 1997, five Remedial Investigation surface soil samples were collected (CH2M Hill, 1997) from the grassed areas directly outside of Building 274 Sample results indicated levels of PCBs and dieldrin exceeding BCT screening levels The Depot Redevelopment Corporation identified this subparcel as a high priority for reuse In August 1997, the BCT agreed this subparcel should undergo a removal of surface soils At the September 1997 meeting, the BCT concurred that this subparcel change to a Category 6. In 1998 a removal action was completed and the post removal reports provided to EPA, TDEC and the public via the Information Repositories In May 1999, the BCT concurred that the removal action was complete and that this subparcel change from an ECP Category 6 to Category 4 based on successful completion of the removal action	No further remediation is necessary. The groundwater under this subparcel will be further evaluated

TABLE 3-6
SUBPARCEL DESCRIPTIONS

7 2(4)	29,12	2 8	Building 249	This subparcel is associated with Building 249, which was used by the U S Army Chemical Warfare Service for storage of a clothing treated with XXCC-3 impregnite (provided protection from chemical warfare materiels) The U S Army Corps of Engineer - St Louis District found no evidence of release or disposal at this building of chemical warfare material during research for preparation of the "Ordnance and Explosive Waste/Chemical Warfare Materials Archive Search Report for Memphis Defense Depot " A battery acid spill was reported on April 15, 1993, at Building 249, North dock The Spill Team responded, applied sodium bicarbonate and disposed of all residue in accordance with federal, state and local regulations This building may have been fumigated Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation After the December 1997 BCT decision to change fumigated buildings to Category 1, the BCT conferred and concurred via telephone calls that this subparcel would become a Category 4 based on the cleanup of the battery acid In June 1998, the BCT again concurred that this subparcel change from Category 7 to a Category 4	No further remediation is necessary.
12.2(4)	16,15	2 8	Building 629	This subparcel is associated with Building 629 - the 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. The Spill Team responded, applied sodium bicarbonate and disposed of all residue in accordance with federal, state and local regulations The soil surrounding Building 629 is associated with Remedial Investigation Site 57 and will be further evaluated during the Remedial Investigation process This building may have been fumigated Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation After the December 1997 BCT decision to change fumigated buildings to Category 1, the BCT conferred and concurred via telephone calls that this subparcel would become a Category 4 based on the cleanup of the nitric acid. In January 1998, the BCT again concurred that this subparcel change from an ECP Category 7 to a Category 4 based on successful cleanup of the spill	No further remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

15 3(4)	26,16	0 41	Building 319	This subparcel is associated with Building 319, a storage facility for various hazardous substances including flammables and toxics (cyanide) Low-level radioactive materials were also stored in the western bay of Building 319 Beginning in 1994, the eastern end of Building 319 was used for hazardous waste storage by DRMO In addition, a xylene spill was reported on November 18, 1991, inside Building 319, Section 4 In 1996 an inspection of the western bay was conducted as required for closure of the Defense Distribution Center's Nuclear Regulatory Commission permit for storage of low-level radioactive materials at the Depot The inspection determined that approximately 8 feet of wall space within the western bay required remediation for low-level radioactive impacts The remediation occurred in 1997 Soil samples collected in 1997 indicated chromium and lead at levels well below the 1 in a million risk ratio for both residential and industrial scenarios The NRC approved permit remediation and closure documentation, the Memphis Depot deleted from the DDC's permit and Building 319 released for use with no NRC restrictions In June 1999, the BCT received the NRC permit closure approval documentation and concurred that this subparcel change from an ECP Category 7 to a Category 4 based on the cleanup of the xylene spill and the low-level radioactivity	No further remediation is necessary
17.3(4) Demolished 1999	25,9	5 5	Building 359	This subparcel is associated with Building 359 and proposed No Further Action Site 49 (Medical Waste Storage Area). This building was demolished in 1999 by the DRC during construction of the entrance boulevard This building was used for storage of medical supplies, medical supply waste (expired shelf life medical supplies), sodium chloride, petroleum products and low-level radiological items (watch dials, lantern mantels and compasses) The 1997 Radiological Survey concluded this building was available for unrestricted use as no evidence of radiological contamination was found A sulfuric acid spill was reported on August 27, 1993 inside Building 359, Section 2. The Spill Team responded, applied sodium bicarbonate and disposed of all residue in accordance with federal, state and local regulations An out of service incinerator is also located in this building This building was fumigated. Air sampling conducted during the BRAC sampling effort indicated no human health hazards from fumigation. After the December 1997 BCT decision to change fumigated buildings to Category 1, the BCT conferred and concurred via telephone calls that this subparcel would become a Category 4 based on the cleanup of the sulfuric acid In June 1998, the BCT again concurred that this subparcel change from an ECP Category 7 to a Category 4 based on cleanup of the spill.	No further remediation is necessary
18 1(4)HS/HR	17,8	4 0	Building 560	This subparcel 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 inside Building 560, Section 3 The Spill Team responded, applied absorbent and disposed of all residue in accordance with federal, state and local regulations The 1996 Environmental Baseline Survey determined this subparcel to be an ECP Category 4 and the BCT concurred	No further remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

19 3(4)	22,8	0 22	Building 469	This subparcel is associated with Building 469, which was the battery repair/charge shop. Acids, parts cleaning fluids and petroleum products were stored and used in Building 469 This subparcel is associated with No Further Action Sites 40 (Safety-Kleen Units) and 41 (Satellite Drum Accumulation Areas) A self-contained Safety-Kleen unit was used in Building 469 Building 469 was also a satellite drum accumulation area for waste petroleum products and sulfuric acid. There is no evidence of releases from the units or accumulation area. On December 16, 1993, a transformer oil spill was reported at Building 469 Approximately 6 ounces of material was spilled on the south wall and floor near the entrance The sheet rock wall and concrete floor absorbed some of the oil. The Spill Team responded, applied absorbent and disposed of the residue in accordance with federal, state and local regulations Samples were collected from the absorbent and concrete and results indicated PCB-1242 According to the Spill Team Leader who was present during the spill cleanup and sampling, the effected area was removed during sampling operations In February 1999, the BCT conducted a visual inspection and was unable to locate the spill area In May 1999, the BCT concurred that no further evidence of the spill remained, that a remedial action occurred, and that this subparcel should change from ECP Category 7 to Category 4 based on cleanup of the spill	No remediation is necessary
20.2(4)HS/HR	17,6	5 0	Building 670	This subparcel is associated with Building 670. Significant corrosion was observed during the EBS visual inspection due to acid leaks at the battery charging station. Sodium bicarbonate was applied and disposed in accordance with federal, state and local regulations A 1-gallon spill of hydraulic fluid was reported on August 30, 1995 inside Building 670, Section 1 The Spill Team responded, applied absorbent and disposed of all residue in accordance with federal, state and local regulations The 1996 environmental Baseline Survey determined this subparcel to be an ECP Category 4 and the BCT concurred	No further remediation is necessary
20 3(4)HS/HR	20,7	5 0	Building 470	This subparcel is associated with Building 470. Corrosion was observed during the EBS visual inspection due to acid spills at the battery charging station Sodium bicarbonate was applied and disposed in accordance with federal, state and local regulations The 1996 Environmental Baseline Survey determined this subparcel to be an ECP Category 4 and the BCT concurred.	No further remediation is necessary
20 4(4)HS/HR	21,5	5.0	Building 489	This subparcel is associated with Building 489 Corrosion was observed during the EBS visual inspection due to acid spills at the battery charging station Sodium bicarbonate was applied and disposed in accordance with federal, state and local regulations The 1996 Environmental Baseline Survey determined this subparcel to be an ECP Category 4 and the BCT concurred	No further remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

21.2(4)PS/HS/HR	23,3	5.0	Building 490	This subparcel is associated with Building 490 and proposed No Further Action Site 40 (Safety Kleen Units) The Safety Kleen unit was removed prior to closure Corrosion was observed during the EBS visual inspection due to acid spills at the battery charging station Sodium bicarbonate was applied and disposed in accordance with federal, state and local regulations A 1-gallon spill of sulfuric acid/battery acid was reported on December 15, 1995 inside Building 490, Section 5 The Spill Team responded, applied sodium bicarbonate and disposed of all residue in accordance with federal, state and local regulations Petroleum products and microfiche developing chemicals were stored and used in Building 490 The 1996 Environmental Baseline Survey determined this subparcel to be an ECP Category 4 and the BCT concurred.	No further remediation is necessary
21 3(4)HS/HR	15,5	5 2	Building 689	This subparcel is associated with Building 689, Screening Site 78 (Alcohol, Acetone, Toluene, Naphtha, Hydrofluoric Acid Spills) and proposed No Further Action Site 40 (Safety Kleen Units) Building 689 historically staged alcohol, acetone, toluene, and hydrofluoric acid before transport The Safety Kleen unit was removed prior to closure Eleven spills are documented from May 8, 1990 through November 16, 1995 and included nitric acid, corrosion removing compound, hydraulic fluid, oil and sulfuric acid The Spill Team responded, took the appropriate action and disposed of all residue in accordance with federal, state and local regulations. Four soil borings were taken from the concrete parking lot immediately adjacent to and outside of Building 689 in Subparcel 21 5 Cadmium was detected in one sample and appeared to be an isolated occurrence TCE was detected at depths of 1 to 20 feet in one sample and may require further investigation for groundwater impacts The 1996 Environmental Baseline Survey determined this subparcel to be an ECP Category 4 and the BCT concurred	No further remediation required in Building 689. The Groundwater under this subparcel will be further evaluated
21 4(4)HS/HR	15,4	0.73	Building 685	This subparcel is associated with Building 685 Corrosion was observed during the EBS visual inspection due to acid spills at the battery charging station Sodium bicarbonate was applied and disposed in accordance with federal, state and local regulations The 1996 Environmental Baseline Survey determined this subparcel to be an ECP Category 4 and the BCT concurred.	No further remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

25.1(4)HS/HR	9,4	6 2	Building 873	This subparcel is associated with Building 873 and Remedial Investigation (RI) Site 27 (Former Recoupment Area - Building 873) Building 873 stored hazardous materials such as chlorinated solvents, corrosives, petroleum, oils and lubricants The southern end of the building was used as a hazardous materials recoupment area (remove hazardous materials from damaged containers then repackage the materials) until the current Recoup Building was constructed in 1987/1988 Thirteen spills are documented from March 10, 1990, through November 29, 1993, and included tetrachloroethylene, sulfuric acid, hydraulic fluid and descaling compound The Spill Team responded, took the appropriate action and disposed of all residue in accordance with federal, state and local regulations Samples associated with RI Site 27 were taken outside of the building in subparcel 25.2 and will be further evaluated as part of the RI At the September 1997 meeting, the BCT concurred that this subparcel change from an ECP Category 7 to a Category 4 based on the cleanup of the spills	No further remediation is necessary
27 2(4)	4,4	6.3	Building 972	This subparcel is associated with Building 972 and Screening Site 84 (Flammables, Solvents, Waste Oil - Building 972). The building once stored flammable materials, solvents and waste oil as an open shed building Hazardous materials were repoured/repacked in a portion of the middle bay until the mid-1970s Building 972 was converted to a closed building and stored and constructed wooden packing materials, which involved the use of petroleum products (oils and lubricants), paints and spray adhesives Small operational spills occurred and were cleaned when they occurred In addition, oil stained areas were observed in the building during the EBS visual inspection. The building recently had the floor cleaned and resealed, which removed the stains Screening site soil samples were taken outside the building in Subparcel 27 1 and will be further evaluated as part of the RI At the October 1997 meeting, the BCT concurred that this subparcel change from an ECP Category 7 to a Category 4 based on the cleanup of operational spills.	No further remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

30 1(4)	4,14	1.4	Building 925	This subparcel is associated with Building 925 This building served as the Bulk Flammable Materials warehouse and stored 55-gallon drums of flammable materials such as xylene, toluene, acetone, methyl ethyl ketone, methanol and ethanol Prior to construction of Building 925, this area was a bermed open storage location (X25) for petroleum products and flammable materials. A fabric tension structure was erected over this bermed area and warehoused flammable materials. On January 19, 1988, the fabric tension structure collapsed during a storm resulting in about 325 gallons of flammable materials being released in the bermed area and mixing with about 30,000 gallons of rainwater. The Spill Team and the Memphis Fire Department responded The material was contained and removed to an appropriate disposal facility The containment and clean up of this spill has been documented by the Depot and the Memphis Fire Department. The current Building 925 was constructed after this incident over a portion of the original fabric tension structure area At the September 1997 meeting, the BCT concurred that this subparcel change from ECP Category 7 to Category 4 based on the spill not occurring in the current building and the volatilization of any spilled material over the past nine years	No further remediation is necessary
30.2(4)	4,13	0 42	Spill Area between Buildings 925 and 949	This subparcel is associated with the former X25 open storage area, a 1988 spill and proposed No Further Action (NFA) Site 53 In the past, petroleum products and flammable materials were stored in 55-gallon drums within an earthen bermed area, which was later converted to a concrete bermed area A fabric tension structure was erected over the concrete berm area In 1988, the structure collapsed during heavy winds releasing approximately 327 gallons of flammable material (xylene, toluene, methyl ethyl ketone) that mixed with approximately 30,000 gallons of water The Memphis Fire Department Hazmat Team joined the Depot's Hazmat Team in cleaning up the spill The material/water waste was pumped out of the bermed area and disposed of according to federal, state and local regulations Samples were collected and results indicated levels of PAHs that exceeded residential criteria and will be further addressed in a site-wide risk assessment At the February 1999 meeting, the BCT concurred that this subparcel change from ECP Category 7 to Category 4 based on cleanup of the spill and sample results	No further remediation is necessary
32 2(4)	9,13	3.6	Building 835	This subparcel is associated with 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 The Spill Team responded, took the appropriate action and disposed of all residue in accordance with federal, state and local regulations Also, air sampling conducted in this building to assess the impact from storage of hazardous materials indicated no human health hazards At the September 1997 meeting, the BCT concurred that this subparcel change from an ECP Category 7 to a Category 4 based on cleanup of these spills and air sample results	No further remediation is necessary

TABLE 3-6
SUBPARCEL DESCRIPTIONS

Environmental Condition Category 5					
24.1(5)HR	10,3	2	Former material recoupment area at southern end of open storage area X02 and at the southeast corner of Building 873	This subparcel is associated with a former hazardous material recoupment area at the southern end of open gravel storage area X02 and to the east of Building 873, which is Remedial Investigation (RI) Site 27 (Former Recoupment Area - Building 873) This subparcel contains gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. This subparcel was used in conjunction with Building 873 as a hazardous materials recoupment area (remove hazardous materials from damaged containers then repackage the materials) until the current Recoup Building was constructed in 1987/1988. Removal of soil contamination from previous spills and pesticide/herbicide application was completed in 1985 During the sampling effort in 1997, three RI surface soil and five RI soil boring samples were collected Sample results indicated elevated levels of vanadium and poly aromatic hydrocarbons (PAHs) PAHs will be addressed in the sitewide risk evaluation The 1996 Environmental Baseline Survey determined this subparcel to be a Category 5 and the BCT concurred based on the removal action that occurred, but that further investigation is needed to determine if further action is required	Further remediation may be required upon completion of the Main Installation Remedial Investigation
Environmental Condition Category 6					
7.1(6)	29,13	1.5	Open land area surrounding Building 249	This subparcel is associated with the open land area surrounding Building 249, which is Screening Site (SS) 65 (XXCC-3, Building 249) This subparcel contains railroad tracks and gravel areas that historically sprayed with pesticides, herbicides and waste oil containing PCP The railroad tracks and ballasts were removed in 1999/2000. In 1997, Five surface soil samples and three soil borings associated with SS 65 were collected Samples indicated levels of PAHs (particularly Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene and Indeno(1,2,3-cd)pyrene) that exceeded BCT screening criteria At least one detection of each of these PAHs were two orders of magnitude above the risk based concentration The high levels of PAHs were found on the south side of Building 249 near the railroad tracks One sample detected levels of DDE and DDT In September 1997, the BCT concurred that this subparcel should change from an ECP Category 7 to a Category 6 due to PAH levels that may require some type of remedial action PAHs, DDE and DDT were evaluated in the RI and the preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel So, this subparcel remains a Category 6.	Identified for remedial action (institutional controls) in Main Installation Proposed Plan

TABLE 3-6
SUBPARCEL DESCRIPTIONS

15 5(6)	23,18	3 3	Open land area west of Buildings 308 and 309	This subparcel is associated with a portion of the open gravel storage area Y50 that is west of Buildings 308 and 309 This subparcel is associated with Screening Site 36 (DRMO Hazardous Waste Concrete Storage Pad), Screening Site 37 (DRMO Hazardous Waste Gravel Storage Pad), Screening Site 38 (DRMO Damaged/Empty Hazardous Materials Drum Storage Area), and Screening Site 39 (DRMO Damaged/Empty Lubricant Container Area) This subparcel consists of gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. One 1990 Law RI surface soil sample taken just outside this subparcel boundary detected PAHs, dieldrin and metals. During the 1997 Screening Site Sampling Program, thirteen soil boring samples were taken Sample results indicated PAHs no longer occurring, arsenic at risk ratios above 1 in a million for both industrial and residential scenarios, and levels of 1,1,2,2-tetrachloroethane, DDT and metals At the September 1997 meeting, the BCT concurred that this subparcel should change from an ECP Category 7 to a Category 6 due to contaminant levels that may require some type of remedial action The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel So, this subparcel remains a Category 6	Identified for remedial action (institutional controls) in Main Installation Proposed Plan
25 2(6)	8,7	12	Building 875 and open land area surrounding Buildings 873 and 875	This subparcel is associated with Building 875, the open land area surrounding Buildings 873 and 875, and Remedial Investigation (RI) Site 27 (Former Recoupment Area/Building S873) This subparcel also contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000 A 1,000-gallon heating oil tank was closed in place in July 1994 outside Building 875 One BRAC and two RI surface soil samples and one BRAC soil boring were collected from this subparcel (CH2M Hill, 1997) The RI samples were taken from south of Building 873. The RI sample results indicated levels of poly aromatic hydrocarbons (PAHs) that exceeded the BCT screening criteria This area of Subparcel 25 2 is an early removal candidate, or could go through a risk assessment due to the moderate level of PAHs The BRAC sample results indicated chlordane in the surface soils and lead at a depth of zero to 4 feet The Preliminary Risk Evaluation indicated carcinogenic and non-carcinogenic risk ratios of less than 1 in one million At the September 1997 meeting, the BCT concurred that this subparcel should change from an ECP Category 7 to a Category 6 due to contaminant levels that may require some type of remedial action The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel So, this subparcel remains a Category 6	Identified for remedial action (institutional controls) in Main Installation Proposed Plan

TABLE 3-6
SUBPARCEL DESCRIPTIONS

28 2(6)	3,5	6 31	Building 1089 and surrounding open land area	This subparcel is associated with Building 1089, the open land area surrounding Building 1089 and Screening Site (SS) 89 (Acids - Building 1089) Building 1089 was used to store acids, paints and cleaning solvents Eight SS surface soil samples and four SS soil borings were collected. Surface soil sample results indicated lead, arsenic and chromium levels that exceeded BCT screening criteria. Subsurface soil samples indicated no levels that exceeded BCT screening criteria Monitoring well 21 (MW-21) is also associated with this subparcel. Groundwater samples taken from MW-21 detected VOCs and metals and will be further addressed during the Main Installation groundwater investigation/risk assessment At the October 1997 meeting, the BCT concurred that this subparcel should change from an ECP Category 7 to a Category 6 and proceed through the removal action process due to metal levels and the DRC's high priority for reuse of this subparcel. The removal action was completed in August 2000. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel So, this subparcel remains a Category 6	Identified for remedial action (institutional controls) in Main Installation Proposed Plan
30.3(6)	4,15	6 0	Open storage area X23 and open land area surrounding Buildings 925 and 949	This subparcel is associated with the open land area surrounding Buildings 925 and 949, excluding the area in Subparcels 30 2 and 30 5 This subparcel also contains a portion of open storage area X23 and was formerly open storage area X25 Both X23 and X25 were used to store 55-gallon drums of POLs and flammable materials. Buildings 925 and 949 were constructed on former open storage area X25 This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP The railroad tracks and ballasts were removed in 1999/2000 In 1999, samples were collected from this subparcel and results indicated levels of metals above BCT screening criteria The remedial investigation and feasibility study for the Main Installation is complete The preferred alternative identified in the Main Installation Proposed Plan calls for soil to be removed from this subparcel due to unacceptable levels of lead at the south end of this subparcel adjacent to Building 949. The Proposed Plan is currently in the public comment period The BCT concurred via email that this subparcel change from a Category 7 to a Category 6 based on the proposed remedial action.	Identified for remedial action in Main Installation Proposed Plan

TABLE 3-6
SUBPARCEL DESCRIPTIONS

30 5(6)	4,10	0.55	Former spray paint area south of Building 949	This subparcel is associated with Screening Site 83 (Dried Paint Disposal Area). According to interviews with Depot personnel, spray painting and sand blasting occurred at this location until the early 1980s In 1997, samples were collected and results indicated levels of antimony, barium, beryllium, cadmium, chromium, iron, lead and zinc that exceeded BCT screening criteria. The remedial investigation and feasibility study for the Main Installation is complete The preferred alternative identified in the Main Installation Proposed Plan calls for soil to be removed from this subparcel due to unacceptable levels of lead adjacent to Building 949. The Proposed Plan is currently in the public comment period The BCT concurred via email that this subparcel change from a Category 7 to a Category 6 based on the proposed remedial action.	Identified for remedial action in Main Installation Proposed Plan
35 1(6)	3,3	0 02	Building 1090	This subparcel is associated with Building 1090 that was used to store paint thinner, lubricating oil, P-19 preservation oil, and corrosion preservation compound In February 1999, the BCT concurred that this building be cleaned during the early removal action for the surrounding area and that the subparcel change from an ECP Category 7 to a Category 6 The removal action was completed in August 2000 The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel So, this subparcel remains a Category 6	Interior cleaned during the early removal action proposed for the surrounding area Identified for remedial action (institutional controls) in Main Installation Proposed Plan.
35.2(6)	3,5	0.43	Building 1084 and open land area surrounding this building	This subparcel is associated with Proposed Early Removal Site 88, an old concrete grease rack and storage area for POLs at Building 1085 (removed); Proposed Early Removal Site 29, a UST associated with the grease rack (removed 1988); Proposed Early Removal Site 87 (Building 1084), in the past used for storage of DDT and other pesticides, and the open land area surrounding these buildings This subparcel contains gravel areas that were sprayed with herbicides, pesticides and waste oil containing PCP Samples were collected from the gravel areas and results indicated levels of metals and PAHs at levels that exceeded BCT screening criteria At the February 1999 meeting, the BCT concurred that this subparcel should change from an ECP Category 7 to a Category 6 and proceed through the removal action process due to metal levels and the DRC's high priority for reuse of this subparcel The removal action was completed in August 2000 The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel So, this subparcel remains a Category 6.	Identified for remedial action (institutional controls) in Main Installation Proposed Plan

TABLE 3-6
SUBPARCEL DESCRIPTIONS

35 3(6)	3,5	0 22	Building 1086	This subparcel is associated with Building 1086 that contains a spray paint booth and stored hazardous materials from 1959 through 1983/1984 This building also contains a sump. This subparcel is associated with No Further Action Site 30 – (Paint Spray Booths) Samples were collected from the sump, and results indicated levels of metals and naphthalene The BCT determined that the sump should be cleaned during proposed early removal actions at the surrounding parcels. At the February 1999 meeting, the BCT concurred that this subparcel should change from an ECP Category 7 to a Category 6 due to metal levels and the DRC's high priority for reuse of this subparcel. The removal action was completed in August 2000 The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel So, this subparcel remains a Category 6	Identified for remedial action (institutional controls) in Main Installation Proposed Plan
35 4(6)	3,3	4.9	Building 1087, former sandblast waste drum storage area and the surrounding open land area	This subparcel is associated with Screening Site 31 (Former Spray Paint Booth in Building 1087) which was used for major stock primer and enamel spray painting operations, and Screening Site 33 (Sandblasting Waste Drum Storage) which consists of an open-sided, metal roof shed with a gravel floor south of Building 1088 and was historically used to store 55-gallon drums containing spent sandblasting material This subparcel also includes gravel areas that were historically sprayed with herbicides and pesticides. Surface soil samples were collected and results indicated levels of PAHs, pesticides and metals that exceeded BCT screening criteria Groundwater samples were collected from MW-22 and detected VOCs, SVOCs and metals that will be addressed in the Main Installation groundwater investigation/risk assessment At the February 1999 meeting, the BCT concurred that this subparcel should change from an ECP Category 7 to a Category 6 and proceed through the removal action process due to metal levels and the DRC's high priority for reuse of this subparcel The removal action was completed in August 2000 The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel So, this subparcel remains a Category 6	The groundwater under this subparcel will be further evaluated Identified for remedial action (institutional controls) in Main Installation Proposed Plan

TABLE 3-6
SUBPARCEL DESCRIPTIONS

35 5(6)	2,2	4	Buildings 1088 and 1091 and surrounding open land area extending to Perry Road	This subparcel is associated with Buildings 1088 and 1091 as well as the open land area surrounding these buildings but not included in Parcels 35 1 through 35 4 This subparcel is also associated with RI Site 32 (Sandblasting Waste Accumulation Area) which is a gravel area adjacent to Building 1088 where spent sandblast material is funneled through a hopper into 55-gallon drums Fourteen surface soil samples (five samples were associated with Screening Site 33 that is included in Subparcel 35 4) and three soil borings (one associated with SS 33) were collected in Subparcel 35 5 Sample results associated with RI site 32 indicated levels of chromium, lead, arsenic, and PAHs that exceeded BCT screening criteria PCBs were detected in Site 33 samples taken during the Law Environmental study in 1991 PCBs were not detected in Site 33 samples taken during the screening site sampling in the winter of 1997 At the October 1997 meeting, the BCT concurred that this subparcel should change from an ECP Category 7 to a Category 6 and proceed through the removal action process due to metal levels and the DRC's high priority for reuse of this subparcel The removal action was completed in August 2000 The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel. So, this subparcel remains a Category 6	Identified for remedial action (institutional controls) in Main Installation Proposed Plan
36 16(6)	29,9	0 08	Dunn Field	This subparcel is associated with a suspected chemical warfare materiel burial location, Site 1 (Mustard and Lewisite Training Sets Burial Site) Nine sets of Chemical Agent Identification Sets were buried at this subparcel in 1955. In 1998, sampling of surface soil, subsurface soil and groundwater around this site indicated no migration of chemical warfare materiel In order to transfer the property with a low human health or environmental risk due to the chemical warfare materiel in the future, the Army determined the CWM must be removed. In June via email, the BCT concurred that this subparcel should change from an ECP Category 7 to a Category 6 based on the proposed removal action The removal action was completed in August 2000 The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel So, this subparcel remains a Category 6	Identified for remedial action (institutional controls) in Main Installation Proposed Plan

TABLE 3-6
SUBPARCEL DESCRIPTIONS

36 29(6)	23,9	7.5	Dunn Field	This subparcel is associated with suspected chemical warfare materiel disposal location, Site 24 (Former Burn Site - 1946) This subparcel is also associated with Proposed No Further Action Sites 23 (Construction Debris and Food Burial Site) and 63 (Fluorspar Storage - Southeastern quadrant) In 1946, railcars carrying captured German bomb casings containing sulfur mustard were enroute to Pine Bluff Arsenal, AR from Mobile, AL Three cars began leaking mustard, and the train was rerouted to the Memphis Depot Upon examination of the cars, 29 bomb casings were identified as leaking These casings were taken to one pit at Dunn Field and drained into and neutralized by a chlorinated lime (supertropical bleach) slurry The drained casings were placed in the pit and destroyed by dynamite in case a burster remained intact in a casing In 1998, sampling of surface soil, subsurface soil and groundwater around this site indicated no migration of chemical warfare materiel. In order to transfer the property with a low human health or environmental risk due to the chemical warfare materiel in the future, the Army determined the CWM must be removed In June via email, the BCT concurred that this subparcel change from an ECP Category 7 to a Category 6 based on the proposed removal action The removal action was completed in August 2000 The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) restricting residential land use at this subparcel. So, this subparcel remains a Category 6	Identified for remedial action (institutional controls) in Main Installation Proposed Plan
Environmental Condition Category 7					
1 8(7)	33,12	15 2	Buildings 143, 146 and 147, north and south parking lots and surrounding open land area	This subparcel is associated with Buildings 143, 146 and 147, the parking lots north and south of Building 144, and the surrounding open land area Both the north and south Parking Lots in this subparcel are the location of former military family housing units These housing units were demolished and the potential impacts from these units are unknown. This subparcel contains grassed areas that were historically sprayed with pesticides and herbicides 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 Spill Team responded, took the appropriate action and disposed of all residue in accordance with federal, state and local regulations Based on BRAC sample results, this subparcel will remain a Category 7 and will be addressed in the upcoming sitewide risk assessment for dieldrin The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel

TABLE 3-6
SUBPARCEL DESCRIPTIONS

3 5(7)	29,4	32 17	Recreational area including the golf course, playground, softball field, volleyball and tennis courts, wading pool, Buildings 194, 197 and 398, and open land area surrounding the community club complex extending to Ball Road	This subparcel is associated with Buildings 188, 189, 192, 194, 197 and 398, open land area surrounding these buildings, the Golf Course, the baseball field and the playground area This subparcel contains grassed areas that were historically sprayed with pesticides and herbicides In 1997, samples were collected and results indicated dieldrin and arsenic levels that exceeded BCT screening criteria. This subparcel will be further investigated In September 1997, the BCT agreed this subparcel should remain a Category 7 The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel
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 Several different sampling events have occurred at this subparcel with results indicating metals, pesticides and PAHs in surface soils surrounding the lake, in storm water entering the lake and in lake sediments that exceeded BCT screening criteria In 1997 and again in 1998, efforts were made to capture edible fish species for tissue sampling To date, only inedible species have been found. This subparcel will be further investigated In September 1997, the BCT agreed that this subparcel should remain an ECP Category 7 The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel
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 Several different sampling events have occurred at this subparcel with results indicating levels of metals, pesticides and PAHs in surface soils surrounding the ditch, in storm water and in sediments under the current concrete ditch that exceeded BCT screening criteria This subparcel will be further investigated. In September 1997, the BCT agreed that this subparcel should remain an ECP Category 7. The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel

TABLE 3-6
SUBPARCEL DESCRIPTIONS

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 Several different sampling events have occurred at this subparcel with results indicating levels of metals and pesticides in surface water and in ditch sediments that exceeded BCT screening criteria This subparcel will be further investigated In September 1997, the BCT agreed that this subparcel should remain an ECP Category 7 The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel
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 Several different sampling events have occurred at this subparcel with results indicating levels of metals, dieldrin and PAHs in surface soils surrounding the ditch, metals in surface water, and metals and pesticides in sediments under the current concrete ditch that exceeded BCT screening criteria. This subparcel will be further investigated In September 1997, the BCT agreed that this subparcel should remain an ECP Category 7 The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel
3 10(7)	30,6	0.25	Former pistol range near Hole 9	A 1947 installation map shows a pistol range directly behind where Building 271 now stands, near the 9th hole of the golf course A sample was collected and results indicated levels of dieldrin and arsenic that exceeded BCT screening criteria This subparcel will be further investigated In September 1997, the BCT agreed that this subparcel should remain an ECP Category 7 The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel

TABLE 3-6
SUBPARCEL DESCRIPTIONS

3 11(7)	30,6	0.77	Former flamethrower test site west of Hole 9	This area is within the Golf Course and was used to test flame-thrower fuels Firefighting techniques were also practiced at this site after ignition of the fuel In 1997, samples were collected and results indicated levels of dieldrin and PAHs that exceeded BCT screening criteria This subparcel will be further investigated In September 1997, the BCT agreed that this subparcel should remain an ECP Category 7 The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred-with an ECP category change for this subparcel
4.5(7)	30,8	3.2	Building 261 and area surrounding buildings in Parcel 4	This subparcel is associated with Building 261, an open shed for storing equipment, and the open land area surrounding buildings in Parcel 4 This subparcel contains grassed areas that were historically sprayed with herbicides and pesticides A 5,000-gallon heating oil tank was removed in July 1994 outside Building 253 Two 12,000-gallon and one 20,000-gallon gasoline USTs were removed in 1986 south of Building 257 One 18,000-gallon and one 20,000-gallon gasoline USTs that are actually in Subparcel 4 6 replaced these tanks. These tanks were removed in June 1998. Soil sampling conducted in accordance with TN UST removal procedures indicated no release of gasoline or diesel The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel.	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel A portion of this area is included in construction of the DRC's entrance boulevard
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 The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel
4.10(7)	31,7	0 26	Building 273 and the former putting green	Building 273 was used for mixing golf course pesticides and herbicides and is associated with RI Site 59. Surface soil samples (SS-37 and SS-50) detected VOCs, PAHs, and pesticides The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel

TABLE 3-6
SUBPARCEL DESCRIPTIONS

6 1(7)	28,11	4 4	Open land area surrounding Buildings 250, 349 and 350	This subparcel is associated with the open land area surrounding Buildings 349, 350 and 250 This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP and grassed areas that were historically sprayed with herbicides and pesticides The railroad tracks and ballasts were removed in 1999/2000 No screening site samples were taken in this subparcel, however, SS 70/71 (facility-wide railroad tracks) soil samples taken from tracks in Parcel 7, adjacent to Parcel 6, were found to contain PAHs at levels that exceeded BCT screening criteria The grassy area in this subparcel was also treated with pesticides This subparcel was sampled and found to contain dieldrin at levels that exceeded BCT screening criteria. The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel.	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel
8 1(7)	28,14	6 4	Open land area surrounding Buildings 229, 230, 329 and 330	This subparcel is associated with the open land area surrounding Buildings 229, 230, 329 and 330 This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP and grassed areas that were historically sprayed with herbicides and pesticides The railroad tracks and ballasts were removed in 1999/2000 This subparcel was sampled and found to contain dieldrin at levels that exceeded BCT screening criteria The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel
9 1(7)	23,13	6.3	Open land area surrounding Buildings 429, 430, 449 and 450	This subparcel is associated with the open land area surrounding Buildings 429, 430, 449 and 450 This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP and grassed areas that were historically sprayed with herbicides and pesticides. The railroad tracks and ballasts were removed in 1999/2000 This subparcel was sampled and found to contain dieldrin at levels that exceeded BCT screening criteria. The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel

TABLE 3-6
SUBPARCEL DESCRIPTIONS

10 2(7)	18,11	8 7	Open land area surrounding Buildings 549, 550, 649 and 650	This subparcel is associated with the open land area surrounding Buildings 549, 550, 649 and 650 This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP and grassed areas that were historically sprayed with herbicides and pesticides. The railroad tracks and ballasts were removed in 1999/2000 This subparcel was sampled and found to contain dieldrin at levels that exceeded BCT screening criteria The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel.	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel
10.3(7)	17,10	0.25	Spill location between the southern corners of Buildings 550 and 650	This subparcel is associated with a spill location between the southern corners of Buildings 550 and 650. A battery acid and hydraulic fluid spill was reported on March 18, 1993 The Spill Team responded, applied absorbent and sodium bicarbonate, and disposed of all residue in accordance with federal, state and local regulations The area was sampled, and no contaminants attributable to the spill were found Arsenic was found at levels that exceeded BCT screening criteria The grassy area in this subparcel was also treated with pesticides The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel
11.1(7)	18,14	4.6	Open land area surrounding Buildings 529, 530 and 630	This subparcel is associated with the open land area surrounding Buildings 529, 530 and 630 This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP and grassed areas that were historically sprayed with herbicides and pesticides. The railroad tracks and ballasts were removed in 1999/2000 This subparcel was sampled Results indicated dieldrin that slightly exceeded BCT screening criteria The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel

TABLE 3-6
SUBPARCEL DESCRIPTIONS

12 1(7)	17,15	1 7	Open land area surrounding Building 629	This subparcel is associated with the open land area surrounding Building 629 and with Remedial Investigation Site 57 (Building 629) This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP and grassed areas that were historically sprayed with herbicides and pesticides The railroad tracks and ballasts were removed in 1999/2000 Building 629 was the hazardous materials warehouse until 1985 when Building 835 was constructed Nine soil boring samples were taken at this subparcel Results indicated PAHs, DDE and DDT at levels that exceeded BCT screening criteria The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel
13 5(7)	33,16	3 9	Building 211 and open land area surrounding Buildings 210 and 211, and Sentry Stations 23 and 25	This subparcel is associated with Building 211 and the open land area surrounding Buildings 210 and 211 and Sentry Stations 23 and 25. This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP and grassed areas that were historically sprayed with herbicides and pesticides The railroad tracks and ballasts were removed in 1999/2000 A 500-gallon diesel aboveground storage tank for the emergency generator at Building 211 is also associated with this subparcel. In September 1997, the BCT agreed that this subparcel should remain an ECP Category 7 The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel
14 2(7) Demolished 1998	33,17	10 5	Building 209 and open land area surrounding Building 209 and Sentry Station 22	This subparcel is associated with Building 209 and open land area surrounding Building 209 and Sentry Station 22 Building 209 was demolished in 1997 This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP and grassed areas that were historically sprayed with herbicides and pesticides The railroad tracks and ballasts were removed in 1999/2000 A 12,000-gallon heating oil tank was removed in July 1994 outside Building 209 and no evidence of leaking was identified In September 1997, the BCT agreed that this subparcel should remain an ECP Category 7 The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel

TABLE 3-6
SUBPARCEL DESCRIPTIONS

15 6(7)	18,17	43 8	Buildings 301, 304, 305, 306, 307, 309, 416, 417, 701 and 717 and surrounding open land area	This subparcel is associated with Buildings 301, 304, 305, 306, 307, 309, 416, 417, 701 and 717, and surrounding open land area from C Street to Dunn Road This subparcel contains open storage areas Y10, Y11, Y50 and Y60. This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000 This subparcel also contains grassed areas that were historically sprayed with pesticides and herbicides In 1997, samples were collected and results indicated levels of metals, dieldrin, DDD, DDE, DDT and dioxins/furans in soils that exceeded BCT screening criteria A 4,000-gallon heating oil tank was removed in July 1994 outside Building 319 A 30-gallon spill of cleaning compound solvent was reported on December 2, 1991, on B Street southwest of Building 309 On March 26, 1991, less than 1 gallon of non-PCB containing dielectric fluid was spilled on the gravel area west of Building 309 The Spill Team responded, cleaned up the spills, removed stained soil and disposed of all residue in accordance with federal, state and local regulations This subparcel is also associated with the following IRP sites· DRMO East Stormwater Runoff Canal (Site 54) is a canal that collects the stormwater runoff from the DRMO yard and other Depot facilities, DRMO North Stormwater Runoff Canal (Site 55) is a canal that collects the stormwater runoff from the DRMO yard and other Depot facilities, and Waste oil used for dust control at gravel open storage areas (Site 72) In September 1997, the BCT agreed that this subparcel should remain an ECP Category 7 The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel.	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel
16 1(7)	21,9	2.8	Open land area surrounding Building 559	This subparcel is associated with the open land area surrounding Building 559 This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides, and waste oil containing PCP as well as grassed areas that were historically sprayed with herbicides and pesticides The railroad tracks and ballasts were removed in 1999/2000. This subparcel was sampled, and one sample indicated dieldrin at a level that exceeded BCT screening criteria. The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel.	This subparcel requires additional evaluation This subparcel is included in construction of the DRC's entrance boulevard The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel

TABLE 3-6
SUBPARCEL DESCRIPTIONS

17 2(7)	22,9	3.7	Open land area surrounding Building 359	This subparcel is associated with the open land area surrounding Building 359 This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP The railroad tracks and ballasts were removed in 1999/2000 This subparcel also contains grassed areas that were historically sprayed with herbicides and pesticides This subparcel was sampled and one sample contained dieldrin at a level that exceeded BCT screening criteria A 12,000-gallon fuel oil tank and a 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 fuel oil tank and a 500-gallon fuel oil tank were removed in 1993 at Building 359 A 1,000-gallon above ground storage tank at Building 359 has been relocated to the DRC's staging area east of Building 360 The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel	This subparcel is included in construction of the DRC's entrance boulevard The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel
20 5(7)	19,6	26.5	Open land area surrounding Buildings 470, 489 and 670	This subparcel is associated with the open land area surrounding Buildings 470, 489 and 670 This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP The railroad tracks and ballasts were removed in 1999/2000. This subparcel also contains grassed areas that were historically sprayed with pesticides and herbicides A sample was collected and results indicated levels of dieldrin that exceeded BCT screening criteria In September 1997, the BCT agreed that this subparcel should remain an ECP Category 7 The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel.
20 6(7)	20,4	0 40	Spill area between western ends of Buildings 489 and 490	A sulfuric acid spill was reported on June 10, 1993, between Buildings 489 and 490. The Spill Team responded, applied sodium bicarbonate and disposed of the residue in accordance with federal, state and local regulations Samples were collected from the gravel area east of the spill area and results indicated levels of PAHs, arsenic, chromium and lead that exceeded BCT screening criteria In September 1997, the BCT agreed that this subparcel should remain an ECP Category 7 The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel

TABLE 3-6
SUBPARCEL DESCRIPTIONS

21 5(7)	19,3	32 9	Open land area surrounding Buildings 490, 685, 689 and 690	This subparcel is associated with the open land area surrounding Buildings 490, 685, 689 and 690 This subparcel contains gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP and grassed areas that were historically sprayed with pesticides and herbicides The railroad tracks and ballasts were removed in 1999/2000 This subparcel is also associated with Screening Site 76 (Unknown Wastes Near Building 690) Samples were collected and results indicated levels of chromium and lead in subsurface soils that exceeded BCT screening criteria Dieldrin was detected, but was below BCT screening criteria This subparcel requires further investigation In September 1997, the BCT agreed that this subparcel should remain an ECP Category 7 The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel.
22.1(7)	18,4	0.66	Open land area between east ends of Buildings 689 and 690	This subparcel is associated with the open land area between east ends of Buildings 689 and 690 This subparcel contains gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP In 1997, samples were collected and results indicated levels of antimony and PAHs that exceeded BCT screening criteria This subparcel requires further investigation In October 1997, the BCT agreed that this subparcel should remain an ECP Category 7 The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel
22 2(7)	17,4	0 58	Spill area east of Building 685 between Buildings 689 and 690	This subparcel is also associated with Screening Site 77 (Unknown Wastes Near Buildings 689 and 690). Battery acid spilled during MHE battery charging procedures in Building 685 was washed out a nearby door onto the gravel area immediately east of Building 685. This subparcel contains gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP In 1997, samples were collected and results indicated levels of antinomy, arsenic, dieldrin and PAHs in surface soil that exceeded BCT screening criteria This subparcel requires further investigation. In October 1997, the BCT agreed that this subparcel should remain an ECP Category 7 The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel

TABLE 3-6
SUBPARCEL DESCRIPTIONS

23 11(7)	6,2	3 3	Open land area surrounding Building 995	This subparcel is associated with the open land area surrounding Building 995 south of Building 972 This subparcel contains grassed areas that were historically sprayed with pesticides and herbicides and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP In 1997, a sample was collected from Subparcel 23 9, a spill area within Subparcel 23.11 Results indicated lead in subsurface soils that slightly exceeded (24.3 mg/kg vs. 24 mg/kg) BCT screening criteria The BCT has made no decision to change the ECP category for this subparcel. The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel
24.2(7)	11,6	12 6	Open storage areas X02 and X03	This subparcel is associated with open storage areas X02 and X03, which were used for storage of POLs and flammable materials in 55-gallon drums until 1988 The areas then became steel storage This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides, and waste oil containing PCP The railroad tracks and ballasts were removed in 1999/2000 In 1997, samples were collected and results indicated arsenic, PAHs and PCP levels in surface soil and lead in subsurface soils that exceeded BCT screening criteria In October 1997, the BCT agreed that this subparcel should remain an ECP Category 7 The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel

TABLE 3-6
SUBPARCEL DESCRIPTIONS

24 3(7)	11,7	3.9	Buildings 770 and 771, and open land area surrounding these buildings	Hazardous materials (antifreeze, paint, solvents, Safety Kleen) and petroleum products were stored in Building 770 Building 771 was a restroom facility Several spills were reported for Building 770 including an oil spill on August 23, 1993 outside of Building 770 (northeast corner), a 50-gallon spill of PCB-containing liquid on July 9, 1990, and a 55-gallon spill of petroleum on November 7, 1991 outside of Building 770 (west side) The Spill Team responded, applied absorbent and removed contaminated materials associated with these spills 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 During the EBS visual inspection, oil staining was observed on the floor of Building 771 This subparcel is associated with Remedial Investigation (RI) site 34 (Underground Waste Oil Storage Tanks) and proposed No Further Action sites 30 (Paint Spray Booths), 40 (Safety Kleen Units) and 41 (Satellite Drum Accumulation Area) During RI sampling conducted in the winter of 1997, four soil borings and four surface soil samples were collected. Results indicated chromium and PAHs at levels that exceeded BCT screening criteria Residue was removed from the paint spray booth and consisted of the air filters, therefore, no further action is proposed for the paint spray booth The Safety-Kleen units were maintained by Safety-Kleen and removed upon closure. There is no evidence of release or disposal from these units, therefore, no further action is proposed at the Safety Kleen units The satellite drum accumulation areas were also removed upon closure There is no evidence of release or disposal at the satellite drum accumulation area; therefore, no further action is proposed Due to the presence of metals and PAHs in soil samples, this subparcel requires additional evaluation as part of the installation restoration program The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel

TABLE 3-6
SUBPARCEL DESCRIPTIONS

26 1(7)	6,9	4.7	Open land area surrounding Building 970	This subparcel is associated with the open land area surrounding Building 970 This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP The railroad tracks and ballasts were removed in 1999/2000 In 1997, samples were collected and results indicated no levels that exceeded BCT screening criteria However, in October 1997 the BCT agreed that this subparcel remain an ECP Category 7 until surface soils could be further evaluated. The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel.	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel
27 1(7)	4,9	4 4	Open land area surrounding Building 972	This subparcel is associated with the open land area surrounding Building 972 This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP The railroad tracks and ballasts were removed in 1999/2000 In 1997, samples were collected and results indicated levels of chromium, PAHs and chlorinated pesticides in surface soil and chromium and lead in subsurface soils that exceeded BCT screening criteria In October 1997 the BCT agreed that this subparcel remain an ECP Category 7 The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel

TABLE 3-6
SUBPARCEL DESCRIPTIONS

29.2(7)	4,18	30 4	Open storage areas X27 and X30, Buildings 801, 802 and 804 as well as the surrounding open land area extending to Dunn Road and to Perry Road	This subparcel contains open storage areas X27 and X30 that historically stored POLs and flammable materials X30 was also used to store excess wooden pallets. This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP The railroad tracks and ballasts were removed in 1999/2000. Several hydraulic fluid spills resulting from broken hydraulic lines on forklifts were reported for X27 and X30 including a 1.25-gallon hydraulic fluid spill on September 12, 1995 from A Street to 11th Street out Gate 15 to Dunn Field; a 25-gallon hydraulic fluid spill on May 13, 1994 that began in X30, went across to X27 on 27th Street to Building 972, and a 5-gallon hydraulic fluid spill on April 19, 1994, on G Street from Building 1089 to Gate 15 The Spill Team responded, applied absorbent and disposed of all residue in accordance with federal, state and local regulations In 1997, samples were collected and results indicated levels of chromium, dieldrin, DDT and methylene chloride in surface soil that exceeded BCT screening criteria In October 1997 the BCT agreed that this subparcel remain an ECP Category 7 The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel
29.3(7)	2,11	0 13	Storm drainage ditch adjacent to Gate 9	This subparcel is associated with Screening Site 56 (Western Storm Drainage Canal) This storm drainage ditch collects rainwater from the western half of the Depot starting at 6th Street and including the open storage areas In 1997, samples were collected and results indicated levels of metals in surface soil, lead in subsurface soil; PAHs, lead, p,pN-DDD and p,pN-DDE in sediments under the concrete lined ditch that exceeded BCT screening criteria PAHs were detected in sediments at levels exceeding criteria, but below background values This subparcel requires further investigation. In September 1997, the BCT agreed that this subparcel remain an ECP Category 7 The remedial investigation and feasibility study are complete for the Main Installation. The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel

TABLE 3-6
SUBPARCEL DESCRIPTIONS

31 1(7)	6,13	23 7	Open storage areas X17, X19 and X21	This subparcel is associated with open storage areas X17, X19 and X21, and a portion of X23 and X15 These areas were used to store a variety of materials including POLs and hazardous materials Records indicate that during the 1970s hazardous materials were recouped under a lean-to at the corner of 21st Street and E Street in the X21 area This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000 In 1997, samples were collected and results indicated levels of metals, dieldrin, dibenz(ah)anthracene and PCBs that exceeded BCT screening criteria In October 1997, the BCT agreed that this subparcel should remain an ECP Category 7. The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel
32 3(7)	9,10	2 3	Building 865 and surrounding open land area	This subparcel is associated with Screening Site 28 (Building 865, the Recoup Area Building) Building 865 is a handling area used to transfer hazardous substances/wastes or petroleum products/wastes from damaged or leaking containers into undamaged containers This subparcel also includes a gravel area that was historically sprayed with pesticides, herbicides and waste oil containing PCP. In 1997, samples were collected and results indicated levels of arsenic and lead that exceeded BCT screening criteria In October 1997, the BCT agreed this subparcel should remain an ECP Category 7 The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel. The BCT has not concurred with an ECP category change for this subparcel
33 7(7)	13,8	0 15	Former aboveground storage tank (Building 765) east of Building 770	This subparcel is associated with Screening Site 81 (Fuel Oil Building 765), a 12,000-gallon diesel fuel aboveground storage tank that was removed in 1994 This subparcel also contains a gravel area that was historically sprayed with pesticides, herbicides and waste oil containing PCP. In 1997, samples were collected and results indicated levels of PAHs that exceeded BCT screening criteria This subparcel requires further investigation In October 1997, the BCT agreed that this subparcel should remain an ECP Category 7. The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel

TABLE 3-6
SUBPARCEL DESCRIPTIONS

33 9(7)	12,14	39.4	Open storage areas X05, X06, X07, X08, X09, X10 and X11, Buildings 737 and 720, and the open land area surrounding Buildings 720, 737, 753, 755, 756, 860 and 863	This subparcel contains open storage areas X05, X06, X07, X08, X09, X10 and X11, and Buildings 737 and 720, and the open land area surrounding Buildings 720, 737, 753, 755, 756, 860 and 863 These areas were used to store a variety of materials including POLs, hazardous materials, and PCB and non-PCB containing transformers for operations use. This subparcel is associated with Screening Site 42 (Former Pentachlorophenol (PCP) Dip Vat Area), Screening Site 43 (Former Underground PCP Tank Area), Screening Site 46 (Pallet Drying Area) and Screening Site 80 (Fuel and Cleaner Dispensing at Building 720) In 1985, the PCP dip vat, underground storage tank, associated piping and impacted soil were removed According to interviews with Depot personnel, cleaners were not dispensed from Building 720, parts cleaning solutions were used in the building No evidence was found of a 1,000-gallon waste oil tank inside Building 720 This subparcel contains railroad tracks and gravel areas that were historically sprayed with pesticides, herbicides and waste oil containing PCP and grassed areas that were historically sprayed with pesticides and herbicides The railroad tracks and ballasts were removed in 1999/2000 This subparcel also contained a 12,000-gallon diesel aboveground storage tank west of Building 720 that was removed in 1997 and a 200-gallon gasoline underground storage tank adjacent to Building 754 that was removed in 1986 On July 26, 1993, leaking 55-gallon drums of ethyl acetate/naphtha aromatic were reported in the X10 area The Spill Team responded, took the appropriate actions including soil excavation and disposed of all residues in accordance with federal, state and local regulations In 1997, samples were collected and results indicated levels of lead, chromium, arsenic, PAHs, dieldrin and PCB-1260 that exceeded BCT screening criteria In February 1999, the BCT agreed that this subparcel should remain an ECP Category 7. The remedial investigation and feasibility study are complete for the Main Installation The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel	The preferred alternative identified in the Main Installation Proposed Plan calls for deed restrictions or institutional controls (considered a remedial action in the National Contingency Plan) at this subparcel The BCT has not concurred with an ECP category change for this subparcel
36.1(7)	30,9	<0.01	Dunn Field	This subparcel is associated with a seven-pound jug of ammonia hydroxide and a one-gallon bottle of acetic acid that were buried here. This subparcel is associated with IRP Site 2 In 1998, samples were collected, but the BCT has not evaluated the data. Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
36 2(7)	30,9	0 01	Dunn Field	This subparcel is associated with three thousand quarts of unknown chemicals and five cubic feet of orthotoluidine dihydrochloride that were buried here This subparcel is associated with IRP Site 3. In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field

TABLE 3-6
SUBPARCEL DESCRIPTIONS

36.3(7)	30,9	0 02	Dunn Field	This subparcel is associated with forty-five 55-gallon drums of discarded oil, grease, paints, and thinner that were buried in these two adjacent trenches. This subparcel is associated with IRP Sites 4 and 4 1 In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
36.4(7)	30,9	<0 01	Dunn Field	This subparcel is associated with three cubic feet of methyl bromide that were buried here in an unidentified container or containers This subparcel is associated with IRP Site 5 In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
36 5(7)	30,8	<0 01	Dunn Field	This subparcel is associated with 1,700 quart bottles of nitric acid that were buried here This subparcel is associated with IRP Site 7 In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
36.6(7)	30,8	<0.01	Dunn Field	This subparcel is associated with 3,768 one-gallon cans of methyl bromide that were buried to a depth of 7 feet This subparcel is associated with IRP Site 8 In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
36 7(7)	31,9	<0 01	Dunn Field	This subparcel is associated with 1,433 one-ounce bottles of trichloroacetic acid that were buried at a depth of 6 feet This subparcel is associated with IRP Site 11 In 1998, samples were collected, but the BCT has not evaluated the data. Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
36 8(7)	27,8	0 06	Dunn Field	This subparcel is associated with 30 pallets of discarded acid containers that were buried at these three locations at a depth of 8t feet This subparcel is associated with IRP Sites 12 and 12.1. In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
36 9(7)	28,8	0 01	Dunn Field	This subparcel is associated with 32 cubic yards of mixed chemicals and acids and 8,100 pounds of unnamed solids that were buried at a depth of 8 feet. This subparcel is associated with IRP Site 13 In 1998, samples were collected, but the BCT has not evaluated the data. Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
36 10(7)	28,8	<0 01	Dunn Field	These sites contain unknown amounts of unnamed acid. This subparcel is associated with IRP Sites 16 and 16.1. In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
36 11(7)	28,8	<0 01	Dunn Field	This subparcel is associated with an unknown amount of chemicals and medical supplies that were buried. This subparcel is associated with IRP Site 17 In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field

TABLE 3-6
SUBPARCEL DESCRIPTIONS

36 12(7)	23,11	0 92	Dunn Field	This site contains one above-grade covered bauxite pile. The pile was removed in 1998 This subparcel is associated with IRP Site 62 In 1998, samples were collected, but the BCT has not evaluated the data. Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
36 13(7)	27,11	3 3	Dunn Field	This site contains two above-grade covered bauxite piles The piles were removed in 1998 This subparcel is associated with IRP Site 62. In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
36.14(7)	31,11	0 33	Dunn Field	This site is a former pistol range (Site 60) and impact area and includes Building 1184 (Site 85) The building was used for temporary pesticide storage. In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
36 15(7)	29,10	11 7	Dunn Field	This subparcel is associated with the fluvial aquifer groundwater contamination identified at Dunn Field An interim remedial action addressing the contamination has been implemented with the installation of seven recovery wells along the western fenceline of Dunn Field Groundwater from the fluvial aquifer is pumped out and discharged to the Memphis sanitary sewer for treatment at the publicly owned treatment works The BCT has approved installation of four additional recovery wells to the system. In addition, this subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. The railroad tracks and ballasts were removed in 1999/2000 In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
36 17(7)	30,9	0.07	Dunn Field	This subparcel is associated with ashes and metals from the former burn site (Screening Site 24) that were buried here This subparcel is associated with IRP Site 9 In 1998, samples were collected, but the BCT has not evaluated the data. The CEHNC ordnance division and the CWM field investigation contractor have determined this area does not contain CWM See Appendix E for CEHNC documentation regarding this determination Remedial investigation continues at Dunn Field.	Remedial investigation continues at Dunn Field
36.18(7)	28,9	0 61	Dunn Field	This subparcel is associated with food items with expired shelf life that were buried here Reportedly, CAIS sets were also buried here. This subparcel is associated with IRP Site 86 In 1998, samples were collected, but the BCT has not evaluated the data. The CEHNC ordnance division and the CWM field investigation contractor have determined this area does not contain CWM See Appendix E for CEHNC documentation regarding this determination Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field

TABLE 3-6
SUBPARCEL DESCRIPTIONS

36.19(7)	28,9	0 02	Dunn Field	This subparcel is associated with food items with expired shelf life that were buried here Reportedly, CAIS sets were also buried here This subparcel is associated with IRP Site 86 In 1998, samples were collected, but the BCT has not evaluated the data. The CEHNC ordnance division and the CWM field investigation contractor have determined this area does not contain CWM See Appendix E for CEHNC documentation regarding this determination Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
36 20(7)	31,9	0 01	Dunn Field	This subparcel is associated with 40,037 units of eye ointment that were buried here in 1955 This subparcel is associated with IRP Site 6 In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field.	Remedial investigation continues at Dunn Field
36 21(7)	30,8	0 07	Dunn Field	This site was discovered during the installation of monitoring well 10 Charred debris was encountered This subparcel is associated with IRP Site 10. In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
36 22(7)	28,8	0 01	Dunn Field	This municipal waste burial site reportedly contains paper, food, and other unnamed materials. This subparcel is associated with IRP Site 14 In 1998, samples were collected, but the BCT has not evaluated the data. Remedial investigation continues at Dunn Field.	Remedial investigation continues at Dunn Field
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 This subparcel is associated with IRP Sites 15, 15 1 and 15 2 In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
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 This subparcel is associated with IRP Site 19 In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
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. This subparcel is associated with IRP Site 20 In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field.
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 This subparcel is associated with IRP Site 21. In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field.	Remedial investigation continues at Dunn Field

TABLE 3-6
SUBPARCEL DESCRIPTIONS

36 27(7)	31,12	0 21	Dunn Field	This concrete-lined drainage ditch collects stormwater runoff from surrounding areas This subparcel is associated with IRP Site 50 In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
36 28(7)	30,9	0.11	Dunn Field	This subparcel is associated with a stormwater drain that was installed in the mid-1950s and is used for stormwater conveyance. This subparcel is associated with IRP Site 61 In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field.
36 30(7)	28,12	27 9	Dunn Field, Buildings 1104, 1145, 1146, and 1185	This subparcel is associated with Dunn Field excluding the areas that were previously parcelized This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP The railroad tracks and ballasts were removed in 1999/2000 In 1998, samples were collected, but the BCT has not evaluated the data Remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field
36 31(7)	28,13	14 0	Dunn Field, 75-foot strip along Hays St from Person Ave to Dunn Ave	This subparcel is associated with an open land area of Dunn Field along Hays Street from Person Avenue to Dunn Avenue excluding Subparcel 36 26. The DRC requested this subparcel due to a Memphis road works project to expand Hays Street This subparcel contains grassy areas that were historically sprayed with pesticides and herbicides In 1998, samples were collected, but the BCT has not evaluated the data The remedial investigation continues at Dunn Field	Remedial investigation continues at Dunn Field

Notes:

AST Aboveground storage tank
BCT BRAC Cleanup Team
BRAC. Base Realignment and Closure
CAIS. Chemical Agent Identification Sets
DDE. 4,4'-Dichlorodiphenyltrichloroethene
DRC· Depot Redevelopment Corporation
DDT· 4,4'-Dichlorodiphenyltrichloroethane
DRMO. Defense Reutilization and Marketing Office
EBS. Environmental Baseline Survey
NFA: No further action
PAH: Poly 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) Subparcel label definitions are as follows·

PS. Petroleum storage
PR. Petroleum release or disposal
HR Hazardous substance release or disposal
HS· Hazardous substance storage

Qualified subparcel 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)

TABLE 3-6
SUBPARCEL DESCRIPTIONS

b) Acreage figures are approximate, they have been calculated using AutoCAD Release 13

c) BCT screening criteria were established by the BCT during the August 1997 BCT meeting and basically consist of the EPA Region III Risk Based Concentration table and, for some metals, regional background levels

4.0 INSTALLATION-WIDE STRATEGY FOR ENVIRONMENTAL RESTORATION

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

Prior to closure of the Depot on September 30, 1997, restoration projects were under way to identify, characterize and remediate environmental contamination at the Depot. The restoration strategy focused on the protection of human health and the environment at the Depot, taking into consideration the ongoing and continued use of the Depot. With the closure announcement, the restoration strategy for the Depot changed from supporting an active military installation to responding to property disposal (transfer) and reuse considerations. The Depot 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 the Memphis Depot Caretaker Division Environmental Office. The Depot'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 transfer and reuse in compliance with U. S. Army and DRC redevelopment goals. The current strategy provides for the completion of all site restoration activities on the BRAC parcel by 2007 with the exception of groundwater remediation, which is anticipated to continue until 2012.

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

4.1 AREA DESIGNATION STRATEGY

The history of the environmental restoration program at the Depot has three distinct periods. These periods are the Installation Restoration period, the National Priorities List (or "Superfund") period, the BRAC period and the Risk Assessment period. Each of these periods has introduced some method of grouping or segregating portions of the facility due to real estate, environmental or risk assessment issues. The group designations include Installation Restoration sites, Operable Units (OUs), BRAC parcels and Functional Units (FUs). The following subsections reflect the relationship among IR sites, OUs, BRAC parcels and FUs. The priorities and sequence for cleanup

were determined by the BCT and the DRC 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

Development of Installation Restoration (IR) sites began with the 1981 Installation Assessment of Defense Depot Memphis, Tennessee (USATHAMA 1981) and continued through the Environmental Audit No. 43-21-1387-86 (USAEHA July 1985), the RCRA Facilities Assessment (RFA) (A.T. Kearney 1990), and a Remedial Investigation (Law 1990). All areas of potential contamination identified in these studies have been assigned IR site numbers. Sites on Dunn Field are now being evaluated through the CERCLA remedial investigation/feasibility study process. Sites on the Main Installation have completed the remedial investigation/feasibility study process and are now in the proposed plan/record of decision process.

When the Depot was placed on the National Priorities List in 1992 and during subsequent federal facilities agreement negotiations, the Depot was broken into four CERCLA operable units based on the geographic layout of the facility. These units are Operable Unit 1 (OU-1), OU-2, OU-3 and OU-4 Each IR site was included in one of the four operable units.

When the facility was designated as a BRAC closure facility in 1995 and the Memphis Depot Redevelopment Agency was formed, the MDRA along with the Depot broke the facility property into parcels that were known as the BRAC parcels and subparcels. These parcels and subparcels were developed from a reuse and environmental restoration perspective. Thirty-six parcels were formed. Areas of environmental concern within each parcel were broken in subparcels, 187 in all, and represent buildings, spill locations, burial locations, former pistol ranges, open land areas and IR sites. In some cases, the BRAC parcel contains both open spaces and buildings. This BRAC parcel system has allowed for the IR sites to be compared directly to BRAC parcels for reuse purposes and to facilitate sampling/analysis, CERFA environmental condition of property category decision making, leasing and, ultimately, transfer. The relationship among the OUs and BRAC parcels is shown in Table 4-1.

Rather than assess each parcel individually to evaluate risk to human health and the environment, the BRAC parcels and IR sites were grouped into Functional Units. Each FU represents an area where human health exposure is generally uniform due to consistent historical use and anticipated reuse.

4.1.2 Sequence

The sequence for investigating each BRAC parcel or subparcel is presented in Table 4-1. The sequence is based primarily on the DRC's order of preference. This shall be updated as the DRC attracts business and organizations to locate at the Depot. Table 4-2 lists primary deliverables and projected deliverable dates for the environmental restoration investigation.

4.1.3 Early Actions Strategy

The Depot is implementing the "Record of Decision for Interim Remedial Action for Groundwater at Dunn Field (OU-1)" to control the migration of chlorinated solvents identified in the groundwater. In 1998, the Depot completed a removal action of dieldrin impacted soil from the military family housing area and of PCB impacted soil from the open land area surrounding Building 274 (RI Site 48). In 2000, the Depot completed a removal action of metals and polynuclear aromatic hydrocarbons (PAHs) impacted soil and interior cleaning of buildings at the old paint shop and maintenance area in Subparcels 35 and 28. In 2000, the Depot began a removal action of suspected chemical warfare materiel from Dunn Field, which is scheduled to be completed in May 2001. Other early actions will be initiated when appropriate to accelerate the cleanup process. Candidates for early removal actions are listed in Environmental Condition of Property Category 6 within Table 3-6.

4.1.4 Remedy Selection Approach

Remedies for the restoration of each IR site or BRAC subparcel, if required, at the Depot will be selected in accordance with the NCP. The BCT has and will continue to evaluate each IR site or subparcel 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 not be implemented and the approach outlined in the NCP will be taken.

As 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 (industrial use will apply to all BRAC parcels except those formerly used for or identified for future residential or recreational purposes). The assessment results have and will be compared to EPA Region III Risk Based Concentrations, background concentrations and achievable analytical reporting limits.

- Options to cleanup 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 the Depot. These environmental compliance strategies have been developed to ensure that the Depot complies with federal, state and local regulatory requirements, DOD and DLA directives, and other relevant regulations throughout the BRAC closure and property transfer process.

4.2.1 Storage Tanks

The following strategies have been developed to manage the storage tanks at the Depot until realignment is complete and the Depot property is transferred. Historically, there have been 37 storage tanks in use at the Depot.

Underground Storage Tanks

Historically, there have been 28 USTs in use at the Depot. Since the 1980s, the Depot 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. The areas where confirmation sampling did not occur have either become IR sites or BRAC subparcels and will be sampled

accordingly. If contamination is present at these areas, the remedy selection approach described in Section 4.1.4 will be implemented.

Neither the 1993 Pickering UST survey nor the 1996 EBS could confirm the location of a suspected UST at Building 229. For this unknown tank, the Depot confirmed through a records/document review that a tank did not exist at Building 229. In December 1998, the Depot received closure approval from TDEC for the two regulated USTs removed in July 1998. Table 3-4 provides information on the USTs at the Depot.

Aboveground Storage Tanks

Historically, there have been nine ASTs in use at the Depot. Since the 1980s, the Depot has implemented a program to remove or close in place tanks that were leaking or not in use. As of September 2000, there are five ASTs at the Depot. The DRC has taken possession of three ASTs and will be responsible for any future actions. Two ASTs remain active at the Depot. They provide emergency power for the fire suppression system and the computer network system. These two ASTs will not be removed unless specifically directed by the DRC.

4.2.2 Hazardous Materials/Waste Management

Hazardous materials/waste management compliance programs at the Depot will continue to be conducted throughout the closure and property transfer process in accordance with applicable state and federal regulations.

4.2.3 Solid Waste Management

Municipal solid wastes generated at the Depot 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, the Depot 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, the Depot had replaced all equipment confirmed to contain PCBs with non-PCB equipment, with the exception of fluorescent light ballasts that may or may not contain PCBs.

On December 16, 1993, a transformer oil spill was reported at Building 469. Approximately 6 ounces of material was spilled on the south wall and floor near the entrance. The sheet rock wall and concrete floor absorbed some of the oil. The Spill Team responded, applied absorbent and disposed of the residue in accordance with federal, state and local regulations. Samples were collected from the absorbent and concrete and results indicated PCB-1242. According to the Spill Team Leader on the scene during spill response and sampling, the effected area was removed during sampling operations. In February 1999, the BCT conducted a walk-through of the building and was unable to locate the spill area. In May 1999, the BCT agreed that no further evidence of the spill remained

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."

Friable and non-friable asbestos-containing material in good condition will be managed in place. All friable asbestos that poses a risk to human health will be removed or encapsulated. Asbestos inspections will be conducted as needed.

4.2.6 Radon

Based on the results of the radon testing conducted in 1995, radon levels in structures at the Depot 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 the Depot. The CERCLA process will address the corrective action for each solid waste management unit.

4.2.8 NPDES Permits

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

4.2.9 Oil/Water Separators

There are two oil/water separators remaining at the Depot that will be left in place. One separator was removed when Building 253 was demolished by the DRC during construction of the entrance boulevard.

4.2.10 Unexploded Ordnance

Three areas at the Depot were identified as being of concern because of potential UXO. Two areas were used as pistol ranges. Before construction of the golf course, a pistol range was located near what is now 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 Depot completed sampling for the area at the Main Installation and results indicated no unexploded ordnance; therefore, no remedial action for unexploded ordnance is required at this site. The Depot has not completed sampling at the Dunn Field areas and the BCT has not made a decision regarding remediation.

4.2.11 Pesticides

The Depot completed remedial investigation that collected samples to evaluate the lateral extent of pesticide contamination at the Main Installation. Sample results indicated dieldrin levels at the golf course and recreation areas were within the range considered acceptable for recreational use and levels across the Main Installation were acceptable for industrial use in accordance with EPA's risk assessment guidance and Region III risk-based concentrations. Dieldrin impacted soil was removed from the former military family housing area in 1998. The Main Installation Feasibility Study for Soils and the Proposed Plan recommended remedial action in the form of institutional controls across the Main Installation restricting residential use (including day care operations) due to dieldrin levels. The Depot continues to evaluate the impact of pesticide use at Dunn Field. Areas requiring remediation will be determined and remediation will be implemented if necessary.

4.2.12 Lead-Based Paint

Lead-based paint at the Depot 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 Depot plans to abate LBP in areas requiring such activities.

4.3 NATURAL AND CULTURAL RESOURCES STRATEGY

The Depot is prepared to implement a program as applicable for the preservation of natural and cultural resources. The EA for a Master Interim Lease at the Depot was completed in September 1996. The EA for Disposal and Reuse was completed in February 1998. The EA identified if the following were found at the Depot: archaeological resources, historical structures and resources, Native American resources, threatened and endangered species, sensitive habitats, wetlands, surface waters, floodplains and paleontological resources.

4.3.1 Archaeological Resources

No archaeological resources were identified at the Depot. In April 1997 U. S. Army Corps of Engineers, Ft. Worth District conducted an archaeological survey of Dunn Field and the golf course. According to the "Archeological Survey of Two Parcels at Defense Distribution Depot Memphis, Tennessee" (Prewitt & Associates, 1997), no evidence of archaeological resources was found at the Depot.

4.3.2 Historical Structures and Resources

The Depot has properties eligible for listing on the National Register of Historic Places (NRHP). In 1996, U.S. Army Corps of Engineers, Ft. Worth District, conducted a cultural resources survey and identified 20 World War II vintage warehouses (known as the 20 Typicals) as potentially eligible for the NRHP. The Tennessee State Historic Preservation Officer (TNSHPO) determined that the 20 Typicals as well as three World War II vintage guard stations (Buildings 9, 22 and 23) were eligible for listing on the NRHP. No nomination has been made to date. The Army Material Command, TNSHPO and Advisory Council on Historic Places entered into a Memorandum of Agreement regarding these eligible buildings. The DRC concurred with this Memorandum of Agreement.

4.3.3 Native American Resources

No Native American resources have been found at the Depot.

4.3.4 Threatened and Endangered Species

No threatened and endangered species have been identified at the Depot.

4.3.5 Sensitive Habitats

No sensitive habitats have been identified at the Depot.

4.3.6 Wetlands

No wetlands have been identified at the Depot.

4.3.7 Surface Waters

There are two bodies of water located at the Depot. 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 Depot is located outside the 500-year floodplain.

4.3.9 Paleontological Resources

No paleontological resources have been identified at the Depot.

4.4 COMMUNITY INVOLVEMENT/STRATEGY

The Depot prepared a community relations plan dated June 1999 to facilitate communication among the Depot; other federal, state or local agencies; and interested groups and other community residents concerning BRAC closure and environmental restoration activities at the Depot. This plan should ensure 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 environmental restoration decision.

The Depot 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; Depot employees; and federal, state and local officials informed in a timely manner of major findings of the remedial actions to be conducted at the Depot.

- 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 the Depot and on suggested remedial action alternatives and decisions.

- Be sensitive to and informed about changes in community concerns, attitudes, information needs and activities regarding the Depot. 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 restoration activities at the Depot.

- 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, restoration actions and other decisions at the Depot.

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

The Restoration Advisory Board (RAB), information repositories, environmental information line, public meetings, public comment periods and the newsletter support this strategy.

SECTION FOUR INSTALLATION-WIDE STRATEGY FOR ENVIRONMENTAL RESTORATION

TABLE 4-2
ENVIRONMENTAL DOCUMENT STATUS

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
BRAC Cleanup Plan Version 2	Memphis Depot Caretaker	September 1998	October 1998
BRAC Cleanup Plan Version 3	Memphis Depot Caretaker	September 1999	October 1999
BRAC Cleanup Plan Version 4	Memphis Depot Caretaker	September 2000	October 2000
BRAC Cleanup Plan Version 5	Memphis Depot Caretaker	September 2001	October 2001
Environmental Assessment – Leasing	CESAM/Tetra Tech	August 1996	September 1996
Environmental Assessment – Disposal	CESAM/Tetra Tech	November 1996	February 1998
Radiological Survey	DDRE	August 16, 1996	September 13, 1996
Cultural/Natural Resources Surveys	CESWF	October 31, 1996	November 1997
Wetland Determination	CESWF/CELMM		July 23, 1996
Section 106 Review	CESWF/HUD/Tennessee Historical Commission/TRC Moriah	October 31, 1996	June 7, 1997
Lead-Based Paint Survey	CELMM/Barge, Waggoner, Sumner & Cannon	December 1995	April 1996
Asbestos Survey	CELMM/Pickering Inc.		January 1994
PCB Survey	DDMT-W		1993
Radon Survey	ASCE-WP		March 8, 1996
UST Survey	CELMM/Pickering Inc		January 1994
Community Relations Plan	DDSP-F/Frontline	September 1998	June 1999
RI/FS Work Plans	CEHNC/CH2M Hill	1995	1995
Main Installation RI Report	CEHNC/CH2M Hill	September 1999	January 2000
Main Installation FS Report	CEHNC/CH2M Hill	November 1999	July 2000
Dunn Field RI Report	CEHNC/CH2M Hill	February 2001	June 2001
Dunn Field FS Report	CEHNC/CH2M Hill	April 2001	August 2001
Main Installation Proposed Remedial Action Plan	CEHNC/CH2M Hill	April 2000	August 2000
Dunn Field Proposed Remedial Action Plan	CEHNC/CH2M Hill	October 2001	December 2001
Interim Record of Decision (Groundwater at Dunn Field)	CEHNC/CH2M Hill		April 1996
Main Installation Record of	CEHNC/CH2M Hill	September 2000	January 2001

TABLE 4-2
ENVIRONMENTAL DOCUMENT STATUS

ACTIVITY	AGENCY	DRAFT REPORT	FINAL REPORT
Decision			
Dunn Field Record of Decision	CEHNC/CH2M Hill	December 2001	March 2002
Remedial Designs		TBD	TBD
Remedial Action Work Plans		TBD	TBD
Final Remediation Reports	DLA		5 months following completion of RA
Five Year Review Reports	DLA	TBD	TBD
Site Closeout Report, including Notice of Intent to Delete	DLA	TBD	TBD

NOTES:

ASCE-WP	Administrative Support Center East – Environmental Branch
BRAC	Base Realignment and Closure
CELMM.	U.S Army Corps of Engineers, Memphis, Tennessee
CEHNC	U S Army Corps of Engineers, Huntsville, Alabama
CESAM:	U S Army Corps of Engineers, Mobile, Alabama
CESWF	U S Army Corps of Engineers, Ft Worth, Texas
DDC·	Defense Distribution Center
DDMT	Defense Distribution Depot Memphis, Tennessee
DDSP-F	Memphis Depot Caretaker Division
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
UST	Underground storage tank

SECTION FIVE ENVIRONMENTAL PROGRAM SCHEDULES

5.0 ENVIRONMENTAL PROGRAM SCHEDULES

This section presents the Depot's 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. Environmental restoration activities are summarized in Table 5-1. This table will be updated as the BCT makes decisions regarding IR sites and BRAC subparcels that require restoration.

5.1 ENVIRONMENTAL RESTORATION PROGRAM

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

5.1.1 Response Schedules

The schedules shown on Table 5-1 were based on schedules established in October 2000 for the Depot's environmental restoration program by CEHNC, CESAM, EPA, TDEC, the Depot and the appropriate contractors. These schedules will be further refined to reflect updates to site schedules in the Defense Site Environmental Restoration Tracking System (DSERTS). 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. The BCT and project team will review these schedules regularly to ensure that they are current, that activities are expedited whenever possible and that reuse goals continue to be met.

The response schedules on Table 5-1 include time frames for BCP updates; remedial investigation, design and action at the Main Installation; groundwater design and action at the Main Installation; chemical warfare materiel removal action at Dunn Field; remedial investigation, design and action at Dunn Field; and groundwater design and action at Dunn Field.

5.1.2 Requirements by Fiscal Year

The financial requirements by fiscal year for the environmental program at the Depot are summarized on Table A-1 in Appendix A. These requirements will be further refined to reflect periodic updates to the Cost-to-Complete database that tracks funding requirements by specific IRP site and that is maintained by CEHNC for the Depot.

5.2 COMPLIANCE PROGRAMS

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

5.3 NATURAL AND CULTURAL RESOURCES

Natural and cultural resources at the Depot were assessed under the NEPA environmental assessment as discussed in Section 4.3. The fiscal year requirements for natural and cultural resources at the Depot are shown in Appendix A. The final EA for Master Interim Lease for the Depot was completed in September 1996. The final EA for Disposal and Reuse was completed in February 1998. The Finding of No Significant Impact was signed by AMC on March 13, 1998.

5.4 BCT/PROJECT TEAM/RAB MEETING SCHEDULE

The meetings and the schedule for the meetings concerning issues related to BRAC closure and the environmental restoration program at the Depot are as follows: the BCT and the project team meet the third Thursday of every month. The RAB meets the third Thursday of every month, except when the RAB decides otherwise. Additional BCT and project team meetings are scheduled as necessary to facilitate the decision-making process.

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 groundwater containment system, explanation/education of risk management decision-making process, fast track cleanup, horizontal differentiation (surface versus at depth), land use controls and presumptive remedies. Concerns regarding schedules and transfer documentation are also included as unresolved issues. This chapter is organized as the BRAC Cleanup Plan Guidance (Fall 1995/September 1996 addendum) prescribes, although not every section includes unresolved issues.

6.1 DATA USABILITY

This section summarizes unresolved issues pertaining to the validity of using historical data sets in the Depot's environmental restoration program. Historical data sets have been deemed valid for use in making environmental restoration decisions. Main Installation Remedial Investigation data sets have been deemed valid for use in environmental restoration decisions. Furthermore, sampling plans for Dunn Field soils and groundwater as well as pre-design sampling plans for Main Installation groundwater are designed to produce valid data sets for use in the Remedial Investigation and for Remedial Design purposes. 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 Depot's 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 the Depot.
- Ensure that all data from the Depot continues to be loaded into the Environmental Data Management System (EDMS) established in September 1999.
- Require that all contractors submit data and reports in an electronic format that can be readily used by the Depot.

- Provide environmental restoration information to stakeholders over the Internet.

6.2.1 BCT Action Items

The following BCT action items are being implemented and should be in place asdescribed below:

- Establish an environmental data management system (EDMS) database that is accessible to the BCT members and supporting contractor staff. This system was available to the BCT members as of September 1999.

- Provide for software to host the administrative record documents on the DDC's Memphis web site. This will also include current affairs and other information regarding the installation restoration program at the Memphis Depot. The DDC's Memphis web site was established in August 1999. As of September 2000, the web site is fully populated with the exception of the administrative record and is updated on a regular basis.

- Evaluate all future contracts for provisions requiring the submittal of data and reports in both hard copy and electronic formats.

- Update the administrative record periodically as needed. In 1999, a contractor established an electronic administrative record database with scanned document images. As of September 2000, this contractor was updating the database and scanning documents received since August 1999. This effort will continue through the finalization of the Records of Decision.

6.2.2 Rationale

As the number of agencies and contractors associated with the Depot 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:

- Accessibility to data and documentation via the DDC's Memphis web site is critical to promote ease of use for the various team members. The web site was established in August 1999 and continues to be populated. Contract actions have been initiated to provide for the administrative record on the DDC's Memphis web site.

- All historical data generated at the Depot are available in the installation administrative record managed by the Memphis Depot Caretaker, in the Depot's information repositories and will be available on the DDC's Memphis web site.

- All new sampling and analysis data generated during the Depot's environmental restoration program will be entered into the EDMS.

- A process for making reports available to the RAB has been established. Upon request, RAB members may check out documents for review. Community members can make appointments to review documents at the Depot's Community Outreach Room. The Depot also maintains three other information repositories that contain a copy of all the reports in the administrative record. The administrative record will also be available in the future through the DDC's Memphis web site. Whenever possible, the Depot will provide RAB members project documents on CD-Rom.

- U.S. Army Corps of Engineers will ensure that data and reports from ongoing efforts are submitted electronically to the Depot and AMC and are loaded into a system such as DENIX that can be readily accessed by the Depot, DLA, AMC, and other authorized interested parties.

- Four information repositories have been established to provide the community access to information. The locations include a public library, a local

neighborhood center, the Depot, and the city/county Health Department. The DDC's Memphis web site will, in the future, also provide access to the administrative record documents.

- Various public outreach programs have been established to disseminate information to the community. These include the RAB, community information sessions, public meetings, bi-monthly newsletters, fact sheets 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 Depot environmental restoration program.

6.3.1 BCT Action Items

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

- Complete the public comment period for the Main Installation Proposed Plan. Complete the ROD for the Main Installation. The Main Installation Proposed Plan (includes the excavation and offsite disposal of one soil area, institutional controls across the Main Installation, and enhanced bioremediation of contaminated groundwater) has been prepared. The public comment period is scheduled to end October 13, 2000. A ROD for remedial actions at the Main Installation is scheduled for January 2001.

- Conduct Pre-Design Data Collection for Main Installation (Functional Unit 7). Groundwater under the Main Installation will continue to be evaluated as part of a pre-design data collection effort. This additional data collection effort will be conducted to 1) confirm that no areas of groundwater contamination exist that are not otherwise known, including DNAPL sources, and 2) confirm the conceptual model of the water-table aquifer beneath the Main Installation. These two pieces of data are required by the Tennessee Department of Environment and Conservation for their conditional concurrence with the Main Installation Proposed Plan.

- Evaluate the results of this fieldwork prior to the design/implementation of the preferred groundwater alternative.

- Conduct the Remedial Investigation Field Sampling Plan Addendum II for Dunn Field (Operable Unit 1). Groundwater at Dunn Field will also continue to be evaluated as part of a field sampling plan addendum. This field sampling plan addendum will also evaluate the use of soil vapor extraction to clean up vadose zone contamination at Dunn Field through the collection of pre-design pilot test data during the groundwater fieldwork. This fieldwork has become necessary to evaluate the southern portion of the Dunn Field groundwater plume that has been recognized as being larger than previously thought.

- Evaluate the results of this field sampling plan addendum in order for the final Dunn Field Remedial Investigation report to be completed by August 2001.

6.3.2 Rationale

Effective analysis of data gaps will facilitate the completion of RI efforts so that appropriate remedies can be identified and evaluated.

6.3.3 Status/Strategy

Base-wide contaminants such as dieldrin and PAHs were addressed in a baseline risk assessment as part of the Main Installation Remedial Investigation. The Main Installation Remedial Investigation report was completed and approved by the agencies and BCT in January 2000. Feasibility Studies for Soil and Groundwater were completed and approved by the agencies and BCT in July 2000. The Main Installation Proposed Plan (includes the excavation and offsite disposal of one soil area, institutional controls across the Main Installation, and enhanced bioremediation of contaminated groundwater) has been prepared and is currently in the public comment period phase. A ROD for remedial actions at the Main Installation is planned for January 2001.

As of September 2000, no data gaps regarding soil contamination at the Main Installation remain unresolved. However, data gaps regarding groundwater contamination at the Main Installation and Dunn Field remain unresolved.

Groundwater under the Main Installation will continue to be evaluated as part of a pre-design data collection effort. This additional data collection effort will be conducted to 1) confirm whether or not there are additional areas that will require the enhanced bioremediation remedy, and 2) confirm the conceptual model of the water-table aquifer beneath the Main Installation. Evaluation of the results of this fieldwork will be conducted prior to the final ROD and prior to the design/implementation of the preferred groundwater alternative.

Groundwater at Dunn Field will also continue to be evaluated as part of a field sampling plan addendum. The sampling included in this addendum will 1) assess the nature and extent of a previously undetected dissolved off-site groundwater plume suspected to result from a potential DNAPL; and 2) to the extent practical, assess the source and extent of the suspected subsurface DNAPL. This field sampling plan addendum will also evaluate the use of soil vapor extraction to clean up vadose zone contamination at Dunn Field through the collection of pre-design pilot test data during the groundwater fieldwork. The final Dunn Field Remedial Investigation report is scheduled to be completed by August 2001.

6.4 BACKGROUND LEVELS

The Depot completed a background sampling program. The data was used to establish screening criteria. At this time, there are no unresolved issues pertaining to background levels.

6.5 RISK ASSESSMENTS

This section addresses unresolved issue pertaining to the completion of risk assessments supporting the Depot's environmental restoration programs.

The Main Installation Remedial Investigation report was completed and approved by the EPA and DLA in January 2000. TDEC never commented on the document, so in accordance with the Federal Facilities Agreement, this document is complete. At this time, there are no unresolved issues pertaining to the risk assessment in the Main Installation Remedial Investigation report.

Surface soil sampling at Dunn Field has been completed, but groundwater and vadose soil sampling at Dunn Field continues. The Dunn Field Remedial Investigation report is scheduled to be completed by August 2001.

6.5.1 BCT Action Items

The Remedial Investigation risk assessment included polynuclear aromatic hydrocarbons and dieldrin, as well as any other contaminant of potential concern. The presence of PAHs from vehicle exhaust is not considered a release by CERCLA, and the Depot has no authority to address issues that are not releases as defined by CERCLA. Note that the presence of PAHs and dieldrin on any portion of the facility did not provide any risk that was unacceptable for the planned reuse of the property. This planned reuse is industrial for Functional Units 1, 3, 4, 5 and 6 and recreational reuse cleanup goals for Functional Unit 2. In 1998, the Depot completed an early removal action for dieldrin impacted soil at the former military housing area, Parcel 2 in Functional Unit 6.

6.5.2 Rationale

Completion of risk assessments will enable the BCT to make restoration decisions based on the risk associated with the potential reuse. The National Contingency Plan requires a risk assessment, and the Depot followed the risk assessment process as prescribed in the Risk Assessment Guidance for Superfund (RAGS).

6.5.3 Status/Strategy

The risk assessment for the Main Installation was completed and included in the final Main Installation Remedial Investigation report dated January 2000. At this time, no unresolved issues remain regarding risk assessment remain at the Main Installation.

The risk assessment for Dunn Field will be included in the Dunn Field Remedial Investigation report, which is scheduled to be completed by August 2001.

6.6 BASE-WIDE REMEDIAL ACTION STRATEGY

This section discusses issues pertaining to the base-wide remedial action strategy for the Depot. A base-wide remedial action strategy has been developed to guide the ongoing environmental restoration efforts at the Depot. For most areas identified as having a potential for contamination from historical practices (CERFA Category 7), the Depot collected samples to confirm the absence or presence of contamination. The BCT has reviewed this data and the RI for the Main Installation is complete. The Main Installation Proposed Plan was placed in the public domain for public comment from August through October 13, 2000. The Record of Decision for the Main Installation is planned for January 2001. The Dunn Field Record of Decision is planned

for February 2002. At this time, there are no unresolved issues pertaining to the base-wide remedial action strategy.

6.7 GROUNDWATER INTERIM REMEDIAL ACTION AND LONG TERM GROUNDWATER MONITORING

The Main Installation Proposed Plan put forth the preferred alternative of Enhanced Bioremediation for a low-level chlorinated solvent plume in the southwest portion of the Main Installation. This alternative consists of injecting nutrients/chemicals into the groundwater to speed naturally occurring breakdown processes with long-term monitoring to document contaminant levels, ensure there is no offsite migration of the contaminants, and identify if a more aggressive approach is necessary. Additional potential source areas previously screened out by the BCT are also being investigated for potential bioremediation treatment points. It is important to note that a change in the State RPM has caused the previous Main Installation groundwater approach to be discarded and a new approach implemented. As a direct concession to this new approach, temporary down gradient monitoring wells will be installed in the fall of 2000 at approximately 12 sites the BCT previously screened out for groundwater concerns. The expressed intent of this additional data collection effort is to 1) confirm that the groundwater contamination resulting from contaminant releases has been adequately described in the Main Installation Remedial Investigation and Main Installation Feasibility Study for Groundwater, and 2) continue refining the conceptual model of the water-table aquifer beneath the Main Installation. The last component of the Main Installation Proposed Plan is a restriction against installing drinking water wells.

At this time, the Depot has completed construction of phase one and two of an interim groundwater pump-and-discharge system at Dunn Field. This system was designed to contain the plume of chlorinated solvent groundwater contamination. Groundwater samples are collected on a regular basis. Results of monitoring and groundwater elevation data for two years indicate that the system is accomplishing the interim goal within the spatial distance from the southern-most well (Recovery Well 3) to the northern-most well (Recovery Well 9). Additional contamination was detected to the south of Recovery Well 3 and four smaller capacity wells were installed south of Recovery Well 3 in order to contain the additional contamination. The discharge piping system to connect these four newly installed wells is scheduled to be completed and on-line by January 2001. The data collected from this system is being used for the Dunn

Field risk assessment that will be included in the Dunn Field Remedial Investigation. The data will also be used in any additional groundwater modeling.

Groundwater at Dunn Field will also continue to be evaluated as part of a draft field sampling plan addendum. The sampling included in this addendum will 1) assess the nature and extent of a previously undetected dissolved off-site groundwater plume suspected to result from a potential DNAPL; and 2) to the extent practical, assess the source and extent of the suspected subsurface DNAPL. This field sampling plan addendum will also evaluate the use of soil vapor extraction to clean up vadose zone contamination at Dunn Field through the collection of pre-design pilot test data during the groundwater fieldwork. The final Dunn Field Remedial Investigation report is scheduled to be completed by August 2001.

6.8 EXCAVATION OF CONTAMINATED MATERIALS

Environmental restoration activities at the Main Installation are presently in the Proposed Plan phase. The public comment period ended on October 13, 2000. The final Main Installation Remedial Investigation report was completed in January 2000. The final Main Installation Feasibility Studies for Soil and Groundwater were approved by the agencies and BCT in July 2000. One area on the Main Installation, south of Building 949 where outside spray painting operations took place, was identified for Excavation, Transportation and Disposal Offsite in the Main Installation Proposed Plan. The Parcel 35 and 28 (Old Paint Shop and Maintenance Area) removal action was completed in August 2000 with the project closure report distributed to the BCT on September 19, 2000.

Environmental restoration activities at Dunn Field are presently in the investigative and early removal phase. The chemical warfare materiel removal action at Dunn Field began in May 2000 and is currently scheduled to be completed by May 2001. All material removed from the three CWM sites is being sampled for chemical agent and also HTRW materials. Anything that fails any screening criteria or contained chemical agent or agent breakdown products is being properly disposed offsite. 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 at the Main Installation are presently in the Proposed Plan phase and the public comment period ended on October 13, 2000. Environmental restoration

activities at Dunn Field are presently in the investigative and early removal phase. The BCT will follow protocol requirements for the review of design documents as specified in the Federal Facility Agreement, which is 60 days for primary deliverables. In addition, CEHNC will review design documents according to their established internal review procedures for design reports prepared either internally or by contractors. The BCT will be included in the review process. The final design documents will be made available to the community in the information repositories. As of October 2000, there are no unresolved issues pertaining to the protocols for remedial design review.

6.10 CONCEPTUAL MODELS

Groundwater under the Main Installation will continue to be evaluated as part of a pre-design data collection effort. This additional data collection effort will be conducted to 1) confirm whether or not there are additional areas that will require the enhanced bioremediation remedy, and 2) confirm the conceptual model of the water-table aquifer beneath the Main Installation. Evaluation of the results of this fieldwork will be conducted prior to the design/implementation of the preferred groundwater alternative.

The Main Installation Remedial Investigation identified two groundwater plumes of solvent contamination, one in the southwest portion and one in the southeast portion of the Main Installation. The plume in the southeastern portion of the facility is minor and only the southwestern plume has been proposed for treatment. Between completion of the Main Installation Remedial Investigation report and the Feasibility Study for Groundwater, a revised conceptual model of the water-table aquifer was developed. A significant difference between the two conceptual models is the absence of the depression contours in the northwestern part of the Main Installation, as the elevation of the water table is inferred in the area of MW34, MW38 and MW18. The differences between the two conceptual models of the water-table aquifer have significance for remedial actions. In particular, the older model suggests monitoring wells are needed to detect potential plume migration toward the north and northwest portion of the Main Installation. The revised model suggests monitoring is needed in the central and south-central part of the Main Installation. Likewise, remedies that might be used to intercept and treat the leading edge of a contamination plume would be located in different areas depending on which model is confirmed. The data generated from the installation of numerous monitoring wells and soil borings during the fall of 2000 will refine the groundwater model significantly.

6.11 CLEANUP STANDARDS

Industrial worker risk-based cleanup goals for the Main Installation were developed, approved by the BCT and implemented for the majority of the Main Installation and recreational reuse risk-based cleanup goals were developed, approved by the BCT and implemented for the golf course and recreation area. These risk-based cleanup goals were implemented during the feasibility study process. The National Contingency Plan (40 Code of Federal Regulations 300) establishes a risk range of $1x10^{-6}$ to $1x10^{-4}$, or from one in a million to one in ten thousand, excess chance of developing cancer as the range where risk management decisions are allowed. For a risk that exceeds $1x10^{-4}$, remediation is required to reduce the cumulative risk to an acceptable level. A risk that does not exceed $1x10^{-6}$ is below the point of departure, meaning that neither remediation nor risk management decisions are required. Risk management decisions can be anything from no further action to engineering controls such as fences or cleanup actions. As of October 2000, there are no unresolved issues pertaining to cleanup standards.

6.12 INITIATIVES FOR ACCELERATING CLEANUP

The project team has implemented the following initiatives for expediting response actions at the Depot:

- **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 the Depot. The BCT consists of representatives from DLA, 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. Due to repeated failures to meet these accelerated review periods, the BCT has invoked the required review schedules from the Federal Facilities Agreement. This review period is 60 days for primary deliverables.

- **Functional Unit Groupings.** The installation restoration program sites and BRAC subparcels on the Main Installation were grouped into Functional Units to aid in the risk assessment process.

- **Concurrent Environmental Restoration/CERCLA Phases.** To expedite restoration, concurrent investigations, feasibility studies and designs are being conducted. The feasibility studies for the Main Installation and Dunn Field will begin prior to finalization of the Remedial Investigation reports. Also, the draft Record of Decision will be written before the end of the public comment period for the proposed plan. The selected cleanup alternatives will be addressed if the public comments warrant revising the alternative selection. Essentially, the BCT will always initiate the next step in the process while finalizing the previous document or step.

- **Concurrent Reviews.** The BCT has elected not to continue concurrent reviews whenever possible. This time saving effort has been shown to fragment and otherwise deter progress.

- **Community Involvement.** The Depot formed the RAB to involve the community in the restoration program. The RAB meets on a monthly basis to discuss the status of the environmental restoration program at the Depot. This effort has shown no acceleration to the program.

- **Risk-based Cleanup.** The BCT agreed to use the EPA Region III RBCs or background concentrations for screening goals. However, a full risk assessment was performed for the Main Installation Remedial Investigation. The BCT agreed on industrial reuse cleanup goals for Functional Units 1, 3, 4, 5 and 6 and recreational reuse cleanup goals for Functional Unit 2.

- **Innovative Contracting.** Flexible contracting procedures have been implemented. The most significant of these is the Pre-Placed Remedial Action Contract. This will expedite cleanup actions by avoiding many of the necessary contractual processes that precede the award of a construction contract.

- **Removal Actions.** The BCT continued to focus on removal actions in 2000. Several discretely impacted areas were identified on the Main Installation mainly in surface soils that were immobile in nature and were identified as a priority for reuse. Removal actions for lead in soil at Parcels 35 and 28 (Old Paint Shop and Maintenance Area) and for chemical warfare materiel (CWM) at Dunn Field were

started in 2000. The removal action at Parcels 32 and 28 was completed in August 2000 with the project closure report distributed to the BCT on September 19, 2000. The CWM removal action completion date has been extended to May 2001.

6.12.1 BCT Action Items

The BCT must continue the process of completing the Remedial Investigations and develop the Records of Decision through 2000 and 2001.

6.12.2 Rationale

By utilizing initiatives for accelerating cleanup, the BCT will accomplish restoration and property transfer.

6.12.3 Status/Strategy

Continue utilizing initiatives for accelerating cleanup in the Depot's environmental restoration program.

6.13 REMEDIAL ACTIONS

Environmental restoration activities at the Main Installation are presently in the Proposed Plan phase. The public comment period ended on October 13, 2000. The final Main Installation Remedial Investigation report was completed in January 2000. The final Main Installation Feasibility Studies for Soil and Groundwater were approved by the agencies and BCT in July 2000. One area on the Main Installation, south of Building 949 where outside spray painting operations took place, was identified for Excavation, Transportation and Disposal Offsite in the Main Installation Proposed Plan As of October 2000, no final remedial actions have been initiated.

The Interim Remedial Action for Groundwater at Dunn Field was constructed and began operating in late 1998. Additional groundwater contamination was detected to the south of the southern most recovery well; so four additional recovery wells were installed in 1999 to capture this southern edge of the plume. These additional wells are considered a second phase to the Interim Remedial Action. The discharge piping system connecting these four recovery wells to the city's sanitary sewer is scheduled to be installed and operating by January 2001.

The Parcel 35 and 28 (Old Paint Shop and Maintenance Area) removal action was completed in August 2000 with the project closure report was distributed to the BCT on September 19, 2000.

Environmental restoration activities at Dunn Field are presently in the investigative and early removal phase. The chemical warfare materiel removal action at Dunn Field began in May 2000 and is currently scheduled to be completed by May 2001.

At this time, 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 at the Main Installation are presently in the Proposed Plan phase with the public comment period scheduled to end on October 13, 2000. One area on the Main Installation, south of Building 949 where outside spray painting operations took place, was identified for Excavation, Transportation and Disposal Offsite in the Main Installation Proposed Plan. A bioremediation study for dieldrin impacted soil at the golf course, softball field and park area on the Main Installation has been completed in 1998; however, the risk assessment in the Main Installation Remedial Investigation indicated dieldrin at the golf course and recreation area was at levels safe for recreational reuse of these areas. The risk assessment also concluded that dieldrin levels across the Main Installation were safe for industrial reuse. At this time, there are no unresolved issues pertaining to review of selected technologies for application of expedited solutions.

6.15 HOT-SPOT REMOVALS

Environmental restoration activities at the Main Installation are presently in the Proposed Plan phase. The public comment period ended on October 13, 2000. The final Main Installation Remedial Investigation report was completed in January 2000. The final Main Installation Feasibility Studies for Soil and Groundwater were approved by the agencies and BCT in July 2000. One area on the Main Installation, south of Building 949 where outside spray painting operations took place, was identified for Excavation, Transportation and Disposal Offsite in the Main Installation Proposed Plan. As of October 2000, no final remedial actions have been initiated.

Removal of dieldrin impacted soil at the military family housing area and removal of PCB impacted soil around "J" Street Cafe (Building 274) was completed in 1998. The Parcel 35 and 28 (Old Paint Shop and Maintenance Area) removal action was completed in August 2000 and the project closure report was distributed to the BCT on September 19, 2000.

Environmental restoration activities at Dunn Field are presently in the investigative and early removal phase. The chemical warfare materiel removal action at Dunn Field began in May 2000 and is currently scheduled to be completed by May 2001.At this time, there are no unresolved issues pertaining to hot-spot removals.

6.15.1 BCT Action Items

The BCT must continue the process of completing the Remedial Investigations and develop the Records of Decision through 2000 and 2001. The Dunn Field Remedial Investigation is scheduled to be completed in August 2001. No other hot spots have been identified for removal.

6.15.2 Rationale

Removal Actions expedite the environmental restoration and property transfer processes at the Depot.

6.16 IDENTIFICATION OF CLEAN PROPERTIES

Clean properties were identified in the final EBS. The Depot updated the environmental condition of property map in 1999 as areas of the Depot were determined to be clean after the BCT reviewed sampling data or reviewed documents and determined that no further action was required. This determination only applied to the buildings or the surface and shallow subsurface soils within the subparcels. In some cases, the groundwater that is from 60 to 90 feet below the ground surface is contaminated. The Depot will continue to update the environmental condition of property map as decisions are made by the BCT so that an accurate visual portrayal of property available for transfer is maintained.

The issue of groundwater contamination under an otherwise clean parcel must be addressed by the BCT. The EPA offered a memorandum explaining a "horizontal split" approach for addressing groundwater contamination present underneath otherwise clean properties. This issue remains unresolved. The BCT will resolve this issue prior to the Finding of Suitability to Transfer for any affected parcels.

The BCT began developing a Land Use Control Action Plan (LUCAP) for the Main Installation in 2000, and plans to distribute a draft document by the end of the calendar year or review by each respective agency. Department of Defense Draft Policy on Land Use Controls has been integrated into the BCT's approach. A clearly defined approach is required at the Depot to ensure all parties that the steps necessary for land use controls and protective covenants are in place. This will include the operations and maintenance of any necessary land use controls that are passed along to future owners as deed restrictions.

6.17 OVERLAPPING PHASES OF THE CLEANUP PROCESS

As of October 2000, no remedial actions have been implemented with the exception of the interim remedial action for groundwater at Dunn Field. The BCT has stressed to the support organizations and contractors that some steps in the CERCLA process may be performed concurrently. This is recognized as an approach that may shorten the schedule somewhat. In particular, the BCT has directed the Corps of Engineers to begin the Feasibility Study prior to completion of the final Remedial Investigation. Some of the decision documentation may also be drafted as soon as the most appropriate remedial alternative becomes apparent. While these little steps seem insignificant, it is the opinion of the BCT that the cumulative affect could mean saving many months. These schedule savings will aid the Depot in meeting an aggressive schedule. If other issues arise in the future, a strategy to address each unresolved issue will be developed and implemented.

6.18 IMPROVED CONTRACTING PROCEDURES

The Depot has several contracting tools to assist in the accomplishment of the environmental restoration work at the Depot. The newest of these tools is the Pre-Placed Remedial Action Contract. This large volume contract is for one year with three option years. The maximum contract value is 14.8 million dollars. This contract should provide all cleanup actions at the Depot through the completion of the CERCLA program. As of October 2000, there are no unresolved issues pertaining to improved contracting procedures.

6.19 INTERFACING WITH THE COMMUNITY REDEVELOPMENT PLAN

The LRA was established as the MDRA, but was replaced by the formation of the Depot Redevelopment Corporation (DRC) in April 1997. The Memphis Depot Redevelopment Plan was completed in May 1997 and approved by AMC in September 1997. The BCT used proposed

future reuse scenarios from the Memphis Depot Redevelopment Plan and updates to these scenarios by the DRC to determine the appropriate risk-based cleanup goals. The DRC attends BCT meetings when appropriate to provide updates to reuse scenarios. The DRC does, however, remain separate from the BCT and works to distance itself from the Depot's environmental restoration program.

6.20 BIAS FOR CLEANUP INSTEAD OF STUDIES

Whenever possible and supported by the requirements of the National Contingency Plan, the EPA and DLA will select early cleanup rather than additional studies of potentially contaminated sites. This approach will expedite early achievement of restoration goals and transfer of property. As of October 2000, the early removal action was completed for Parcels 35 and 28 (Old Paint Shop and Maintenance Area). The chemical warfare materiel removal action at Dunn Field began in May 2000 and is scheduled to be completed by May 2001. Excavation of dieldrin impacted soil around the military family housing area was completed in October 1998. Excavation of PCB impacted soils was completed around Building 274 ("J" Street Cafe) in December 1998.

The Main Installation Remedial Investigation report was completed in January 2000. Feasibility Studies for Soil and Groundwater were completed and approved by the agencies and BCT in July 2000. The Main Installation Proposed Plan (includes the excavation and offsite disposal of one soil area, institutional controls across the Main Installation, and enhanced bioremediation of contaminated groundwater) has been prepared. The Main Installation Proposed Plan public comment period began in August 2000 and ended on October 13, 2000. A ROD for remedial actions at the Main Installation is scheduled to be signed by January 2001.

As of October 2000, no issues regarding bias for cleanup instead of studies regarding soil contamination at the Main Installation remain unresolved. However, issues regarding bias of cleanup instead of studies for groundwater contamination at the Main Installation and Dunn Field remain unresolved.

Due to TDEC concerns regarding groundwater under the Main Installation, studies will continue. An additional data collection effort, as detailed in the Pre-Design Data Collection Plan for the Main Installation (Functional Unit 7), will be conducted to 1) confirm whether or not there are additional areas that will require the enhanced bioremediation remedy, and 2) confirm the conceptual model of the water-table aquifer beneath the Main Installation. Evaluation of the

results of this fieldwork will be conducted prior to the final ROD and prior to the design/implementation of the preferred groundwater alternative.

Groundwater at Dunn Field will also continue to be evaluated as part of a draft field sampling plan addendum. The sampling included in this addendum will 1) assess the nature and extent of a previously undetected dissolved off-site groundwater plume suspected to result from a potential DNAPL; and 2) to the extent practical, assess the source and extent of the suspected subsurface DNAPL. This field sampling plan addendum will also evaluate the use of soil vapor extraction to clean up vadose zone contamination at Dunn Field through the collection of pre-design pilot test data during the groundwater fieldwork. The final Dunn Field Remedial Investigation report is scheduled to be completed by August 2001.

At this time, there are unresolved issues regarding bias for cleanup instead of studies.

6.21 EXPERT INPUT ON CONTAMINATION AND POTENTIAL REMEDIAL ACTIONS

The Depot BCT is committed to using expert input during the scoping, execution and review of the individual environmental investigation projects and restoration actions. Such expertise will be drawn from CEHNC, CESAM, USGS, EPA, TDEC and contractors employed to perform scopes of work on the various projects at the Depot 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 at appropriate sites. One potential location for the use of a presumptive remedy of soil vapor extraction is the disposal area of Dunn Field. Based upon a soil gas survey performed in late 1998, it appears that the shallow soil vapor is impacted with volatile organic compounds. The feasibility of a soil vapor extraction for this issue will be evaluated in the Feasibility Study. At this time, there are no unresolved issues with regard to presumptive remedies.

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

The Depot is fostering the partnership with regulatory agencies, the U.S. Army Corps of Engineers 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 A change in the RPM from the State of Tennessee has caused some reevaluation of previous decisions that TDEC was in agreement with, but these issues are being worked at the installation level. TDEC has made reference to re-promulgating the facility on the State Superfund list, but this has not occurred as of October 2000. TDEC has also made reference to withdrawing from the BCT. If this ever occurs and TDEC leaves the BCT, then the decision making procedures will drastically change. At this time, since partnering is established, there are no unresolved issues with regard to partnering.

According to the RAB, the lead agency, DLA, could do much more to disseminate information. One particular request is to place the administrative record on the DDC's Memphis web site. Efforts are underway to make this happen. This issue will be resolved once the administrative record is available to the public on the web site.

Regarding the potential for changes to the BCT membership or how the BCT functions, there is no required or planned action. Essentially, this must be addressed if TDEC ever implements the actions that TDEC is considering. There are no unresolved issues at this time.

6.24 UPDATING THE EBS AND NATURAL/CULTURAL RESOURCES DOCUMENTATION

The final EBS for the Depot was completed in November 1996. Now that the EBS is final, the Depot will update the installation status portions of the BCP on an annual basis, if needed.

The final EA for Master Interim Lease, which includes natural and cultural resources documentation for the Depot, was completed in September 1996. A final EA for Disposal and Reuse was completed in February 1998. A Finding of No Significant Impact regarding disposal and reuse of the Depot was signed by AMC on March 13, 1998. 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 Depot is actively fostering partnerships with the regulatory agencies, the U.S. Army Corps of Engineers and the community through scheduled meetings and the document review process. A change in the RPM from the State of Tennessee has caused some reevaluation of previous decisions that TDEC was in agreement with, but these issues are being worked at the installation level. TDEC has made reference to re-promulgating the facility on the State Superfund list, but this has not occurred as of October 2000. If this ever occurs and TDEC leaves the BCT, then the decision-making procedures will drastically change. The current plan is to continue the BCT process that has been working at the Depot for the last six years. Whether any changes as described ever occur is up TDEC.

TABLE A-1
FISCAL YEAR FUNDING REQUIREMENTS

INSTALLATION BUDGET ($000)										
ACTIVITY	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08 - COMPLETION
Restoration	4516	6978	9250	7347	700	700	700	700	700	1400
Compliance	146	41	44	35	31	39	32	0	0	0
Planning	5	5	5	5	5	0	0	0	0	0
Management	1324	881	884	762	566	520	480	300	200	200
TOTAL	5991	7808	10183	8150	1302	1259	1212	1000	900	1600

TABLE B-1

TECHNICAL DOCUMENTS SUMMARY

Document	Year	Author
Installation Assessment of Defense Depot Memphis, Tennessee Report No 191	1981	U.S. Army Toxic and Hazardous Materials Agency
Geohydrologic Study No. 38-26-0195-83	1982	U.S. Army Environmental Hygiene Agency
Environmental Audit No 43-21-1387-86	1985	U.S Army Environmental Hygiene Agency
Water Quality Biological Study No. 32-0733-86, Investigation of Fire Reservoir	1986	U.S. Army Environmental Hygiene Agency
Ground Water Consultation No. 38-26-0815-87, Collection and Analysis of Ground Water Samples	1986	U.S Army Environmental Hygiene Agency
Summary Report, On-Site Remedial Activities at the Defense Depot Memphis	1986	O.H Materials Company
Inter-Office Memorandum regarding January 19, 1988 Spandome Collapse	1988	City of Memphis
Remedial Investigation Final Report	1990	Law Environmental, Inc.
Remedial Investigation Final Report Appendices	1990	Law Environmental, Inc.
Feasibility Study Final Report	1990	Law Environmental, Inc
RCRA Facility Assessment	1990	Environmental Protection Agency and A.T. Kearney
Hazard Ranking System Score	1991	Environmental Protection Agency
Federal Register February 1992/Sites Proposed for the National Priorities List	1992	Environmental Protection Agency/Jon D. Johnston
Federal Register October 14, 1992/Sites Promulgated to the National Priorities List	1992	Environmental Protection Agency
Final Pump Test Work Plan	1992	Engineering-Science, Inc.
Pumping Test Technical Memorandum	1992	Engineering-Science, Inc.
Non-Stockpile Chemical Materiel Program, Survey and Analysis Report	1993	U.S. Army Chemical Materiel Destruction Agency
Final Focused Feasibility Study: Dunn Field	1994	Engineering-Science, Inc.
Environmental Assessment, Removal Action for Groundwater	1994	Engineering-Science, Inc.

TABLE B-1

TECHNICAL DOCUMENTS SUMMARY

Document	Year	Author
Final Proposed Groundwater Action Plan	1994	U.S. Army Corps of Engineers and CH2M Hill
No Further Action Report Draft	1994	U.S. Army Corps of Engineers and CH2M Hill
Electromagnetic and Magnetic Surveys at Dunn Field, Defense Depot Memphis, Tennessee	1994	U.S. Army Corps of Engineers Waterways Experiment Station
Groundwater Monitoring Results Report for Defense Depot Memphis, Tennessee, Volumes 1 through 9	1994	Environmental Science & Engineering Inc.
High Resolution Seismic Reflection Survey to Image the Top and Bottom of a Shallow Clay Layer at the Memphis Defense Depot, Memphis, Tennessee	1994	Kansas Geological Survey
Generic Quality Assurance Project Plan Final	1995	U.S. Army Corps of Engineers and CH2M Hill
Generic Remedial Investigation/Feasibility Study Workplan Final	1995	U.S. Army Corps of Engineers and CH2M Hill
Screening Sites Field Sampling Plan Final	1995	U S Army Corps of Engineers and CH2M Hill
Operable Unit 1 Field Sampling Plan Final	1995	U.S. Army Corps of Engineers and CH2M Hill
Operable Unit 2 Field Sampling Plan Final	1995	U S. Army Corps of Engineers and CH2M Hill
Operable Unit 3 Field Sampling Plan Final	1995	U.S. Army Corps of Engineers and CH2M Hill
Operable Unit 4 Field Sampling Plan Final	1995	U.S. Army Corps of Engineers and CH2M Hill
Public Health Assessment for USA Defense Depot Memphis	1995	U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry
Ordnance and Explosive Waste Chemical Warfare Materiels, Archives Search Report for Memphis Defense Depot	1995	U. S. Army Corps of Engineers - St. Louis
Federal Facilities Agreement	1995	Environmental Protection Agency, Tennessee Department of Environment and Conservation, and Defense Depot Memphis, Tennessee
Sediment Sampling Analysis Report	1996	U.S. Army Space and Strategic Defense Command
Record of Decision for Interim Remedial Action of the Groundwater at Dunn Field (OU-1) at the Defense Distribution Depot Memphis,	1996	U S. Army Corps of Engineers and CH2M Hill

TABLE B-1

TECHNICAL DOCUMENTS SUMMARY

Document	Year	Author
Tennessee		
Concurrence Letters for the Record of Decision on the Interim Remedial Action for Groundwater at Dunn Field	1996	Environmental Protection Agency and the Tennessee Department of Environment and Conservation
Interim Remedial Action for Groundwater at Dunn Field	1996	U.S. Army Corps of Engineers and CH2M Hill
Final Environmental Assessment for Master Interim Lease at Defense Distribution Depot Memphis	1996	U S. Army Corps of Engineers and Tetra Tech, Inc.
Environmental Baseline Survey	1996	Woodward-Clyde, Inc.
Restoration Advisory Board Public Involvement Information, Defense Depot Memphis, Tennessee	1994 until Present	Memphis Depot
BRAC Cleanup Team (BCT) Meeting Minutes	1996 until Present	Memphis Depot
Draft Finding of Suitability to Lease Documents	1996	Memphis Depot
Signed Finding of Suitability to Lease Documents	1996	Memphis Depot
Groundwater Characterization Data Report	1998	U.S. Army Corps of Engineers and CH2M Hill
Revised Final BRAC Parcel Summary Reports	1998	U.S. Army Corps of Engineers and CH2M Hill
Final Remedial Investigation Sites Letter Reports	1998	U.S. Army Corps of Engineers and CH2M Hill
Final Screening Sites Letter Reports	1998	U.S. Army Corps of Engineers and CH2M Hill
Final Background Sampling Program Report	1998	U.S. Army Corps of Engineers and CH2M Hill
Final Preliminary Risk Evaluation	1998	U.S. Army Corps of Engineers and CH2M Hill
Final Baseline Risk Assessment for Golf Course Impoundments	1999	U.S. Army Corps of Engineers and Radian International, Inc.
A Cultural Resources Inventory and Assessment at Defense Distribution Depot Memphis, Tennessee	1997	U.S. Army Corps of Engineers and TRC Mariah Associates, Inc
Archeological Survey of Two Parcels at Defense Distribution Depot Memphis, Tennessee	1997	U.S. Army Corps of Engineers and Prewitt & Associates, Inc.
Final Environmental Assessment of BRAC 95 Disposal and Reuse of	1998	Tetra Tech, Inc., U.S Army Corps of Engineers Mobile

TABLE B-1

TECHNICAL DOCUMENTS SUMMARY

Document	Year	Author
Defense Depot Memphis Tennessee		District and U.S. Army Materiel Command,
Final Streamlined Risk Assessment Parcel 3 Technical Memorandum	1999	U.S. Army Engineering and Support Center Huntsville and CH2M Hill
Post Removal Report, Family Housing Area, Memphis Depot, Tennessee, Volumes I and II	1999	U.S. Army Corps of Engineers Mobile and OHM Remediation Services, Corp.
Post Removal Report, Cafeteria Building, Memphis Depot, Tennessee	1999	U.S. Army Corps of Engineers Mobile and OHM Remediation Services, Corp.
Draft Final Engineering Evaluation and Cost Analysis (EE/CA), Old Paint Shop and Maintenance Area, Parcels 35 and 28	1999	U.S. Army Engineering Support Center Huntsville and CH2M Hill
Final Engineering Evaluation and Cost Analysis (EE/CA) for the Removal of Chemical Warfare Materiel, Former Defense Distribution Depot Memphis, Tennessee	1999	U.S Army Corps of Engineers Mobile and Parsons Environmental Science, Inc.
Interim Remedial Action Groundwater Extraction System, Project Documentation, Volumes I and II	1999	Memphis Depot Caretaker, U.S. Army Corps of Engineers Mobile District and OHM Remediation Services Corp
Final Community Relations Plan	1999	Memphis Depot Caretaker and Frontline Corporate Communications
Project Closure Report, Parcels 28/35, Old Paint Shop and Maintenance Area	2000	U.S. Army Corps of Engineers, Mobile District and Jacobs/Sverdrup Inc.
Main Installation Remedial Investigation report	2000	U.S. Army Engineering and Support Center Huntsville and CH2M Hill
Main Installation Feasibility Studies for Groundwater and Soil	2000	U.S. Army Engineering and Support Center Huntsville and CH2M Hill
Dunn Field Remedial Investigation Field Sampling Plan Addendum II	2000	U.S. Army Engineering and Support Center Huntsville and CH2M Hill
Main Installation Pre-Design Work Plan		U.S. Army Engineering and Support Center Huntsville and CH2M Hill

Engineering Evaluation/Cost Analysis
for the Removal of Chemical Warefare Materiel
Former Defense Distribution Depot Memphis, Tennessee

ADDENDUM 1
SITE NUMBERS TO AREA NUMBERS

The EE/CA for the removal of chemical warfare materiel at the former Defense Distribution Depot Memphis refers to potential CWM burial pits and trenches as "areas." These areas were referred to as sites in previous documents and on figures and maps. The areas identified for investigation under this EE/CA correlate to the site numbers as follows:

Areas A-1 and A-2 correlate to Site 24. These two areas were identified as the suspected locations of trenches and/or pits where leaking German bombs containing CWM were drained, neutralized, destroyed, and buried. The geophysical investigation, ASR review, and aerial photo study confirmed that activities took place in these areas that could have included the disposal of CWM in trenches/pits on Dunn Field. The findings of the EE/CA recommend that removal actions be implemented for A-1 and A-2.

Area B-1 correlates to Site 86 and Site 9. Area B-1 was described in the Archives Search Report (ASR) as two long trenches that were used for the disposal of XX-CC-3 Impregnite, DANC, Chlorinated Lime and RH195. The ASR also states that these areas were used to dispose of food supplies and such. Maps that were used to record these disposals show the trenches containing food supplies and ashes and metal refuse. In addition to these activities, another trench listed as Site 18 is located next to Site 86 and may actually cover part of Site 86. Site 18 contains refuse from a plane crash and was buried in 1984. The geophysical investigation identified the areas where these trenches are located. However, based on the lack of data supporting the disposal of CWM in these trenches, Area B-1 is not recommended for removal action.

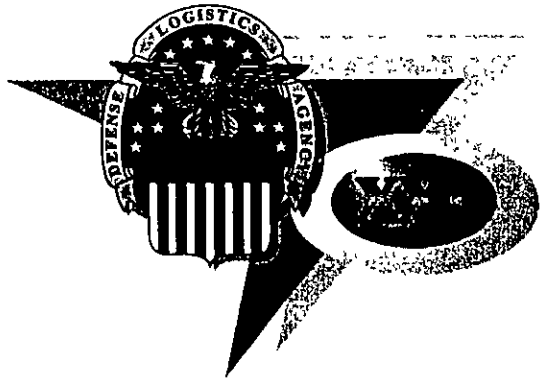
Area B-2 correlates to Site 1. Area B-2 is a pit where Chemical Agent Identification Sets were buried in 1955-1956. Broken sets were reportedly buried 5 or 6 times by placing them in a pit and covering with dirt. This pit was marked on maps as Site 1 and dated as 22 July 1955. The existance and location of the burial pit is doumented in the ASR and an USATHAMA report (Installation Assessment of Defense Depot Memphis, TN, Report No. 191, March 1981). Area B-2 is recommended for removal action.

SITE CORRELATION TABLE		
EE/CA Site Number	RI/FS Site Number	New Site Number
A-1 (Mustard bomb burial trench)	24	24-A
A-2 (Chlorinated lime pits)	24	24-B
B-1(Food stuff burial trench)	9 & 86	9 & 86
B-2 (CAIS burial pit)	1	1

Action Memorandum

Removal of Chemical Warfare Materiel, Parcel 36 Former Defense Distribution Depot Memphis, Tennessee

Defense Logistics Agency
Defense Distribution Depot Susquehanna Pennsylvania
Memphis Depot Caretaker Division
Memphis, TN 38114-5210



April 2000

CONTENTS

CONTENTS (CONTINUED)

Figures Page

ACTION MEMORANDUM

Removal of Chemical Warfare Materiel

Parcel 36

Former Defense Distribution Depot Memphis, Tennessee

Site Status: Closed Industrial Area
Category of Removal: Non-Time-Critical Removal Action
CERCLIS ID: TN4 201 002 0570
Site ID: Sites 1, 9, 24, 86

I. Purpose

The purpose of this Engineering Evaluation and Cost Analysis (EE/CA) Action Memorandum is to document approval of the proposed removal action described herein for Sites 1, 24A, and 24B Areas A and B of Dunn Field at the former Defense Distribution Depot Memphis, Tennessee (Memphis Depot or Depot) located at 2163 Airways Boulevard, Memphis, Tennessee 38114. The Depot is in Shelby County. The action is required by and is being taken pursuant to the Department of Defense Ammunition and Explosive Standard (DoD 6055.9) Chapter 12, paragraph 3.2 regarding Land Disposal. This parcel is subject to future transfer from the federal government per the Base Realignment and Closure Act, 1995.

The United States Army Corps of Engineers (USACE) is the lead respondent under the Defense Environmental Restoration Program and the Defense Logistics Agency is the lead agency under the USEPA Federal Facilities Agreement. Based on the results of the completed EE/CA, the excavation and removal alternative is recommended for the sites identified as potentially containing chemical agent. Excavation and removal of chemical warfare materiel (CWM) will eliminate the possibility of exposure and hazards to the public and the environment from CWM at the suspected burial pits and trenches. It is the only alternative that fully meets the remedial objective: to ensure that exposure to any level of CWM does not occur in the future. The EE/CA was prepared to document the potential alternatives that were analyzed and to recommend the appropriate alternative for the site. *The State of Tennessee and USEPA have participated and are in agreement with the selected remedy..*

The administrative record for this site is located at the Memphis Depot. Additional information repositories that include copies of the administrative record are: the Memphis/Shelby County Health Department in Memphis, TN; the Memphis/Shelby County Public Library, Main and Cherokee Branches, and in the Memphis Depot Community Outreach Room.

II. Site Conditions and Background

A. Site Description

1. Removal Site Evaluation

The Memphis Depot is a former Defense Department supply depot. The Depot operated from World War II until its closure in 1997. Since closure, the Depot has been operated by the Memphis Depot Caretaker, a division of the Defense Distribution Depot Susquehanna, Pennsylvania. As part of Base Realignment and Closure (BRAC) activities, the Depot was divided into 36 parcels to assess the environmental condition of each parcel and to determine if it can be transferred from government ownership to private or public-sector uses. Dunn Field is parcel number 36.

The history of CWM disposal at Dunn Field began in July 1946 when 29 mustard-filled German bomb casings were destroyed and buried. Most likely these bomb casings were filled with sulfur mustard. These bomb casings were part of a railroad shipment en route from Mobile, Alabama to Pine Bluff, Arkansas. Records indicate that some of the bomb casings were leaking and had resulted in the contamination of the rail lines and freight cars that contained the munitions. Prior to reaching Pine Bluff, three railcars were identified as containing leaking munitions and these cars were transferred to the Memphis Depot for proper handling. These railcars were staged in the Main Installation area for unloading and decontamination. As the bomb casings were unloaded from the railcars, those found to be leaking were taken to a pit, containing a bleach (chloride of lime) solution, that was constructed at Dunn Field for draining of the mustard. Reports indicate the drained bomb casings were then destroyed and buried in a shallow trench in case any of the bomb casings contained a burster charge. A total of twenty-four 500 kilogram and five 250 kilogram bombs were destroyed. These two sites are in Area A.

During the early to mid 1950s, Chemical Agent Identification Sets (CAIS) were buried in Dunn Field. These sets were used by the military to train soldiers to identify chemical agents in the field and were probably K951/K952 sets that contained small glass ampoules of mustard, lewisite, and chloropicrin, mixed with chloroform. Set K951/K952 also included an ampoule of concentrated phosgene. At least six sets were buried at Dunn Field. CAIS stocks found to be leaking or broken during periodic inspection were reportedly buried in Dunn Field. The chloroform was included in the ampoules as a solvent. Each of the ampoules, with the exception of phosgene, contained anywhere from 0% to 50% chloroform. This site is in Area B.

The investigation at Dunn Field included an archives and literature search, interviews with former Memphis Depot employees, aerial photograph study, geophysical investigations, soil borings and sampling, groundwater well installation and sampling, sampling data analysis, and a streamlined risk evaluation (both human health and ecological). Three locations in Areas A and B were identified as potential CWM burial pits and trenches. CWM was not found in any of the soil or groundwater samples collected around the geophysical anomalies that are the burial sites. The results of the risk evaluation indicated that no adverse effects to human or ecological receptors are expected from exposure to environmental media outside of the burial pits or trenches. However, it is assumed that

chemical agents are present in the pits/trenches and that exposure to these materials would, by definition, present an unacceptable risk to receptors.

2. Physical Location

The Memphis Depot is a 642-acre area in the central section of Memphis, Tennessee, approximately 5 miles east of the Mississippi River, 4 miles from the central business district of Memphis, and approximately 1 mile north of the Memphis International Airport. Airways Boulevard borders the Depot on the east and is the primary access to the Main Installation. Dunn Road, Ball Road, and Perry Road serve as northern, southern, and western boundaries, respectively, of the Main Installation. Figure 1 shows the general location of the Depot within the Memphis area. Figure 2 shows the configuration of the Depot and its location with respect to the surrounding streets.

The Depot is located in an area of widely varying uses. Most of the land surrounding the Depot is intensely developed. The area immediately east of Dunn Field bounded by Hayes Road, Dunn Road, Castalia Road, and Persons Avenue is residential. The area north of Dunn Road and between Dunn Field and Dunn Elementary School is part residential and part industrial. To the north of the Depot are rail lines of the Frisco Railroad and Illinois Central Gulf Railroad. Large industrial and warehousing operations are located along the rail lines in this area. A triangular area immediately to the north of the Depot, bounded by Dunn Road, Castalia Road, and Frisco Avenue, also contains several industrial facilities. Formerly a residential neighborhood, the area is characterized by small commercial and manufacturing uses with some single-family residences remaining.

Airways Boulevard is the most heavily traveled thoroughfare in the vicinity and is developed with numerous small commercial establishments. Businesses along Airways Boulevard are typical of highway commercial districts. Other commercial establishments are located to the north, south, and west of the Depot. Most are small grocery or convenience stores that serve their immediate neighborhoods. The Depot is surrounded by residential development, including single- and multiple-family residences. Numerous schools and small church buildings are located throughout the area.

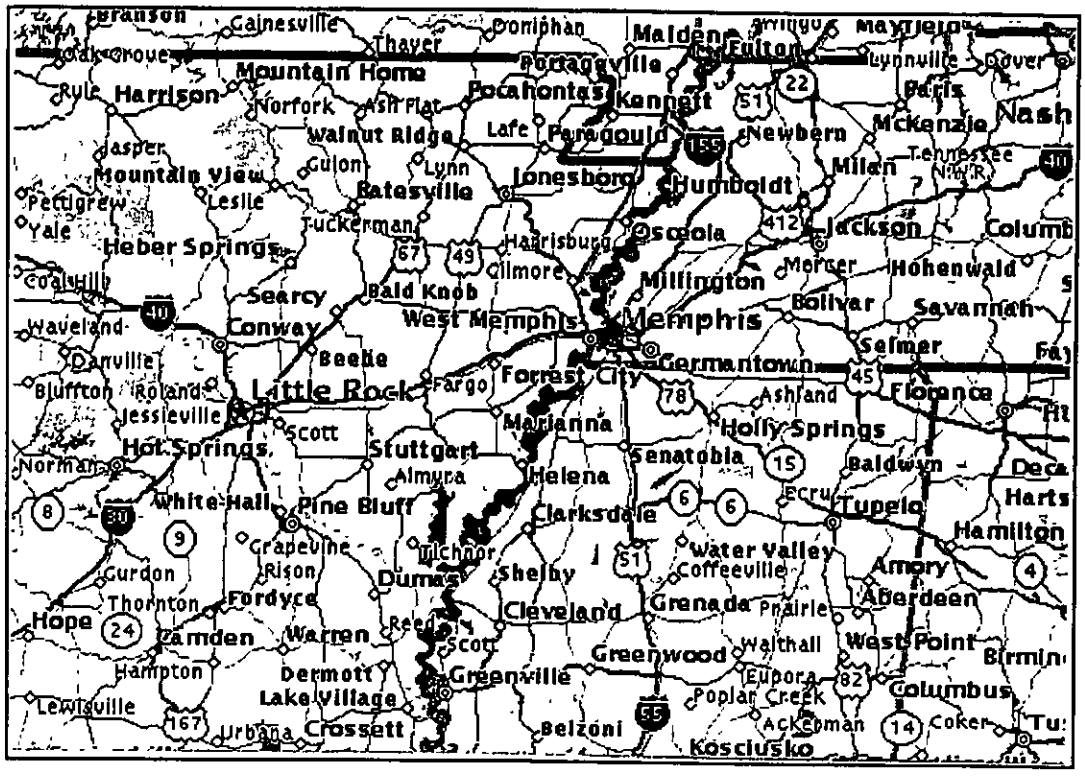
3. Site Characteristics

Dunn Field is located to the north of the Main Installation (north of Dunn Avenue) and was used in the past for bulk mineral storage and waste disposal. It was divided into four areas for the purpose of the EE/CA (Area A, B, C, and D [Figure 3]). Areas A and B are the only areas where CWM disposal was documented in the past. The majority of Areas A and B are covered with grass that is mowed regularly. Areas A and B are approximately 19 acres in size and the topography is characterized by flat to gently rolling slopes and hills.

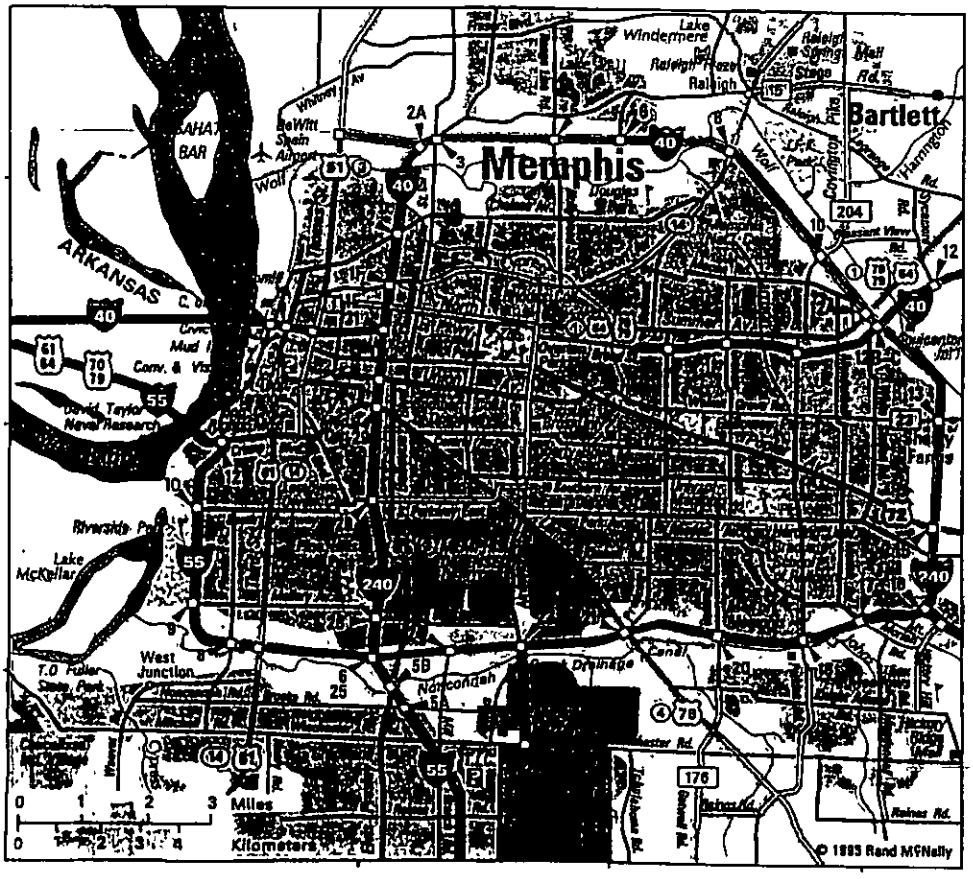
The Depot is currently under the ownership Department of Army and is operated by the Defense Logistics Agency. Dunn Field will be transferred to the ownership of the Depot Redevelopment Corporation or sold through public sale for reuse.

Figure 1
Site Location Map
Memphis Depot
Memphis, Tennessee

Regional Map



Local Map



4. Release or Threatened Release into the Environment of a Hazardous Substance, Pollutant, or Contaminant

Soil and groundwater samples were collected during the EE/CA for Dunn Field. Soil samples were collected between 0 and 15 foot depths. Groundwater samples were collected from six new wells installed directly downgradient of the suspected burial pits and two existing wells. 45 soil samples and eight groundwater samples were collected and analyzed. The following paragraphs describe the laboratory results from these samples.

Twenty-two metals were detected in site surface soil samples. Thallium was the only metal not detected out of those for which analysis was conducted. These detections are comparable to natural background conditions. Three explosive compounds were detected at trace levels in surface soils. These included 2,4,6-trinitrotoluene, HMX (octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazorine), and RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine). These compounds were detected in two samples. No CWM or breakdown products were detected in any surface soil samples.

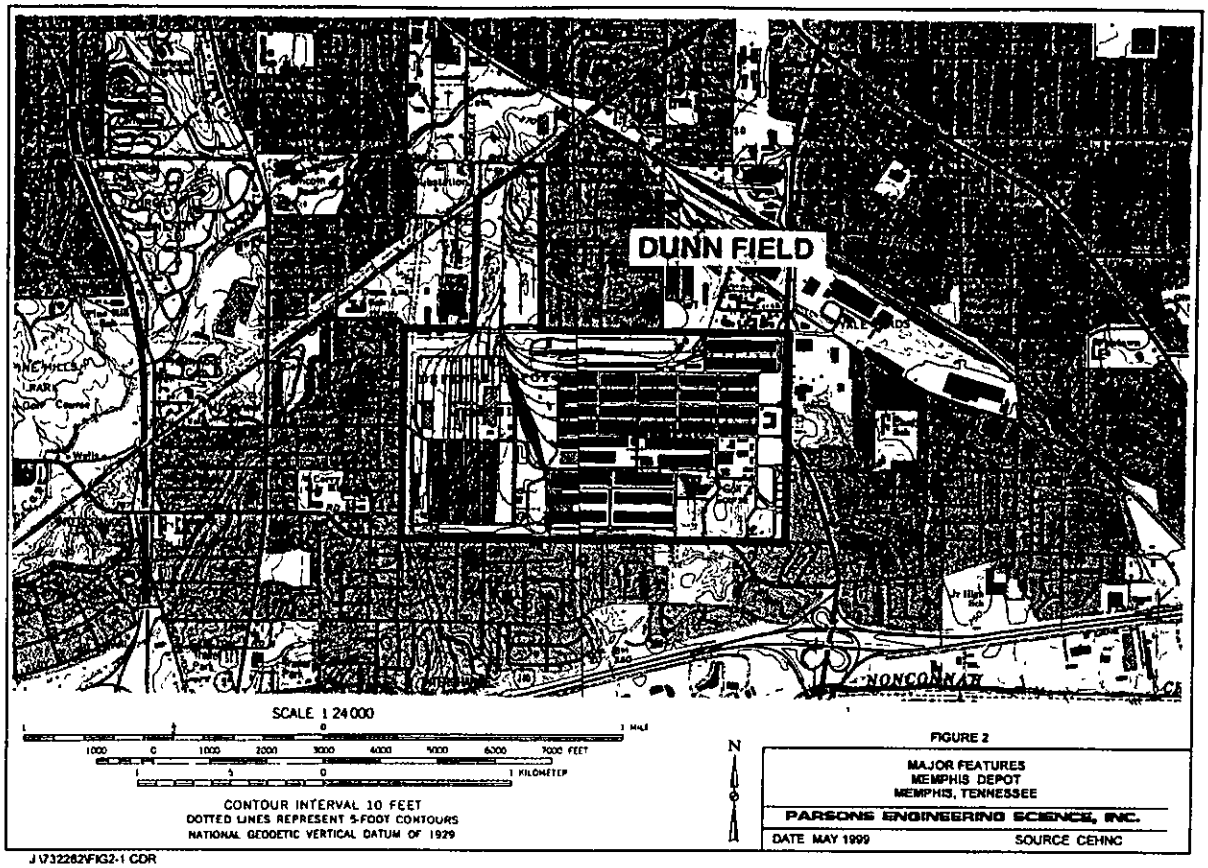
Twenty metals were detected in subsurface soil samples. These detections are comparable to natural background conditions. Of those metals analyzed, cadmium, silver, and thallium were the only metals not detected. Two explosive compounds were detected at trace levels in subsurface soils. These included 2,4,6-trinitrotoluene and RDX. The compound 2,4,6-trinitrotoluene was detected in three samples. RDX was detected in one sample. No CWM or breakdown products were detected in any of the subsurface soil samples.

Thirteen metals were detected in site groundwater samples collected from wells MW-56 to MW-61. These included: aluminum, antimony, arsenic, barium, chromium, cobalt, copper, iron, lead, manganese, nickel, vanadium, and zinc. These detections are comparable to natural background conditions. Due to the conservative nature of the data validation process, fourteen explosive compounds were estimated at the reporting limit in the sample from MW-56. These explosives may or may not have been present in the sample, but were certainly no higher than the reporting limit. These compounds were not detected in any other groundwater sample. No other constituents were detected in groundwater.

5. NPL Status

The Memphis Depot was placed on the National Priorities List (NPL) in October 1992, and must fulfill requirements under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Contingency Plan (NCP). The Depot is under the jurisdiction of the Tennessee Department of Environment and Conservation (TDEC) and EPA Region IV.

FIGURE 2. MEMPHIS DEPOT AREA



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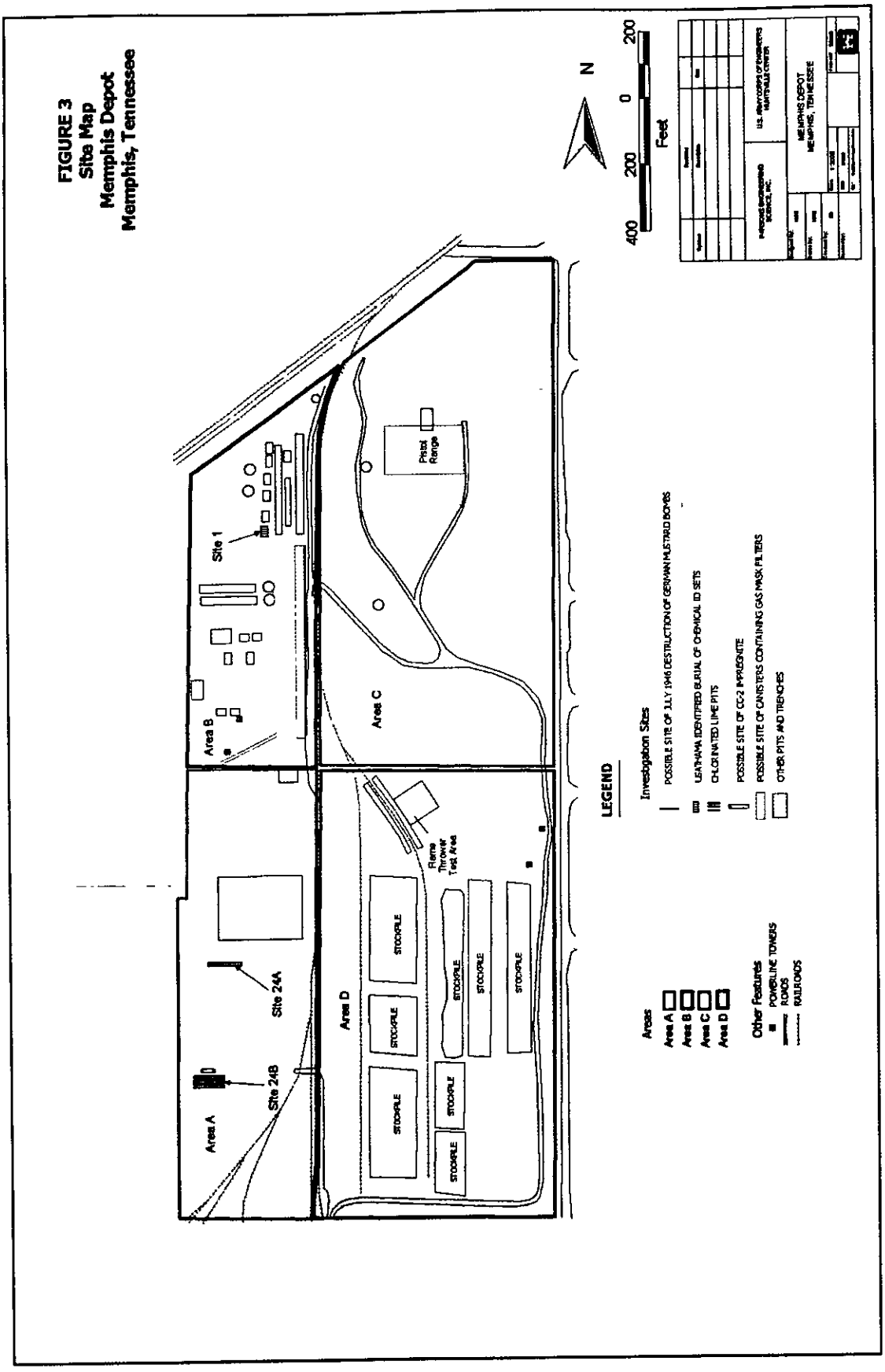


Figure 3. Site Map

A site wide Remedial Investigation and Feasibility Study (RI/FS) is currently being prepared for the Depot in accordance with CERCLA and NCP to evaluate human health and environmental risk, and to screen for potential remedial actions.

The proposed removal action outlined in this Action Memorandum, however, is proposed voluntarily by the Defense Logistics Agency to remove suspected CWM at Dunn Field to eliminate potential risks to human health and the environment and to facilitate property transfer. Further remedial action requirements for other sites on Dunn Field and other potential contaminants, if any, will be determined by a record of decision following the RI/FS. The proposed removal action will not preclude remedial actions, if any are required, for other environmental media or sites.

B. Other Actions

1. Previous Actions

No previous actions have been undertaken to address the suspected CWM at Dunn Field.

2. Current Actions

Currently, a Remedial Investigation at Dunn Field is in progress and a groundwater recovery system is in operation along the western and northern edges of Area B. However, these actions are unrelated to the CWM investigation.

III. Threats to Public Health, Welfare, or the Environment

A. Threats to Public Health or Welfare

A streamlined risk evaluation was conducted for the areas directly adjacent to suspected CWM burial pits. The risk evaluation included a human health risk evaluation (HHRE) and an ecological preliminary risk evaluation (PRE). Potential exposure for both current and future human receptors to groundwater and soil at Dunn Field was evaluated in the HHRE. Chemicals that were found in soil and groundwater samples were evaluated as potential risks to these human and ecological receptors. Constituents of Concern (COCs) identified from the HHRE included lead in surface soil (0-1 foot); lead, chromium, and iron in mixed surface and subsurface soil (0-11 feet); and nitrobenzene, aluminum, iron, and manganese in groundwater. Based on the risk analysis that indicated safe levels and the fact that these COCs are not CWM related, none were identified as COCs to be removed. Therefore, adverse effects to current and future human receptors resulting from exposure to site media are not expected to occur in the areas directly adjacent to the suspected CWM burial pits.

B. Threats to the Environment

An ecological PRE, including a site walk, a visual inspection, and soil screening, was conducted at Dunn Field. Chemical compounds in surface soil (0-1 foot) and mixed surface and subsurface soil (0-11 feet) were evaluated and the ecological site characterization indicated it is highly unlikely that wildlife populations would be sustained at Dunn Field or in the surrounding area. No significant impacts to ecological populations are expected from CWM or CWM byproducts in the areas directly adjacent to the suspected CWM burial pits.

IV. Endangerment Determination

Although soil or groundwater samples were not collected directly beneath or within the suspected CWM burial pits, it is assumed that CWM exists in these areas and they are, by definition, toxic to human and ecological receptors. These wastes will result in an unacceptable risk if left in place. Therefore, removal actions are necessary to reduce or eliminate the potential CWM risk posed by these wastes. The locations of the removal areas are shown on Figure 4.

V. Proposed Actions and Estimated Costs

A. Proposed Actions

Four alternatives were evaluated for the removal action at Dunn Field. These alternatives include:

- **Alternative 1** – No further action;
- **Alternative 2** – Institutional controls;
- **Alternative 3** – Capping; and
- **Alternative 4** – Excavation and Removal of CWM.

Alternatives were evaluated in terms of effectiveness, implementability, cost, and the following removal action goals and objectives:

- Reduce or eliminate any chemical risk posed by CWM that remains at Sites 1, 24A, and 24B in Dunn Field;
- Remove any OE found in the suspected CWM burial pits;
- Recommend a response that is consistent with the intended future land use of the site;
- Have a reasonable and acceptable cost; and
- Be implemented in an expedited manner to meet BRAC parcel transfer and leasing schedules.

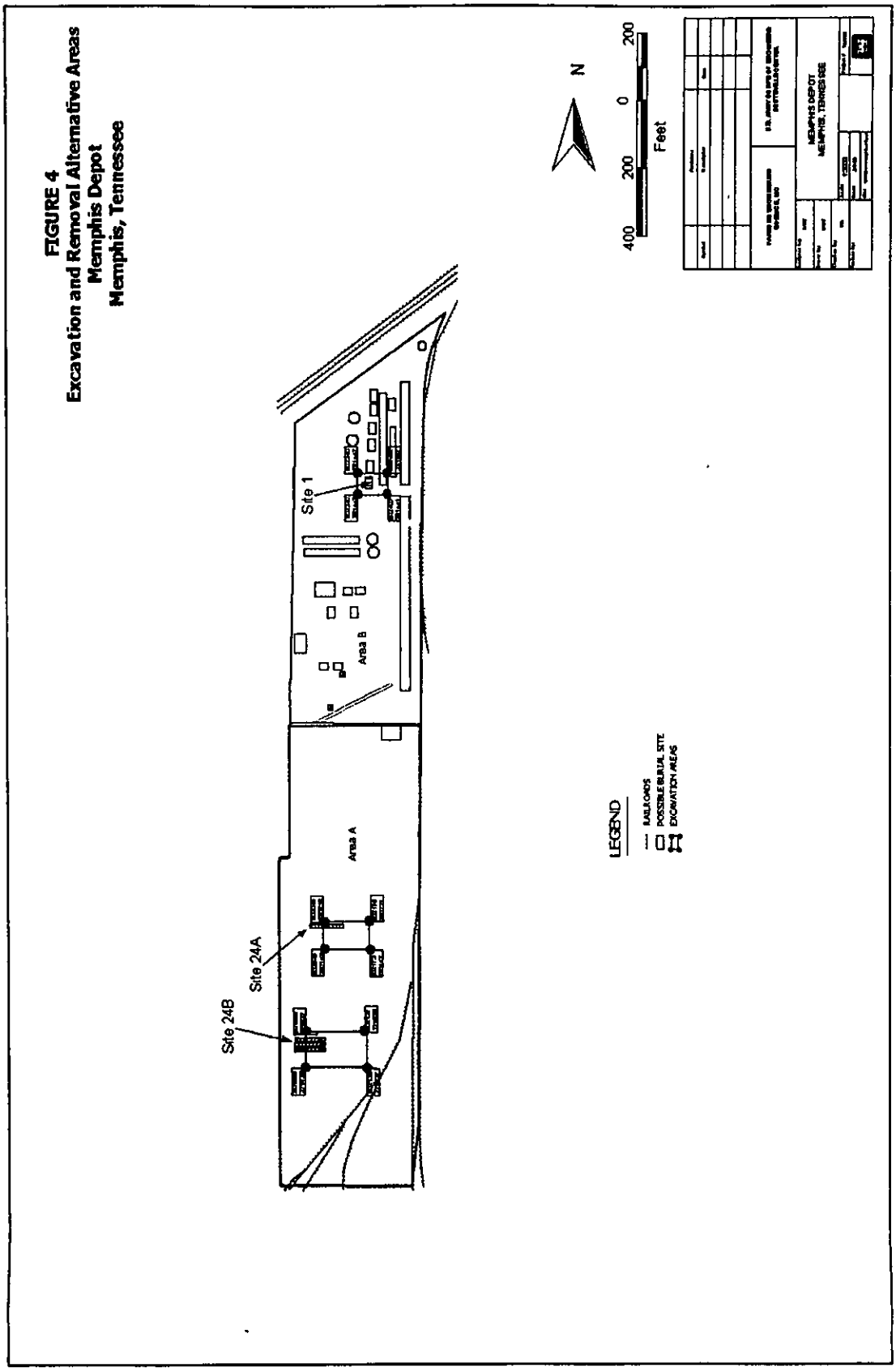
Alternative 4 is the only alternative that fully meets the removal action goals and objectives, including the Department of Defense Ammunition and Explosive Standard (DoD 6055.9).

1. Description of Proposed Action

The proposed action (Alternative 4) includes the following elements:

- Excavating and off-site disposal of the material contained in the three areas shown on Figure 4; and
- Confirmatory soil sampling.

- Figure 4. Excavation and Removal Alternative Areas



2. Contribution to Remedial Performance

The proposed removal action will remove the source of contamination (e.g., pit contents and contaminated soil) to the extent necessary to facilitate transfer of the property for further industrial or commercial reuse. It will also remove the potential risk of exposure to subsurface contamination in the areas of concern where such soils could present a hazard for future development or a potential source of groundwater contamination. Removal of the suspected CWM will support a No Further Action determination for Installation Restoration Program sites 1, 24A, and 24B.

3. Description of Alternative Technologies

On-site treatment of CWM contaminated soils was not evaluated due to the nature of the suspected contaminants and community issues. The objective of the removal action is to eliminate any potential exposure to CWM in the future. The proposed removal action, excavation and off-site disposal, may include either landfilling or treatment of contaminated soil at a regulator approved facility.

4. Engineering Evaluation/Cost Analysis (EE/CA)

The proposed removal action is based on removal action requirements and an alternatives evaluation documented in the *Engineering Evaluation/Cost Analysis (EE/CA), for the Removal of Chemical Warfare Materiel, Former Defense Distribution Depot, Memphis Tennessee,* dated June 1999, and information and decisions made subsequent to publication of that document. An information session/media day was held on September 19, 1998 in which the public and media were invited to a forum describing the findings of the field activities performed at Dunn Field and other areas of Memphis Depot. Approximately 40 citizens attended and concerns were mainly about the danger posed by CWM. A public notice/comment period on the EE/CA and the proposed removal action took place from June 10 to August 9, 1999. A public meeting to receive comments and a community information session were held on June 17, 1999. Approximately ten citizens attended this event. Appendix A, Responsiveness Summary, lists all comments made by the public during the 60-day public comment period and provides the agency's responses.

5. Applicable or Relevant and Appropriate Requirements (ARARs)

The following list of ARARs was developed on the basis of the proposed scope of work for the removal action and known or suspected conditions at the site:

- Contaminated soil and debris will be screened to determine if they are characterized as hazardous waste. Waste will be characterized as hazardous if the appropriate analysis determines that the wastes are reactive, ignitable, corrosive, or toxic as described in 40 CFR 261 Subpart D.
- Applicable Occupational Safety and Health Administration (OSHA) health and safety regulations will be followed during the removal operations. Workers performing the removal will be properly trained and under appropriate medical supervision. Appropriate personal protective equipment will be used and safe work practices will be followed.

- Water pollution control requirements of the federal Clean Water Act and National Pollutant Discharge Elimination System (NPDES) and applicable state and county requirements will be followed during all construction and decontamination operations.
- Applicable NCP requirements, including public comment period provisions, have been followed.

6. Project Schedule

The U.S. Army Engineering Support Center, Huntsville, has procured a contractor for CWM cleanup actions at Sites 1, 24A, and 24B. Current projections indicate that the work will begin during the spring of 2000. It is estimated that three to six months will be required to complete the removal action once the contractor is on-site.

B. Estimated Costs

The conceptual-level cost estimate for the proposed removal action ranges from $3.2 to $5.9 million. These costs are high and low estimates based on the amount of soil excavated and how it is characterized (i.e., CWM contaminated or HTRW contaminated). This cost estimate includes a direct capital cost (cost for transportation, and disposal) of $1.8 to $4.4 million and fixed costs (fees for subcontracts, travel and per diem and labor) of $1.4 million.

Conceptual-level cost estimates are order-of magnitude cost estimates made without detailed engineering data and include estimates of major cost components and quantities as well as typical costs from similar work. It is normally expected that estimates of this type would be accurate to within plus 50 percent to minus 30 percent. The actual cost will be determined upon the award and completion of the removal action to a contractor.

No long-term operations and maintenance costs were included in the cost estimate because contaminants will be removed and no cap systems, treatment systems, etc., will be required after the removal action is complete.

VI. Expected Change in the Situation Should Action Be Delayed or Not Taken

As long as suspected CWM remains in place at Dunn Field, there is a potential for exposure to the CWM in the burial pits and trenches and potential for migration of subsurface contaminants via infiltration and leaching of rainwater. However, recent sampling results indicate that migration of contaminants from the burial pits is not occurring. The Defense Logistics Agency can not absolutely prevent exposure to CWM after the property is transferred if the removal is not conducted.

VII. Outstanding Policy Issues

The work is being funded fully by the Defense Logistics Agency. No policy issues concerning cost sharing or EPA funding are involved for the removal action.

VIII. Enforcement

The proposed removal action is a non-time-critical removal action voluntarily being undertaken by the Defense Logistics Agency. It is not an enforcement action; however, review and oversight is provided by TDEC and EPA.

IX. Decision

This Action Memorandum represents the selected removal action for Sites 1, 24A, and 24B, in Areas A and B of Dunn Field, part of the former Defense Distribution Depot Memphis, Tennessee. The United States Army Corps of Engineers is the lead respondent under the Defense Environmental Restoration Program and the Defense Logistics Agency is the lead agency for actions under the USEPA Federal Facilities Agreement. This Action Memorandum was developed in accordance with CERCLA as amended, and consistent with the NCP. The Department of Defense Ammunition and Explosive Standard (DoD 6055.9) requires the action. The decision is based on the information in the administrative record for the site.

Conditions at the site meet the NCP section 300.415(b)(2) criteria for a removal action and I approve the proposed removal action.

J. W. KENNEY
Captain, SC, USN
Commander

Appendix A
Responsiveness Summary

Responsiveness Summary

Engineering Evaluation/Cost Analysis
Removal of Chemical Warfare Materiel
Dunn Field

Public comments on the environmental removal action proposed at the area of the Depot referred to as Dunn Field have been requested and received. The Defense Logistics Agency placed the Engineering Evaluation and Cost Analysis report that documents and recommends a cleanup alternative into the four Depot information repositories before June 10, 1999 when the 30-day public comment period began. A public meeting was held to describe the proposed action and solicit comment from the public on June 17, 1999. The comment period was eventually extended for 30 days until August 9, 1999. During that 60 day period, 15 comments were received by DLA from the public. All comments were received either verbally during the public comment meeting or in writing. There were no comments received during the 60-day period from the public through the telephone answering service set up for that purpose.

Of the 15 comments, 11 are directly applicable to the proposed action. Although the remaining 4 comments are not directly applicable to the proposed action, responses are provided in the following documentation. The comments and responses that are directly applicable are provided first, while the other general comments and responses are provided second.

DLA, as the lead agency performing this removal, requested and received assistance in developing these responses from the U.S. Army Corps of Engineers, the U.S. Army Technical Escort Unit, the Project Manager for Non-Stockpile Chemical Materiel, and UXB International. UXB is the removal contractor while the other agencies listed are U.S. Army agencies that are leaders in the field of chemical warfare materiel identification, handling, and disposal.

The following comments are directly applicable to the proposed action:

1. I concur with the chemical warfare materiel removal as presented.

2. I would like to be present when the digging starts.

Due to safety requirements, no visitors will be allowed within the containment structure when the excavation begins. The Depot will provide the public an opportunity to see the containment structure and air monitoring system before work begins. The contractor, UXB International, will use a video monitoring system to record all of the activities within the containment structure. Visitors may be able to periodically view the excavation through this video monitoring system by scheduling a visit through the Memphis Depot Caretaker Environmental Division at least 24 hours prior to the requested visit date. As UXB will tape hundreds of hours of video, the Depot will request a copy of a portion of the video that shows materiel being excavated. All video provided to the Depot will be available for public review in the Depot Community Outreach room.

3. When DLA starts excavating chemical warfare materiel, will they wear protective gear and if so, why?

Some workers will wear protective gear during the excavation of chemical warfare materiel. The Occupational Safety and Health Act (OSHA) requires that workers are protected from site hazards, for example wearing protective equipment when there is the potential for workers to come into contact with chemicals or other hazardous substances. Army regulations also require workers to wear the appropriate level of personal protective equipment according to potential site hazards. Workers inside the containment structure will wear protective gear that provides a higher level of protection than the protective gear workers immediately outside the containment structure must wear. Workers who will not be in or immediately outside the containment structure will not be required to wear the same level or type of personal protective equipment. It is anticipated that these surrounding workers will be in street clothing.

4. Will DLA evacuate the community or offer them protective gear to wear during excavation?

Army chemical warfare materiel experts feel there is no need to evacuate the community during this project. The Memphis/Shelby County Emergency Management Agency (EMA) is responsible for determining if, when and how to evacuate the community. The EMA current contingency plan is to notify the community via emergency sirens, public service announcements (televison and radio), and by telephone to remain in their homes, turn off all air conditioning/heating systems and close all windows. The Army experts and DLA feel that the need for the EMA to implement their contingency plan does not exist but will maintain a copy of that plan at the Depot. The EMA has been involved in the planning process and will be involved during the project to ensure the community is protected.

Army chemical warfare materiel experts have calculated that any chemical warfare materiel released would not reach the Dunn Field fenceline in the event that the vapor containment structure failed before mixing with enough air to make it non-hazardous. According to research into the chemical warfare materiel at Dunn Field, the bomb casings were used as containers for the transportation of the chemical agent mustard from Germany to the United States and were not set up to explode. Even with this information, the Depot requested that a tent-like vapor containment structure and an air filtration/monitoring system be used to contain any chemical release and provide greater assurance that the community will be protected from the excavation. Excavation activities will take place inside the vapor containment structure. Air leaving this structure will be filtered and monitored. All excavated materials that leave the site for disposal will be checked to make sure that they are not harmful and will be containerized to prevent any spills.

In the unlikely event a release is confirmed outside the containment structure, all work will stop and actions will begin to stop the source of the release. The EMA will be notified and shall determine if the contingency plan must be implemented. All work activities, processes and plans will be reevaluated before resuming work.

5. The community is concerned about the children. What will be the impact of this cleanup on the children?

This action will be taken to make sure that no future impacts occur to the children or adults in the neighborhood. Investigations into the chemical warfare materiel disposal locations show that none of the material has moved away from the original disposal locations. The cleanup activities will take place inside a vapor containment structure that is designed to keep any chemical warfare materiel vapors that may be released during the removal project inside the structure. All air leaving this structure will be filtered and monitored. All materials that leave the site will be checked to make sure that they are not harmful and will be containerized to prevent any spills.

6. In Spring Valley, was there any trouble removing the bombs? How do we know the company hired to remove these bombs will do a good job?

In May 1994, UXB International completed excavating chemical warfare materiels at Spring Valley and experienced no difficulties or problems. UXB was established in 1984 and has successfully completed more than 260 jobs involving unexploded ordnance, explosive ordnance, humanitarian demining, and the removal of chemical warfare materiel. Since 1984, UXB has maintained a record of no explosive-related incidents or accidents. Chemical warfare safety specialists from the U.S. Army Corps of Engineers Engineering and Support Center Huntsville's Ordnance and Explosives Center for Expertise will supervise UXB on this project. Several other professional agencies such as the U.S. Army Technical Escort Unit, the Edgewood Chemical Biological Center, and the Program Manager for Chemical Demilitarization/Project Manager for Non-Stockpile Chemical Materiel will assist UXB to ensure the project is completed with no problems. The most qualified, experienced organizations of their type in the world to perform these type of actions will be on site working during this action.

7. We should have received an emergency response plan a year ago. When will the emergency response plan be presented to the community? A plan should have been presented to the community way in advance from the time remediation starts. A clear, concise evacuation plan should be developed and the community should be able to get information on the plan from mailings, the Internet, radio and television.

The Memphis/Shelby County Emergency Management Agency (EMA) has an emergency plan in place that they will use. The Depot and the Army have included the EMA in all phases of the project and have requested a copy of this emergency plan to make available to the community. The Depot, EPA and TDEC have also requested the EMA plan be included in the Site Safety Submission, which must be approved by the Department of Army and the Department of Health and Human Services. The Depot will work closely with the EMA in providing the emergency plan to the community before work begins.

8. What are you going to do with these bombs and are they going to another community that will be a problem to another community?

Based on the review of historical documents and interviews with former employees relating to the burial of the bomb casings, the casings were drained, cleaned with a special mixture and crushed. Intact bomb casings containing the chemical warfare materiel mustard are not expected to be found; however, the U.S. Army Corps of Engineers, UXB International, U.S. Army Technical Escort Unit and the Program Manager for Chemical Demilitarization are prepared in the event intact casings containing mustard are found. Empty metal bomb casings will be handled as hazardous waste and disposed of through commercial hazardous waste contractors. If intact casings containing mustard are found, UXB will use a safe solution to make the mustard less hazardous and to clean the casings. This waste will then be handled as hazardous waste and disposed of through commercial hazardous waste contractors.

9. As cleanup proceeds, will this cleanup information be available on the Memphis Depot Internet site?

Yes.

10. Will a flight plan for the helicopter removing the material be made available to the public?

The transportation route will be published in the transportation plan portion of the Site Safety Submission, which when approved by the Department of Army and the Department of Health and Human Services will be available to the public. A dedicated military helicopter will transport the material by the most direct route that avoids densely populated areas and minimizes disruption to normal traffic activities. The transportation will be to the nearest chemical stockpile facility with the necessary permits to receive the materiel.

The following comments are not applicable to the proposed action:

11. I don't think enough evaluation of what's really at Dunn Field, particularly the area south and the area east of the pistol range. I don't know if these areas will be evaluated later, but I think we've got to expand the scope of the evaluation.

The chemical warfare materiel investigation and Engineering Evaluation/Cost Analysis focused on four sites that are potential disposal locations of chemical warfare materiels. This investigation did not look at non-chemical warfare materiel disposal locations on Dunn Field or the Main Installation. The non-chemical warfare materiel disposal locations are being investigated as part of the remedial investigation being performed by the Corps of Engineers and CH2M Hill. The remedial investigation evaluated the potential problems and risks at the non-chemical warfare materiel disposal locations and, if necessary, will evaluate possible cleanup alternatives. The remedial investigation reports for Dunn Field and the Main Installation will be available to the public by the spring of 2000.

12. Let the community know about the asbestos that was extracted. Promises were made to water down the site upon removal of Building 209.

The Depot has followed Occupational Safety and Health Act, Environmental Protection Agency and Memphis/Shelby County Health Department requirements regarding notification prior to asbestos abatement. The Depot and its contractors followed these same agencies' requirements regarding removing and controlling asbestos during abatement activities. Water was used during the removal of asbestos containing materials such as boiler insulation, roofing materials and floor tiles from Building 209 before the building was demolished.

13. Why is the community not informed about demolition of the buildings?

The Depot Redevelopment Corporation of Memphis and Shelby County is responsible for current and future demolition activities. Prior to the recent demolition of two buildings, an article ran in the Commercial Appeal. There is no requirement to notify the public prior to building demolition.

14. What percentage of black or minority participation will UXB have in the cleanup?

UXB International, Inc. currently has 29 minorities working on other cleanup projects out of a total workforce of XXX. Participation in the Depot's project will be determined by a person's experience, skills, qualifications and training necessary to complete the project safely and successfully. All qualified applicants are invited to apply for employment with UXB International, Inc. The other agency participating in the Depot's project, the U.S. Army Technical Escort Unit, current cleanup workforce consists of approximately 30 to 40% minorities.

15. You shouldn't hold meetings on the Depot because people don't like to come onto the Depot.

The Depot intends to hold public information sessions regarding the chemical warfare materiel removal project at a local junior high school. The Depot also intends to attend and provide information at local neighborhood association meetings.

TABLE E-1
ASBESTOS IDENTIFICATION SURVEY RESULTS

SUBPARCEL	BUILDING	FACILITY USE	YEAR CONSTRUCTED	RESULTS
1.4	139	Bus Stop/Waiting Shelter	1959	A
1.5	144	Office Space	1942	A
1.8	145	Main Security Office	1943	A
1.8	147	Switch Gear Station	1981	N
1.7	155	DEMOLISHED	1960	NA
2.1	176	Military Family Housing	1948	A
2.2	178	Garage	1948	A
2.3	179	Military Family Housing	1948	A
2.4	181	Military Family Housing	1948	A
2.5	183	Garage	1948	A
2.6	184	Military Family Housing	1948	A
3.5	194	Pool Pump House	1948	N
3.2	195	Golf Clubhouse	1949	A
3.3	196	Office Space	1952	A
3.5	197	Golf Cart Shed	1959	N
3.4	198	Cooler Shed	1959	A
14.2	209	DEMOLISHED	1942	NA
13.4	210	Warehouse/Office Space	1942	A
13.5	211	Generator/Uninterrupted Power Supply	1988	N
8.2	229	Warehouse Space	1942	A
8.3	230	Warehouse Space	1942	A
7.2	249	Warehouse Space	1942	A
6.2	250	Warehouse Space	1942	A
4.12	251	DEMOLISHED	1942	NA
4.1	252	DEMOLISHED	1942	NA
4.11	253	DEMOLISHED	1952	NA
4.6	254	DEMOLISHED	1944	NA
4.7	257	DEMOLISHED	1942	NA
4.4	260	Paint Shop	1952	A
4.8	263	Garage	1964	N
4.13	265	Shop Building	1942	A
4.9	267	DEMOLISHED	NA	NA
4.2	270	Engineering	1945	A
4.3	271	Former Golf Pro Shop	1958	A
5.1	272	Lumber Shed	1942	N
5.2	274	Cafeteria	1989	A
5	275	DEMOLISHED	NA	NA
15.6	304	Electric Switchgear	NI	N
15.2	308	Warehouse/Storage	1944	A

TABLE E-1
ASBESTOS IDENTIFICATION SURVEY RESULTS

SUBPARCEL	BUILDING	FACILITY USE	YEAR CONSTRUCTED	RESULTS
15.6	309	Warehouse/Storage	1944	A
15.3	319	Warehouse/Storage	1942	A
8.4	329	Warehouse Space	1942	A
8.5	330	Warehouse Space	1942	A
6.3	349	Warehouse Space	1942	A
6.4	350	Warehouse Space	1942	A
17.3	359	DEMOLISHED	1942	NA
3.5	398	Restroom	1962	A
15.6	T416	Storage	1943	A
15.6	T417	Storage	1943	A
9.2	429	Warehouse Space	1942	A
9.3	430	Warehouse Space	1942	A
9.4	449	Warehouse Space	1942	A
9.5	450	Warehouse Space	1942	A
19.2	465	Forklift Wash Rack (Shop Building)	1984	N
19.1	468	Warehouse/Storage	1960	N
19.3	469	Maintenance Shop	1960	N
20.3	470	Warehouse Space	1954	A
20.4	489	Warehouse Space	1954	A
21.2	490	Warehouse Space	1954	A
11.2	529	Warehouse Space	1942	A
11.3	530	Warehouse Space	1942	A
10.4	549	Warehouse Space	1942	A
10.5	550	Warehouse Space	1942	A
16.2	559	DEMOLISHED	1942	NA
18.1	560	Warehouse Space	1990	N
12.2	629	Warehouse Space	1942	A
11.4	630	Warehouse Space	1942	A
10.1	649	Warehouse Space	1953	A
10.6	650	Warehouse Space	1942	A
20.2	670	Warehouse Space	1953	A
21.4	685	Shipping Office	1985	A
21.3	689	Warehouse Space	1953	A
21.1	690	Warehouse/Shipping	1953	A
15.4	702	DEMOLISHED	NA	NA
15.6	717	Ice House/Public Restroom	1951	A
33.9	720	Maintenance Shop	1942	A
33.9	737	Pesticide Storage	1961	A
33.10	753	Fire Pump House	1956	A

TABLE E-1
ASBESTOS IDENTIFICATION SURVEY RESULTS

603 250

SUBPARCEL	BUILDING	FACILITY USE	YEAR CONSTRUCTED	RESULTS
33.3	755	San. Sewer Pump Station	1953	A
33.4	756	Fire Pump House	NI	A
24.3	770	Base Maintenance Shop	1952	A
24.3	771	Restroom/Storage Space	1945	A
23.7	783	Underground Bunker (Shop Space)	1942	A
23.3	787	Warehouse (Banding Facility)	1988	N
23.8	793	Underground Bunker (Shop Space)	1942	N
23	795	Gate B Guard Shelter	1974	N
29.2	801	FE Storage Shop	1956	A
29.2	802	Waiting Shelter	1981	N
32.2	835	Hazardous Materials Warehouse	1988	N
33.5	860	Office	1944	A
33.8	863	Office	1943	A
32.3	865	Hazardous Recoup Facility	1988	N
25.1	873	Open Storage	1942	A
25.2	875	Open Storage	1942	A
26.2	970	Open Storage	1942	A
27.2	972	Open Storage	1942	A
35.2	1084	DEMOLISHED	1953	NA
35.2	1085	Abandoned Concrete Grease Rack	NI	N
35.3	1086	Paint Shed	1959	N
35.4	1087	Paint Booth	1952	A
35.4	1088	Sand Blasting Shed	1953	N
35.1	1090	Paint Storage Warehouse	1952	A
35.5	1091	Paint Storage Warehouse	1953	A
36.14	1184	Storage Building	1956	N
36.14	1185	Firing Range	NI	N
1.1	1	Guard Station	1959	A
1.2	2	Guard Station	1958	A
23.1	7	Guard Station	NI	N
23.2	8	Guard Station	1969	A
29.1	9	Communication/ Restroom	1946	A
15.1	15	Guard Station	1979	A
14.1	22	Guard Station	1942	A
13.1	23	Guard Station	1942	A
13.2	24	Guard Station	1961	N
13.3	25	Guard Station	1961	N
Buildings not included in the Asbestos Identification Survey				
1.3	129	Waiting Shelter	1980	A(P)

TABLE E-1
ASBESTOS IDENTIFICATION SURVEY RESULTS

SUBPARCEL	BUILDING	FACILITY USE	YEAR CONSTRUCTED	RESULTS
4 7	256	DEMOLISHED	1943	NA
4.5	261	Vehicle Storage	1994	A(P)
4.10	273	Shed	1942	A(P)
34.1	360	Warehouse	1996	A(P)
17.2	459	DEMOLISHED	1990	NA
19.1	467	DEMOLISHED	1987	NA
25.2	874	Sewage Pump Station	1949	A(P)
30.4	949	Open Warehouse Facility	1987	NA
23.5	995	Metal Handling	1985	NA
28.2	1089	General Purpose Warehouse	1960	A(P)

Notes:

A: ACM test results positive

A(P): ACM possible based on the year of construction

ACM: Asbestos-containing materials

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 (Building was built after survey or has been demolished since survey).

ADMINISTRATIVE RECORD INDEX

Document	Year	Author
Installation Assessment of Defense Depot Memphis, Tennessee Report No. 191	1981	U.S. Army Toxic and Hazardous Materials Agency
Geohydrologic Study No. 38-26-0195-83	1982	U.S. Army Environmental Hygiene Agency
Environmental Audit No. 43-21-1387-86	1985	U.S. Army Environmental Hygiene Agency
Water Quality Biological Study No. 32-0733-86, Investigation of Fire Reservoir	1986	U.S. Army Environmental Hygiene Agency
Ground Water Consultation No. 38-26-0815-87, Collection and Analysis of Ground Water Samples	1986	U.S. Army Environmental Hygiene Agency
Remedial Investigation Final Report and Appendices	1990	Law Environmental, Inc.
Feasibility Study Final Report Law Environmental, Inc.	1990	Law Environmental, Inc.
Pumping Test Technical Memorandum	1992	Engineering-Science, Inc.
Final Focused Feasibility Study: Dunn Field	1994	Engineering-Science, Inc.
Environmental Assessment, Removal Action for Groundwater	1994	Engineering-Science, Inc.
Final Proposed Groundwater Action Plan	1994	CH2M Hill
Groundwater Monitoring Results Report for Defense Depot Memphis, Tennessee, Volumes 1 through 9	1994	Environmental Science & Engineering Inc.
Ordnance and Explosive Waste Chemical Warfare Materiels, Archives Search Report for Memphis Defense Depot	1995	U. S. Army Corps of Engineers - St. Louis
Federal Facilities Agreement	1995	Environmental Protection Agency, Tennessee Department of Environment and Conservation, and Defense Depot Memphis, Tennessee
Sediment Sampling Analysis Report	1996	U.S. Army Space and Strategic Defense Command and Earth Tech, Inc.
Record of Decision for Interim Remedial Action of the Groundwater at Dunn Field (OU-1) at the Defense Distribution Depot Memphis, Tennessee	1996	U.S. Army Corps of Engineers and CH2M Hill
Concurrence Letters for the Record of Decision on the Interim Remedial Action for Groundwater at Dunn Field	1996	Environmental Protection Agency and the Tennessee Department of Environment and Conservation.
Interim Remedial Action for Groundwater at Dunn Field	1996	U.S. Army Corps of Engineers and CH2M Hill
Environmental Baseline Survey	1996	Woodward-Clyde, Inc.

ADMINISTRATIVE RECORD INDEX

Document	Year	Author
Final Baseline Risk Assessment for Golf Course Impoundments	1999	U.S. Army Corps of Engineers and Radian International
BRAC Cleanup Team (BCT) Meeting Minutes	1996 until Present	Memphis Depot Caretaker and CH2M Hill
Revised BRAC Parcel Summary Reports	1998	U.S. Army Corps of Engineers and CH2M Hill
Final Background Sampling Program Report	1998	U.S. Army Corps of Engineers and CH2M Hill
Final Preliminary Risk Evaluation	1998	U.S. Army Corps of Engineers and CH2M Hill
Final Remedial Investigation Sites Letter Reports	1998	U.S. Army Corps of Engineers and CH2M Hill
Final Screening Sites Letter Reports	1998	U.S. Army Corps of Engineers and CH2M Hill
Final Streamlined Risk Assessment Parcel 3 Technical Memorandum	1999	U.S. Army Corps of Engineers and CH2M Hill
Post Removal Report, Family Housing Area, Memphis Depot, Tennessee, Volumes I and II	1999	U.S. Army Corps of Engineers Mobile and OHM/IT Remediation Services Inc.,
Post Removal Report, Cafeteria Building, Memphis Depot, Tennessee	1999	U.S. Army Corps of Engineers Mobile and OHM/IT Remediation Services Inc.,
Final Engineering Evaluation and Cost Analysis (EE/CA), Old Paint Shop and Maintenance Area, Parcels 35 and 28	1999	U.S. Army Engineering Support Center Huntsville and CH2M Hill
Final Engineering Evaluation and Cost Analysis (EE/CA) for the Removal of Chemical Warfare Materiel, Former Defense Distribution Depot Memphis, Tennessee and Addendum 1	1999	U.S. Army Corps of Engineers Mobile and Parsons Environmental Science, Inc.
Final Community Relations Plan for the Memphis Depot	1999	Memphis Depot Caretaker and Frontline Corporate Communications
Interim Remedial Action Groundwater Extraction System, Project Documentation, Volumes I and II	1999	Memphis Depot Caretaker, U.S. Army Corps of Engineers Mobile District and OHM Remediation Services Corp.
Action Memorandum for Removal Action at Parcels 35 and 28	1999	Memphis Depot Caretaker, U.S. Army Engineering and Support Center Huntsville, AL, and CH2M Hill
Action Memorandum for Removal of Chemical Warfare Materiel, Parcel 36	2000	Memphis Depot Caretaker, U.S. Army Engineering and Support Center Huntsville, AL, and Parsons Environmental Science, Inc.

ADMINISTRATIVE RECORD INDEX

Document	Year	Author
Main Installation Remedial Investigation Report	2000	U.S. Army Engineering and Support Center Huntsville, AL, and CH2M Hill
Main Installation Feasibility Study for Groundwater	2000	U.S. Army Engineering and Support Center Huntsville, AL, and CH2M Hill
Main Installation Feasibility Study for Soils	2000	U.S. Army Engineering and Support Center Huntsville, AL, and CH2M Hill
Main Installation Proposed Plan	2000	U.S. Army Engineering and Support Center Huntsville, AL, and CH2M Hill
Project Closure Report, Removal Action at Parcel 28/35, Old Paint Shop and Maintenance Area	2000	U.S. Army Corps of Engineers, Mobile, AL, and Jacobs/Sverdrup Engineering Group

Cooper Denise (DDMT)

m:	HokieTrout@aol.com
t:	Wednesday, September 13, 2000 11:53 AM
To:	ballard.turpin@epa gov; jmorrison2@mail.state.tn.us; dcooper@ddc dla.mil
Cc:	JohnPDB@aol.com; debackjp@acq.osd.mil
Subject:	FYI, Parcel 2.7 and 2.8

Gentlemen,
I have had a conversation with the Army regarding my redesignation of about a
two acre portion of Parcel 3.5 as a new Parcel 2.8. Please refer to my letter dated August 23, 2000, that designated this area as Parcel 2.8. This
is the area south of the housing units that is required by the transferee for
city road frontage and the area that Dr.'s Simon and Mylavarapu did an exposure point calculation regarding.

Designating this as a new parcel was one approach, however it makes more

sense to include this area in the current parcel 2.7. These contiguous properties are still part of a single real estate transfer. Accordingly, I
will change the boundary of parcel 2.7 to include the southern property discussed above. I will also designate this expanded parcel as ECP category
4 (areas where releases occurred, but all remedial actions have been taken),
which is appropriate. Denise will merely note in the BCP tables describing
the environmental actions taken on the parcel that only the northern portion
underwent the 1998 soil removal.

There will be no further correspondence from me on this unless either Jim or
Turpin require it. Please attach this email to my August 23 letter to amend
that letter.

Thanks, Shawn

DEFENSE LOGISTICS AGENCY
DEFENSE DEPOT SUSQUEHANNA, PENNSYLVANIA
MEMPHIS DEPOT CARETAKER DIVISION
2163 AIRWAYS BOULEVARD
MEMPHIS, TENNESSEE 38114-5210

IN REPLY REFER TO DDSP-F

August 23, 2000

Mr. Turpin Ballard
Environmental Protection Agency, Region IV
Office of Solid Waste
Federal Facilities Branch
61 Forsyth Street, SW
Atlanta, GA 30303

Dear Mr Ballard.

This letter is to notify you of our intent to designate a 2-acre plot south of Parcel 2 (Housing Area) as a separate BRAC parcel. This plot is currently included in Parcel 3.5. This is a necessary step to the Department of Defense making this plot available to the Depot Redevelopment Corporation for an entrance roadway from Ball Road to the Housing Area. This project was discussed at the July 2000 BRAC Cleanup Team meeting.

This plot will be redesignated Parcel 2.8. This plot will be established and defined in the upcoming BRAC Cleanup Plan Version 4. The Location of MDRA and BRAC Parcels map (Figure 1-3) and the Environmental Condition of Property Main Installation map (Figure 3-5) will also be updated to reflect this change.

For more information, please contact me at (901) 544-0617.

Sincerely,

SHAWN PHILLIPS
BRAC Environmental Coordinator

cc:
John DeBack, DDSP-F
Mike Dobbs, DDC
Jim Covington, DRC

DEFENSE LOGISTICS AGENCY
DEFENSE DEPOT SUSQUEHANNA, PENNSYLVANIA
MEMPHIS DEPOT CARETAKER DIVISION
2163 AIRWAYS BOULEVARD
MEMPHIS, TENNESSEE 38114-5210

IN REPLY REFER TO DDSP-F

August 23, 2000

Mr. James Morrison
Tennessee Department of Environment and Conservation
Memphis Field Office
Division of Superfund
2510 Mt. Moriah Road, Suite E645
Memphis, TN 38115-1520

Dear Mr. Morrison:

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SHAWN PHILLIPS
BRAC Environmental Coordinator

cc:
John DeBack, DDSP-F
Mike Dobbs, DDC
Jim Covington, DRC

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE