883 264B
File: 541.460.000n
M.D.

THE MEMPHIS DEPOT
TENNESSEE

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 882

Part II of II

Record of Decision

for Interim Remedial Action

of the

Groundwater at Dunn Field (OU-1)

at the

Defense Distribution Depot
Memphis, Tennessee

April 1996

Executive Summary

This Record of Decision (ROD) presents the selected interim remedial action (IRA) for DDMT in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). In 1992, after receiving a Hazard Ranking System (HRS) score of 58.06, DDMT was placed on the National Priorities List by the Environmental Protection Agency. The selected IRA provides for hydraulic control of a contaminant plume in groundwater beneath Dunn Field. Contaminants identified as those of potential concern include volatile organic compounds, such as solvents used for cleaning mechanical parts, and metals. It is not intended as a permanent solution; however, it is intended to be compatible with the final remedy.

DDMT and the involved regulatory agencies have been working to inform the community about activities involved with the site since 1992 through press releases, mailings, newspaper ads, and public meetings.

Eight alternatives, each consisting of groundwater extraction, groundwater treatment, and disposal components, were evaluated. The alternative chosen as the preferred alternative consists of extraction on/offsite and discharge to a publicly owned treatment works (POTW). This alternative assumes that pretreatment will not be necessary before treatment at the POTW. If, however, chemical analyses indicate that pretreatment is necessary, a pretreatment provision is part of the contingency remedy.

1.1 Site Name and Location

Defense Depot Memphis, Tennessee (DDMT)
Memphis, Shelby County, Tennessee

1.2 Statement of Basis and Purpose

This decision document (Record of Decision [ROD]) presents the selected interim remedial action (IRA) for the DDMT site, Memphis, Tennessee, developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), 42 U.S.C. Section 9601 *et seq.*, and to the extent practicable, the National Oil and Hazardous Pollution Contingency Plan (NCP) 40 *Code of Federal Regulations* (CFR) Part 300.The DDMT is the lead agency for the remedial investigation/feasibility study (RI/FS) process for the site. The U.S. Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC) are the supporting regulatory agencies for the site. In accordance with 40 CFR 300.430, the regulatory agencies have provided input during this process. The regulatory agencies are provided with a draft IRA ROD for review and their comments are incorporated into the final document. The U.S. EPA and the State of Tennessee concur with the selected interim remedy.

1.3 Assessment of the Site

Actual or threatened releases of hazardous substances from the DDMT site, if not addressed by implementing the IRA selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, and the environment.

1.4 Description of Interim Remedial Action

This IRA provides for hydraulic control of a contaminant plume in groundwater beneath Dunn Field (also called OU-1). Because the contaminated Fluvial Aquifer poses a potential threat to the deeper Memphis Sand Aquifer, it is considered as a potential threat to human health and the environment. Thus, the groundwater IRA is designed to provide a quick, interim response measure that will help prevent the possible contamination of the area's drinking water supply. As a contingency remedy, the IRA also includes a provision for pretreatment if necessary. As described in the IRA Proposed Plan contained in the Administrative Record, follow-on activities include monitoring the groundwater plume and its response to the IRA. Once the plume has been fully characterized, subsequent action may be taken to provide long-term definitive protection, including remediation of source areas. To the extent possible, the interim action will not be inconsistent with, nor preclude implementation of, the expected final remedy. RI/FS activities at OU-2, OU-3, and OU-4 will address contamination found within the southwestern quadrant, southeastern watershed and golf course, and northern portions of the Main Installation, respectively.

This IRA addresses only Dunn Field. OU-2, OU-3, and OU-4 will be addressed in the remedial documents for those OUs.

The major components of the selected IRA for OU-1 include the following:

- Evaluation of aquifer characteristics which may include installation of a pump test well
- Installation of additional monitoring wells to locate the western edge of the groundwater plume
- Installation of recovery wells along the leading edge of the plume
- Obtaining discharge permit for disposal of recovered groundwater to the T. E. Maxson Wastewater Treatment Plant publicly owned treatment works (POTW) or municipal sewer system
- Operation of the system of recovery wells until the risk associated with the contaminants is reduced to acceptable levels or until the final remedy is in place
- Chemical analysis will be conducted to monitor the quality of the discharge in accordance with the city discharge permit requirements; the permit will include parameters to be monitored and frequency.

1.5 Declaration

This interim action is protective of human health and the environment, complies with federal and state requirements that are legally applicable or relevant and appropriate, and is cost-effective. This action is interim; it is not intended as a permanent or final remedy. However, it is intended to be compatible with the permanent solution. It is not intended to be the permanent solution, and uses alternative treatment technologies to the maximum extent practical for this interim response. Because this action does not constitute the final remedy for this OU, the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volumes as a principal element has not been entirely accommodated and will be addressed at the time of the final response action. Subsequent actions are planned to address fully the threats posed by the conditions at this OU. Because this remedy will result in hazardous substances remaining onsite above health-based levels, a review will be conducted to ensure that the remedy continues to provide adequate protection of human health and the environment within 5 years after the commencement of this remedial action. Because this is an interim action ROD, review of the remedy will be ongoing as DDMT continues to develop the final remedial action for OU-1.

Chl EKartman — April 9, 1996

CHRISTINE E. KARTMAN
Chief, Environmental Protection and Safety Office

Date

Action Memorandum

Old Paint Shop and Maintenance Area, Parcels 35 and 28 Former Defense Distribution Depot Memphis, Tennessee

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

September 1999

ACTION MEMORANDUM

Old Paint Shop and Maintenance Area

Parcels 35 and 28

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 29, 32, 88, 89

I. Purpose

The purpose of this Action Memorandum is to document approval of the proposed removal action described herein for the paint shop and maintenance area at the former Defense Distribution Depot Memphis, Tennessee (Memphis Depot or Depot) located along 2163 Airways Boulevard, Memphis, Tennessee 38114. The Depot is in Shelby County.

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 facilitate assessment of the environmental condition of the property and to determine if it can be transferred from government ownership for private- or public-sector uses.

BRAC Parcels 35 and 28, located at the southwestern corner of the Depot, contain the former maintenance shop, grease rack, sandblast, paint shop, and storage facilities. The Depot Redevelopment Corporation plans to develop the area as part of BRAC activities for future commercial and industrial uses.

Chemical contamination identified in Parcel 35 and the southern portion of Parcel 28 primarily consists of contaminated surface soil, residue, and sediment remaining from past operations in the area. Historical information, on-site inspection, and the results of surface soil sampling from the parcels suggest that the following removal actions will be conducive to permit transfer of the parcels for the planned future reuse.

- Remove residue, dust, and sediment that have accumulated in buildings associated with past operations;

- Remove areas of contaminated surface soil identified by surface soil sampling inside the perimeter fence of the Main Installation; and
- Remove potentially contaminated soil related to a sump and underground storage tank (UST) locations at the former maintenance shop and grease rack facilities.

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. 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 groceries or convenience stores that serve their immediate neighborhoods.

The Depot is surrounded by residential development, including single- and multiple-family residences. Numerous small church buildings and schools are located throughout the area.

3. Site Characteristics

Parcels 35 and 28 are located in the southwestern corner of the Depot (Figure 2). Approximately 7.5 acres of the 12-acre area contained in Parcels 35 and 28 are located within the perimeter fence surrounding the Main Installation (Figure 3). This area was industrial where maintenance and repair activities were undertaken. Except for the grassy area at its southern end, this portion of Parcels 35 and 28 consists of industrial buildings, concrete and asphalt pavements, and gravel surfacing.

Facilities within the Main Installation perimeter fence at this industrial area include:

- Building 1084 – A former maintenance shop, which also was used as a wood shop and a pesticide storage area;

- Building 1085 – A concrete slab from a former grease rack;
- Building 1086 – An industrial building formerly used as a preparation area, paint shop, and storage area;
- Building 1087 – An industrial building formerly used as a paint shop;
- Building 1088 – An industrial building with a former sandblast facility;
- Building 1089 – A partially enclosed warehouse where some sandblasting occurred; and
- Buildings 1090 and 1091 – Small Quonset huts formerly used to store paint and other supplies for paint shop operations.

The remaining 4.5 acres of Parcels 35 and 28 are located outside the perimeter fence. This area is a grassed utility corridor, which provides a buffer zone between the Main Installation perimeter fence and Perry Road.

The Depot is currently under the ownership of the Army and operational control of the Defense Logistics Agency. Parcels 35 and 28 will be transferred to the ownership of the Depot Redevelopment Corporation for reuse.

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

Surface soil samples (zero to 12 inches in depth) within the Main Installation perimeter fence at the industrial area have a variety of contaminants associated with the former functions of the area. The most frequently detected constituents were metals (copper, cadmium, lead, mercury, nickel, and zinc). Polycyclic aromatic hydrocarbons (PAHs) (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and phenanthrene) were also detected in significant quantities. In addition, the samples contained sparse concentrations of volatile organic compounds (VOCs) (acetone, methylene chloride, methyl ethyl ketone, and toluene); phthalates (bis(2-ethylhexyl)phthalate and di-n-butylphthalate); and pesticides (p,p'-DDE, p,p'-DDT, and dieldrin). The concentrations were distributed throughout the parcels and were not concentrated in a particular area.

Concentrations of PAHs and lead exceeding U.S. Environmental Protection Agency (EPA) Region III risk-based criteria for residential land use were detected in samples along Perry Road, within the utility corridor west of the Main Installation perimeter fence. PAHs and lead are common constituents of exhaust gases from motor vehicles. Concentrations of PAHs and lead from near-road samples adjacent to the paint spraying and sandblasting operations are elevated relative to other samples near the road but away from these operations. Therefore, although these constituents are commonly associated with burning of gasoline, it is possible that they are also associated with the paint spray and sandblasting operations. During the early stages of the removal action, additional sampling will be performed to determine if the lead and PAH in surface soil within Parcels 35 and 28 have been transported across the utility corridor toward Perry Road.

All of the industrial buildings within the fenced industrial area contain dust, residue, and sediment from their past operations. Although sampling has been minimal within the buildings, it is anticipated that constituents within the buildings will be similar to those

detected in the adjacent graveled areas. A 1993 survey of asbestos-containing materials (ACM) at the Depot identified the presence of asbestos-containing roof flashing materials on Building 1084 and asbestos-containing insulation for the heating system in Building 1087. Buildings 1086, 1087, 1088, and 1089 contained sandblast and/or paint booth facilities where lead-based paint residue may be present. Noticeable areas of scaling or peeling paint also are present in some buildings.

In addition, there are two subsurface areas within the fenced industrial area where known or suspected sources of contamination are present. The first area is the former underground storage tank (UST) location associated with the former grease rack, Building 1085. The UST, which was removed in 1989, contained waste oil, and also may have contained various other liquids containing petroleum hydrocarbons, pesticides, polychlorinated biphenyls (PCBs), and metals.

The second area is a gravel-filled sump beneath Building 1084 that drained a former maintenance pit. Potential contaminants in this area include petroleum hydrocarbons, solvents, and metals associated with the maintenance operations.

The potential release mechanisms for surface and near-surface contamination include transport of contaminated surface soil or residues by surface water runoff, off-site tracking of contaminated surface soil or residues by vehicles or personnel operating in the area, and suspension and migration of contamination as dust. There is also a potential for downward migration of contaminants from the previous UST and underground sump locations. The likely exposures to these potential release mechanisms are from dermal contact or ingestion by an on site worker. Exposure to dust from the suspension and migration of contamination is most likely when the site becomes disturbed during construction.

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.

A sitewide 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.

Proposed removal actions outlined in this Action Memorandum, however, are actions the Memphis Depot decided to voluntarily pursue to remove readily accessible chemical contamination in Parcels 35 and 28 to facilitate property transfer. Further remedial action requirements, if any, will be determined by a record of decision following the RI/FS. The proposed removal actions will not preclude remedial actions, if any are required, for other environmental media.

B. Other Actions

1. Previous Actions

UST records at the Depot indicate that removal of a 1,000-gallon underground waste oil tank and in-place closure of the underground hydraulic fluid tank for the former hydraulic lift, were done in 1989 by the Memphis District, U.S. Army Corps of Engineers. No records of how the tanks were removed or closed are available. Observations of the vertical inlet pipe for the hydraulic fluid tank, however, suggest that the UST was closed by filling it with sand, a common practice at that time. However, this has not been confirmed.

2. Current Actions

No operational or remedial actions are currently ongoing in the vicinity of Parcels 35 and 28.

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

A. Threats to Public Health or Welfare

The expected land use of the area of Parcels 35 and 28 located within the Main Installation perimeter fence is industrial and commercial. Employees working within the industrial area of Parcels 35 and 28 will be the primary individuals encountering contamination within the area.

No risk assessment was conducted for the area. Instead, detected contaminant concentrations in Parcels 35 and 28 were compared with industrial screening criteria based on background concentrations, BRAC Cleanup Team (BCT) screening values, and EPA Region III risk-based concentrations (RBCs) corresponding to a Hazard Index (HI) of 1.0 and updated to current (October 1998) values. Contaminants that exceeded the industrial screening criteria were aluminum, antimony, arsenic, benzo(a)pyrene, iron, lead, and phenanthrene. Of these, arsenic and benzo(a)pyrene are carcinogens. The remaining contaminants are noncarcinogens.

B. Threats to the Environment

There is no undisturbed natural habitat within the site. The land use is highly developed and industrial in nature, and little vegetation is present. According to the "Environmental Assessment for BRAC 95 Disposal and Reuse of the Defense Distribution Depot, Memphis, Tennessee" by Tetra Tech, no endangered species or wetlands are present in the area.

IV. Endangerment Determination

Contamination has been detected in excess of industrial screening criteria within the industrial area contained in Parcels 35 and 28. The Memphis Depot has elected to perform the following removal actions to remove readily accessible contamination so that the property may be transferred for future industrial use:

- Remove residue, dust, sediment, and incidental ACM and lead-containing materials in readily accessible areas of existing industrial buildings in Parcels 35 and 28;

- Remove surface soil to a depth of 12 inches in areas within the Main Installation perimeter fence at the industrial area of Parcels 35 and 28 that had contaminant levels exceeding the industrial screening criteria for the Depot;
- If surface soils with PAH and lead concentrations exceeding residential risk-based criteria within the utility corridor are determined to be associated with operations within Parcels 35 and 28, remove to a depth of 12 inches; and
- Sample and remove contaminated soil related to a sump and UST locations at Buildings 1084 and 1085.

These locations are shown in Figure 4.

V. Proposed Actions and Estimated Costs

A. Proposed Actions

Three alternatives were developed for meeting the removal actions described above. These alternatives include:

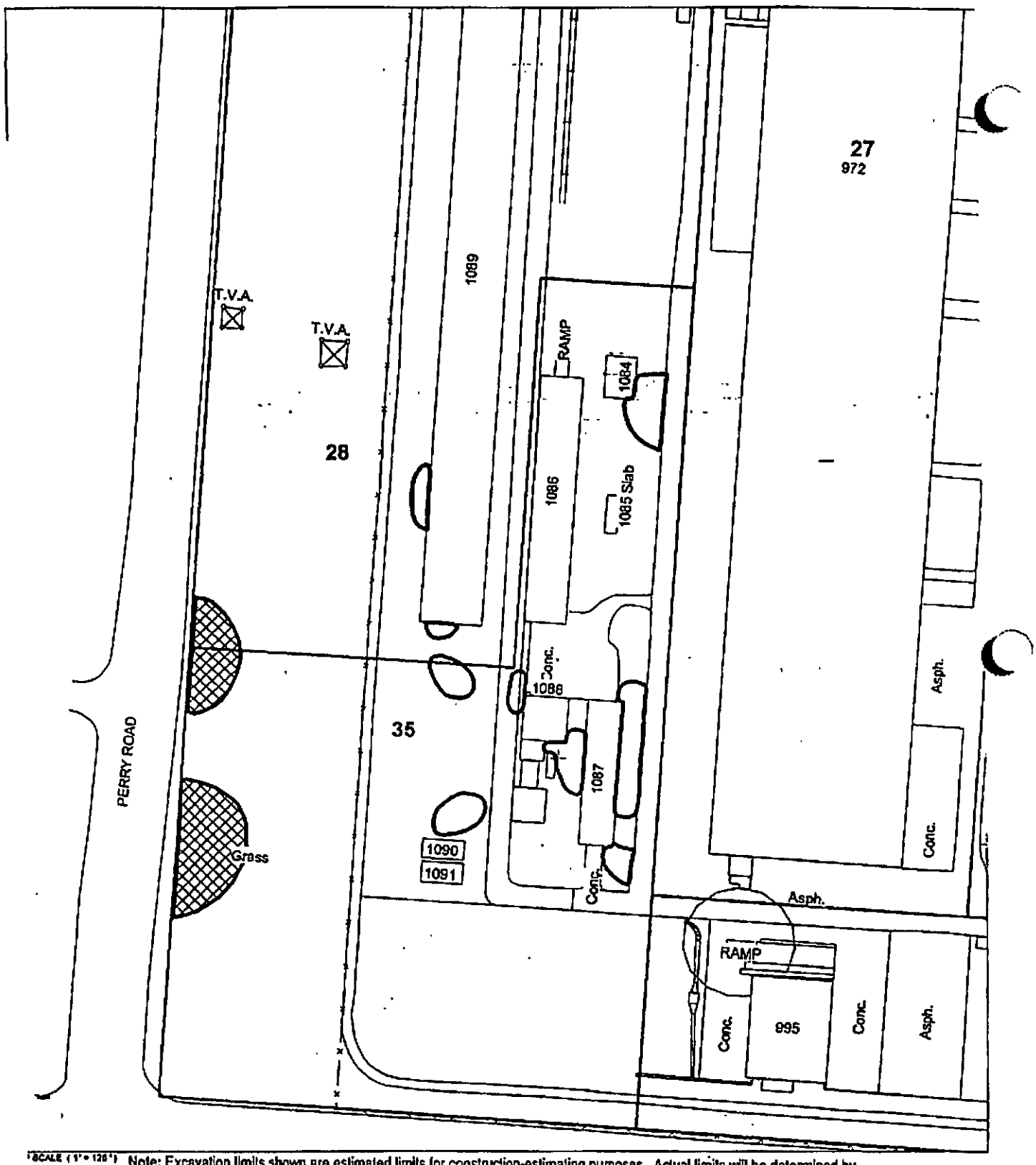
- Alternative 1 – Decontaminate Existing Metal and Masonry Buildings and Associated Equipment for In-Place BRAC Transfer; Remove and Dispose of Wooden Structures, Contaminated Soil, and Debris;
- Alternative 2 – Decontaminate Existing Metal and Masonry Buildings for In-Place BRAC Transfer; Decontaminate, Remove, and Dispose of Associated Equipment; and Remove and Dispose of Wooden Structures, Contaminated Soil, and Debris; and
- Alternative 3 – Decontaminate, Remove, and Dispose of All Above-Grade Buildings and Associated Equipment and Remove and Dispose of Contaminated Soil and Debris.

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

- Reduce potential risk to long-term site users to a level deemed acceptable by EPA and TDEC;
- Be technically appropriate and feasible to accomplish using commonly accepted construction practices;
- Minimize, to the extent possible, the volumes of materials that must be removed and landfilled off-site;
- Have a reasonable and acceptable cost;
- Be implemented in an expedited manner to meet BRAC parcel transfer and leasing schedules; and
- Involve minimal post-removal operational, maintenance, or monitoring requirements.

All removal action alternatives can be implemented and all can meet the stated removal action goals and objectives. There is a potential for slightly greater effectiveness with

Alternatives 2 and 3, but this is offset by the increased work scope, disposal requirements, and cost.



SCALE (1" = 125 ') Note: Excavation limits shown are estimated limits for construction-estimating purposes. Actual limits will be determined by analytical sampling and testing during construction.

N

62.5 125 187.5
Scale in Feet

LEGEND

Excavation Limits (Industrial)
Excavation Limits (Residential)

Figure 4
SITE CONFIGURATION WITH EXCAVATION AREAS
BRAC PARCELS 35 & 28

CH2MHII

Alternative 2 was initially recommended because it provides, at a reasonable cost, open and fully decontaminated buildings that could be used for a variety of purposes. Upon further consultation with the Depot Redevelopment Corporation, Alternative 1 was selected because the proposed future use requires that the existing sandblast and paint booth facilities remain in place.

1. Description of Proposed Action

The proposed action (Alternative 1) includes the following elements:

- Remove all loose dust, debris, and surface residue from the exterior of sandblast and paint booth equipment to remain in place in Buildings 1086, 1087, and 1088. Collect confirmatory samples and compare analytical results with industrial screening criteria for the Depot.
- Remove all loose dust, debris, and surface residue from the interiors of Buildings 1086, 1087, 1088, 1089, 1090, and 1091, including slabs, sumps, and drainage structures. Collect confirmatory samples and compare analytical results with industrial screening criteria for the Depot.
- Clean all loose dust, debris, and surface residue and remove and dispose of Building 1084 wooden structure and slab.
- Remove contaminated surface soil to a depth of 12 inches and perform confirmatory sampling in areas inside the fenced industrial area where previous sampling indicated the presence of chemical contaminant levels exceeding the industrial screening criteria for the Depot. Collect confirmatory samples and compare analytical results with industrial screening criteria for the Depot.
- Conduct confirmatory sampling of surface soil outside the perimeter fence along Perry Road to confirm the belief that elevated PAH and lead levels are not associated with past industrial activities in Parcels 35 and 28. Remove contaminated soil outside the perimeter fence only if the confirmatory samples suggest that this is not the case. Soil exceeding residential risk-based criteria will be removed.
- Sample and remove contaminated soil related to the sump and UST locations at Buildings 1084 and 1085. Collect confirmatory samples and compare analytical results with industrial screening criteria for the Depot.

2. Contribution to Remedial Performance

The proposed removal action will remove residual contamination (e.g., contaminated surface soil, surface residues, debris, and dust) to the extent necessary to facilitate transfer of the property for further industrial or commercial reuse. It will also remove the potential risk of subsurface contamination in identified areas (e.g., sump area and UST location at Buildings 1084 and 1085) where such soils could present a hazard for future development in those areas or a potential source of groundwater contamination.

Removal of the soil will support a No Further Action determination for Installation Restoration Program sites in Parcels 35 and 28. Evaluation of potential groundwater remedial action will be performed as part of the CERCLA RI/FS for these sites.

3. Description of Alternative Technologies

On-site and off-site treatment alternatives to landfilling may be potentially viable from a technical perspective, but the relatively small volume of soil (less than 1,200 cubic yards) and the low cost of landfill disposal (approximately $20 per cubic yard) at a local industrial landfill suggest that treatment options would not be cost-effective. As a result, no treatment alternatives to landfill disposal were considered.

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

The proposed removal action is based on removal action requirements and an alternatives evaluation documented in the *Draft-Final Former Defense Distribution Depot Memphis, Tennessee, Engineering Evaluation/Cost Analysis (EE/CA), Old Paint Shop and Maintenance Area, Parcels 35 and 28*, dated April 1999, and information and decisions made subsequent to publication of that document. A final EE/CA document is currently being prepared to document these changes. 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 (PPE) will be used and safe work practices will be followed.
- ACM will be packaged in leak-tight containers and disposed of in accordance with the appropriate OSHA, EPA, and Memphis/Shelby County Health Department/Pollution Control Division requirements.
- Lead-based paint will be managed in accordance with the appropriate OSHA and Memphis/Shelby County Health Department/Pollution Control Division requirements.
- PCB-contaminated materials, if any, will be managed in accordance with the Toxic Substances Control Act (TSCA). PCB-contaminated materials that contain a PCB concentration of 50 parts per million or greater will be disposed of at a TSCA-permitted incinerator or a TSCA-permitted chemical landfill.
- Soil surrounding former USTs will be removed to achieve the TDEC cleanup levels for petroleum contamination. In addition, soil will be subjected to the full scan of chemical analyses to identify other constituents that may be present. These constituents will be removed, as necessary, to the corresponding industrial cleanup standards.

- 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, will be included as applicable.

6. Project Schedule

The Mobile District, U.S. Army Corps of Engineers, has procured a contractor for cleanup actions at the Depot. The removal action for Parcels 35 and 28 is scheduled to be the first action under the contract.

Current projections indicate that the work will begin during the fall of 1999. It is estimated that approximately 3 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 is $871,000. This cost estimate includes a direct capital cost (for example, cost for construction, construction oversight, transportation, and disposal) of $792,000 and an indirect cost (for example, fees for engineering and design, legal, and licenses) of $79,000. Indirect costs are assumed to be about 10 percent of the direct costs. Conceptual-level cost estimates are order-of magnitude cost estimates made without detailed engineering data and include estimates of major cost components and quantities, typical costs from similar work, cost curves, and scale-up and scale-down factors or ratios. 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 developed as the final design is completed and a better estimate of actual work items for the selected alternative has been developed.

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 to augment the removals.

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

As long as surface soil contamination and debris and dust in the buildings remain, there is a potential for migration of surface contaminants via surface water drainage or dust. The presence of contaminant-laden dust and residue in the buildings poses a potential hazard to people entering those buildings.

The potential for downward migration of contaminants from the old UST location at Building 1085 is dependent upon the presence and concentrations of contaminants remaining in that area. The pit area beneath Building 1084 is currently covered with a concrete slab and roof. Little, if any, migration of contaminants from that area is anticipated.

The potential for downward migration of contaminants from the old UST location at Building 1085 is dependent upon the presence and concentrations of contaminants remaining in that area. The pit area beneath Building 1084 is currently covered with a concrete slab and roof. Little, if any, migration of contaminants from that area is anticipated.

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 DLA. It is not an enforcement action; however, review and oversight of the removal action by TDEC and EPA are expected. Because it is a voluntary action, an Enforcement Addendum is not required.

IX. Decision

This decision document represents the selected removal action for Parcels 35 and 28 and the former Defense Distribution Depot Memphis, Tennessee, developed in accordance with CERCLA as amended, and is consistent with the NCP. The decision is based on 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 recommended removal action.

J.W. KENNEY

Captain, SC, USN

Commander

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 roview, 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.

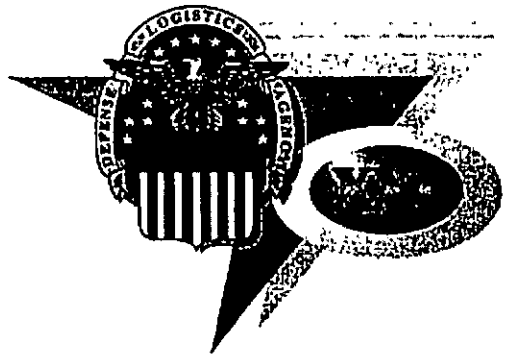
Area B-2 correlates to Site 1. Area B-2 is a pit where Chemical Agent Identification Sets were buried in 1955-1956. Broken sets were reportedly buried 5 or 6 times by placing them in a pit and covering with dirt. This pit was marked on maps as Site 1 and dated as 22 July 1955. The existance and location 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

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.

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.

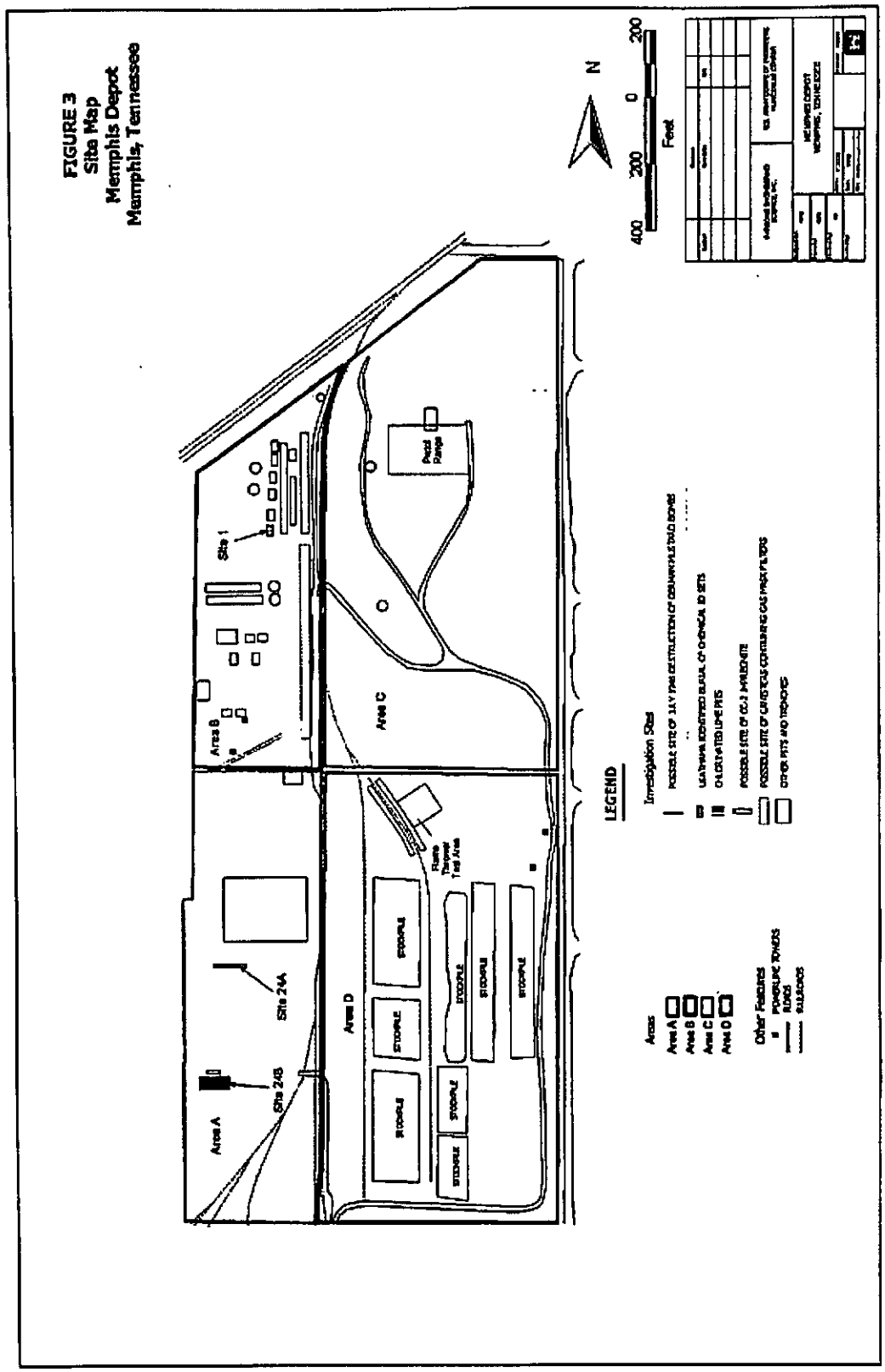


Figure 3. Site Map

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.

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

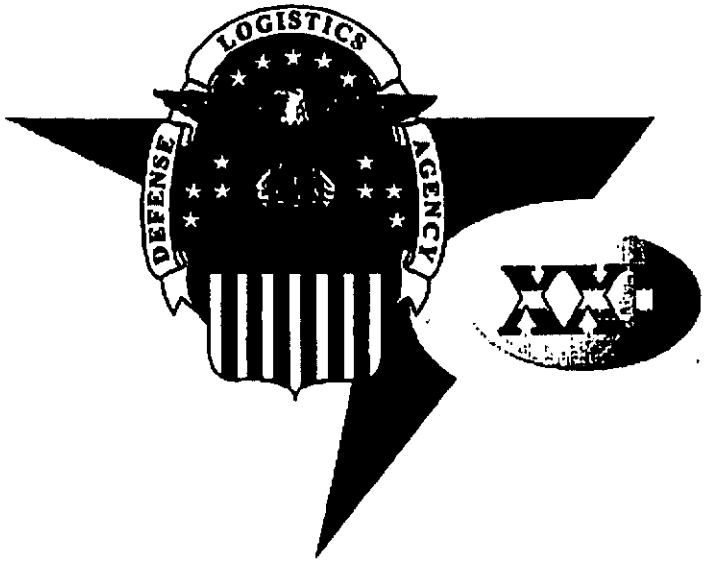
This Action Memorandum represents the selected removal action for Sites 1, 24A, and 24B, in Areas A and B of Dunn Field, part of the former Defense Distribution Depot Memphis, Tennessee. The United States Army Corps of Engineers is the lead respondent under the Defense Environmental Restoration Program 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

Memphis Depot
Main Installation

Record of Decision



Memphis Depot Caretaker
February 2001 — Rev. 2

CH2MHILL

U.S. Army Engineering
and Support Center, Huntsville

U.S. Army Engineering and Support Center, Huntsville
Contract No. DACA87-94-D-0009
Delivery Order No. 11

1.0 Declaration

1.1 Site Name and Location

Memphis Depot
Main Installation, Functional Units (FUs) 1 through 7
2163 Airways Boulevard
Memphis, Shelby County, Tennessee
U.S. Environmental Protection Agency (EPA) Identification Number (ID): TN4210020570

1.2 Statement of Basis and Purpose

This decision document presents the selected remedy for the Main Installation (MI) of the Memphis Depot, in Memphis, Tennessee. This action was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and, to the extent applicable, the National Oil and Hazardous Pollution Contingency Plan (NCP). This decision is based upon the Administrative Record for the MI, including EPA Policy, *Land Use in the CERCLA Remedy Selection Process (OSWER Directive No. 9355.7-04)*. This policy provides for consideration of the likely future land use of the Memphis Depot when selecting the remedy.

The State of Tennessee Department of Environment and Conservation (TDEC) and EPA concur with the selected remedy.

1.3 Assessment of the Site

The response action selected in this Record of Decision (ROD) is necessary to protect human health and welfare, and the environment. The selected action will prevent imminent or substantial danger from actual or threatened releases from the MI of pollutants, contaminants, or hazardous substances.

1.4 Description of the Selected Remedy

The selected groundwater and surface soil remedy addresses the remediation of surface soil and groundwater contamination, which will allow the transfer or lease of the MI property for its intended land use (industrial and recreational). The selected surface soil remedy consists of land use controls for FUs 1 through 6, coupled with excavation, transport, and off-site disposal of an estimated 7,200-ft^2 area of surface soil in FU4. The selected groundwater remedy for FU7 is enhanced bioremediation, which includes land use controls and long-term monitoring. The selected remedy applies to the MI portion of the Memphis Depot and does not include Dunn Field (Operable Unit 1), located to the north of the MI.

The remedial investigation (RI) and feasibility study (FS) for Dunn Field are scheduled to be completed in 2001 and the final ROD in 2002.

The major components of the selected remedy include:

- Excavation, transportation, and off-site disposal at a permitted landfill of an estimated 7,200 ft² of surface soil containing lead concentrations equal to or greater than 1,536 milligrams per kilogram (mg/kg) near the southeast corner of Building 949 in FU4.
- Deed restrictions and site controls, which include the following:
  - Prevention of residential land use on the MI (except at the existing Housing Area).
  - Daycare restriction controls.
  - Production/consumptive use groundwater controls for the fluvial aquifer and for drilling into aquifers below the fluvial aquifer on the MI.
  - Elimination of casual access by adjacent off-site residents through maintenance of a boundary fence surrounding FU2.
- Enhanced bioremediation of chlorinated volatile organic compounds (CVOCs) in the most contaminated part of the groundwater plume.
- Long-term groundwater monitoring to document changes in plume concentrations and to detect potential plume migration to off-site areas or into deeper aquifers.
- 5-year reviews of the selected alternatives.

The land use controls (deed restrictions and site controls) that are included as part of the selected remedy provide additional layers of protection above the existing land use and groundwater controls as established by the: (1) City of Memphis and Shelby County zoning regulations; (2) Federal Property Management Regulations; and (3) Ground Water Quality Control Board for the City of Memphis and Shelby County.

No source materials on the MI are "principal threat wastes" as defined by EPA guidance. Surface and subsurface soils across the MI are not considered to be principal threats. No evidence of non-aqueous phase liquids (NAPL) has been discovered on the MI. Although contaminated groundwater poses a risk, it is not considered a principal threat.

1.5 Statutory Determinations

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to the remedial action, is cost-effective, and utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable. The selected remedy allows the entire MI to be available for the anticipated future land use.

The selected remedy for groundwater contamination at the MI satisfies the statutory preference for treatment. The selected remedy for surface soil contamination at the MI does not satisfy the statutory preference for treatment as a principal element of the remedy. However, the remedy for surface soil was chosen for the following reasons:

- Deed restrictions and site controls can be implemented quickly.
- Deed restrictions and site controls provide additional layers of protectiveness above existing land use restrictions and controls.
- Excavation and off-site disposal provides permanent risk reduction at the MI through removal.
- The remedy will allow the property to be used for industrial and recreational land use, and does not preclude future response actions, if warranted.
- The remedy is cost-effective at achieving anticipated industrial (and recreational) land use criteria.

The remedy will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure; therefore, in accordance with Section 121(c) of CERCLA and NCP §300.430(f)(5)(iii)(c), a statutory review will be conducted within 5 years of initiation of remedial action, and every 5 years thereafter, to ensure that the remedy continues to be protective of human health and the environment.

Hazardous substances above health-based levels will remain in groundwater beneath the Memphis Depot after implementation of this remedy. Because hazardous substances are to remain, the Defense Logistics Agency (DLA), TDEC, and EPA recognize that Natural Resource Damage Assessment (NRDA) claims, in accordance with CERCLA, may be applicable. This document does not address restoration or rehabilitation of any natural resource injuries that may have occurred or whether such injuries have occurred. In the interim, neither DLA nor TDEC waives any rights or defenses each may have under CERCLA, Sect. 107(a)4(c).

1.6 ROD Data Certification Checklist

The following information is included in the *Decision Summary* section (Section 2) of this ROD. Additional information can be found in the Administrative Record for the MI.

- Current and reasonably anticipated future land use assumptions and current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD (page 2-15).
- Chemicals of concern (COCs) and their respective concentrations (page 2-17).
- Baseline risk represented by the COCs (page 2-21).
- Clean-up levels established for COCs and the basis for these levels (page 2-24).
- Key factor(s) that led to the selection of the remedy (page 2-40).
- Estimated capital costs, annual operation and maintenance (O&M) costs, total present worth costs, discount rate, and number of years over which the remedial cost estimates are projected (pages 2-46 to 2-47).

- Potential land and groundwater use that will be available at the MI as a result of the selected remedy (page 2-48).

There are no source materials constituting principal threats on the MI; therefore, this topic will not be addressed.

1.7 Authorizing Signatures

For this document, DLA is the prime signatory while EPA and TDEC concur with the findings of the ROD.

C.R. McKelvey
Captain, SC, USN
Commander

22 FEB 2001
Date

Richard D. Green, Director
Waste Management Division
U.S. Environmental Protection Agency,
Region 4

6 SEP 01
Date

James W. Haynes, Director
Division of Superfund
Tennessee Department of Environment
and Conservation

March 1, 2001
Date

Memphis Depot
Dunn Field
Action Memorandum
Former Pistol Range, Site 60

October 2002 (Rev. 1)

CH2MHILL

U.S. Army Engineering and Support Center, Huntsville

U.S. Army Engineering and Support Center, Huntsville
Contract No. DACA87-94-D-0009
Task Order No. 13

E062002027ATL

Contents

Figures

Attachment

ACTION MEMORANDUM

Former Pistol Range

Site 60

Defense Distribution Center (Memphis), Dunn Field

Site Status: Closed Pistol Firing Range
Category of Removal: Non-Time Critical Removal Action
CERCLIS ID: TN4 201 002 0570
Site ID: 60

I. Purpose

The purpose of this Action Memorandum is to request and document approval of the proposed removal action described herein for the former Pistol Range at the Dunn Field of the Defense Distribution Center (Memphis) (also referred to the Memphis Depot) located at 2613 Airways Boulevard, Memphis, Tennessee, 38114. The Memphis Depot is in Shelby County.

II. Site Conditions and Background

A. Site Description

1. Removal Site Evaluation

The Memphis Depot (formerly known as Defense Distribution Depot Memphis, Tennessee and referred to in this document as the Depot) is a former US Defense Department supply depot. The facility was in operation from World War II until its closure in 1997. The Depot is divided into two major units – the Main Installation and Dunn Field.

Dunn Field was divided into three separate areas as part of the Dunn Field Remedial Investigation (RI) to assist the investigation of previous activities (CH2M HILL, July 2002). These areas are known as the Northeast Open Area, Disposal Area, and Stockpile Area. This document is concerned with the Northeast Open Area only.

Within the northeastern quadrant of the Northeast Open Area contains Site 60 - Pistol Range Impact Area and Bullet Stop and the adjacent Site 85 - Pistol Range Building and Temporary Pesticide Storage Building. Although this document is focused towards Site 60, the proximity of Site 85 will result in removal activities being conducted there as well.

Contamination within Site 60 and 85 primarily consists of contaminated surface soil. Historical information, on-site inspection, and the results of surface soil sampling during the RI from Site 60 and the adjacent Site 85 suggest that the following removal action will be conducive to transfer the sites for the planned future unrestricted use:

- Remove brush, trees, and overgrowth from the former backstop area and the metal target racks and associated support system;

- Demolition of Building 1184, including the pistol stand, and concrete slabs that are in the footprint of the excavation; and
- Remove areas of contaminated surface soil identified by surface soil sampling within the footprint of the former pistol range.

2. Physical Location

The Memphis Depot is located in Memphis, Tennessee (Figure 1), consists of approximately 642 acres and includes the Main Installation (MI), which includes open storage areas, warehouses, military family housing, and outdoor recreational areas, and Dunn Field, which includes former mineral storage and waste disposal areas. The major features of the Depot are shown in Figure 2. The Depot lies approximately 5 miles east of the Mississippi River and just northeast of the Interstate 240–Interstate 55 junction in the south-central portion of Memphis, approximately 4 miles southeast of the central business district and one mile northwest of Memphis International Airport (Figure 1). Airways Boulevard borders the MI portion of the Depot on the east and provides primary access to the MI. Dunn Avenue, Ball Road, and Perry Road serve as the northern, southern, and western boundaries of the MI, respectively.

Dunn Field, comprising 64 acres of primarily undeveloped land, is immediately adjacent, across Dunn Avenue, to the north-northwest portion of the MI. Dunn Field is bounded by the Illinois Central Gulf Railroad and Person Avenue to the north, Hays Road to the east, and Dunn Avenue to the south. Dunn Field is partially bounded to the west by: (1) Kyle Street; (2) Memphis Light Gas and Water (MLGW) powerline corridor (which bisects Dunn Field); (3) undeveloped property; and (4) a commercial trucking facility (Figure 2).

3. Site Characteristics

Site 60 is located approximately 400 feet south of the north fence surrounding Dunn Field (Figure 3) and 90 feet west of Building 1184. The boundary of the site has been estimated using historical aerial photography, which also indicate that the site was constructed between 1953 and 1958. Records from the former Memphis Depot identify Site 60 as a former pistol range used for marksmanship training. No additional information is available about previous uses of this area. There is no documented evidence that this site was ever used for the storage or disposal of hazardous or toxic materials. The time period that Site 60 was used for target practice is unknown, but the Installation Assessment report (USATHMA, 1982) states that the "area was abandoned in the late 1970s and the building [1184] is currently being used for pesticide storage."

From historical documents, Site 85 appears to be the building located at the former pistol range. Site 85 is the Pistol Range Building (Building 1184) that served as an office and control point for Site 60 and is located immediately adjacent to the pistol stand and Site 60 area (see Figure 4). Reportedly during activities at Dunn Field, this building also served as a location for temporary storage of pesticide containers. No additional information is available about previous uses of this area. Building 1184 is no longer used for temporary storage of pesticides.

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

At Site 60 and the adjacent Site 85, 6 surface soil samples were collected during the RI and analyzed for pesticides, PCBs and metals. Soil from the pistol range was sieved onsite during the sampling event, verifying the presence of lead bullets and casings. Of the 6 surface soil samples analyzed for lead, 5 samples contained lead concentrations that exceeded the background value of 30 milligrams per kilogram (mg/kg). The lead concentrations ranged from 39.2 mg/kg to 2,100 mg/kg, with the maximum value recorded in samples from the former Pistol Range.

Other metals detected in soil samples from the Pistol Range include beryllium, cadmium, chromium, copper, and zinc. A total of four pesticides were detected in six surface soil samples from Sites 60 and 85: DDT, DDD, dieldrin, and endrin. Figure 8-5 in Section 8 of the Dunn Field RI report (CH2MHILL, July 2002) presents the locations within the Northeast Open Area where samples were collected for pesticides analysis, and highlights the pesticides with concentrations above background or with any detectable concentration if no background concentration is available.

The Dunn Field RI report stated that dieldrin, DDD, and DDT were detected across the Northeast Open Area, but are not associated with discrete releases from source areas within the Northeast Open Area. In the past, these pesticides were sprayed routinely on grassy areas and around buildings, and a wide range of variability was observed (CH2M HILL, 1999, Main Installation RI Report). The Dunn Field RI report also stated that the high dieldrin concentration near the Former Pistol Range (6085D) may result from increased application in this area because of frequent activity and is not indicative of releases specifically from pesticide handling at Site 85.

PCBs (Aroclor 1260) were detected in 3 of 6 samples analyzed; however, all results were reported as estimated with a "J" qualifier, and none were reported above the background value of 0.11 mg/kg.

5. NPL Status

The Memphis Depot was placed on the National Priorities List (NPL) in October 1992, and must fulfill the 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.

A sitewide remedial investigation and feasibility study (RI/FS) have been finalized (July 2002) or submitted for review (August 2002), respectively, in accordance with CERCLA and the NCP to evaluate human health and environmental risk, and to screen for potential remedial actions.

Proposed removal actions outlined in this Action Memorandum, however, are actions the Memphis Depot decided to voluntarily pursue to remove readily accessible chemical contamination at Site 60 to facilitate property transfer. Additional remedial action requirements are not expected for the Northeast Open Area, based upon the results of the risk assessment conducted as part of the RI.

B. Other Actions

1. Previous Actions

Previous removal actions at Dunn Field have included removals outside of the Site 60 area. These activities were conducted as non-time critical removal actions under CERCLA. An EE/CA was performed by Parsons Engineering Science, Inc. in June 1999 to: (1) assess whether CWM contamination was migrating from the CWM disposal pits at Dunn Field; (2) analyze risk management alternatives; and (3) recommend feasible CWM remedial alternatives for contaminants found to be present. The recommended alternative for the three identified areas of concern at Dunn Field was Alternative 4, excavation and removal of CWM. UXB International, under contract with USACE - Huntsville, conducted the removal action from mid-2000 to mid-2001 at Sites 1, 24-A, and 24-B.

Other surface soil removal actions have occurred at the MI, including removals at Parcels 35 and 28 (in 2000), Building 949 (in 2001), the former cafeteria area (in 1998), and the housing area (in 1998). The Building 949 removal action on the MI involved removal of lead contaminated soil down to one foot, similar to the activity for Site 60. In each case, excavation and removal of the contaminated material was the remedial method. This method was preferred over others because of the low amount of material to be removed and remediated. Other methods were found to be too costly because of equipment and time requirements. Cleanup limits for these projects were based on risk-based criteria.

2. Current Actions

There is a groundwater extraction system on the western perimeter of Dunn Field that has been in place and operational since 1999. There will be no concurrent soil actions on Dunn Field.

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

A. Threats to Public Health or Welfare

The expected land use of Sites 60 and 85 located within the Northeast Open area of Dunn Field is unrestricted. All users of the site are not expected to encounter any residual contamination that would pose an unacceptable risk from past uses of the Northeast Open Area.

Lead contamination in surface soil is the greatest potential concern to human health. The maximum recorded lead concentration in surface soil at the Northeast Open Area is 2,100 mg/kg, with an estimated arithmetic mean of 196 mg/kg. The maximum concentration was detected in sample Location 6085D from Site 60. All lead concentrations for Site 60 and the entire Northeast Open Area, except the maximum, are below a residential exposure-based screening level of 400 mg/kg and an industrial worker exposure-based target concentration of 1,536 mg/kg (CH2M HILL, July 2002). The lead is possibly associated with spent bullets in the firing range, as the elevated concentrations were limited to this area. The maximum observed lead levels at the site are expected to pose health hazards for any of the receptors mentioned because both screening levels have been exceeded.

B. Threats to the Environment

According to Section 9 – Baseline Risk Assessment of the Northeast Open Area, within the Dunn Field RI, the only potential threats to the environment were from concentrations of dieldrin and chromium. The risk was based on the American Robin as the target receptor. The risk assessment stated that it is unlikely that the robin would forage exclusively within the bounds of the Northeast Open Area, or that dieldrin and chromium would be uniformly distributed in surface soil, or that these chemicals would be 100 percent bioavailable in organic soil. In addition, the dietary components of the robin were conservatively estimated to support a worst case exposure to dieldrin; however, its actual diet is likely to differ (and is known to include more fruit and seeds at some times of the year) and the availability of preferred food items at the Northeast Open Area is expected to be low as a result of routine mowing activities. Based on this evaluation, the risk assessment concluded that no further assessment of ecological risk associated with contaminants at the Northeast Open Area was warranted.

IV. Endangerment Determination

Contamination has been detected in excess of residential screening criteria within the Site 60 area. The Memphis Depot has elected to perform the following removal actions to remove readily accessible contamination so that the property may be transferred for future unrestricted use:

- Clearing and grubbing of the bushes and trees that have grown in and around Site 60.
- Removal of up to 12-inches of soil for all areas of contaminated surface soil within the perimeter of Site 60 where previous sampling suggests the presence of surface soil contamination in excess of residential screening criteria.
- Removal of up to 24 inches of surface soil from the former bullet stop area within the perimeter of Site 60.
- Removal of Building 1184 (Site 85), as well as all other metal emplacements including the pistol stand and target racks.

V. Proposed Actions and Estimated Costs

A. Proposed Actions

To expedite this removal action, the BRAC Cleanup Team (BCT) for the Memphis Depot determined that the process of a full analysis of available alternatives for Site 60 was not necessary. Instead, this removal action would be based upon previous, similar EE/CA and feasibility study activities at the Memphis Depot, especially those conducted for Parcels 35 and 28 and the surface soils on the Main Installation (e.g., Building 949) in Functional Unit (FU) 4. The documentation and activities for those two removals were used as the basis for selection of the remedial alternative at Site 60. Sections 3, 4, and 5 of the final EE/CA document for the Old Paint Shop and Maintenance Area, Parcels 35 and 28 (CH2M HILL, August 1999) identify, analyze, and compare the alternatives. The method recommended as the primary remedial alternative included excavation and removal of surface soil

contamination in excess of risk-based industrial and residential screening criteria. The excavation and removal method was selected because: (1) this alternative would effectively meet risk-based cleanup criteria and decrease residual effects; (2) the alternative is technically appropriate and feasible; and (3) costs were acceptable. The MI Soils Feasibility Study (FS) (CH2M HILL, July 2000) also identified several remedial alternatives for removal of lead contaminated surface soil at various locations (e.g., Building 949) on the MI. Section 4 of the FS identified excavation, transportation, and off-site disposal as being protective of human health and the environment via contaminant reduction to industrial worker exposure levels acceptable to appropriate land use. The alternative was also found to be permanent, timely in implementation, and cost-effective. Further, the MI Record of Decision (ROD) (CH2M HILL, September 2001) provided that, for Building 949, excavation and removal is the preferred alternative for remediation due to its expediency, permanence, and moderate cost. The reader is referred to these documents for specific information related to the alternative evaluation and selection process.

As identified by the BCT, the one objective that is to be accomplished by this non-time critical removal is that Site 60 should, after the removal is completed, be available for unrestricted use. Based on these requirements, the parameters of previous removal actions, and successful implementation of those previous removal actions, excavation, transportation, and offsite disposal of all contaminated surface soil and debris at Site 60 (including the removal of Building 1184 [Site 85]) was selected by the BCT as the most effective and efficient method.

1. Description of Proposed Action

The proposed removal action includes the following elements:

- Clearing and grubbing of the bushes and trees that have grown in and around Site 60. Removal of roots from former tree locations and removal of potentially contaminated soil from the root balls.
- In-situ soil characterization sampling for lead constituents across Site 60, based on a grid pattern deteremined by the RA contractor, prior to excavation resulting in direct load-out of the material when mobilization occurs.
- Removal of 12-inches of soil for all areas (except Area C in Figure 5) of contaminated surface soil within the perimeter of Site 60 where previous sampling suggests the presence of surface soil contamination in excess of residential screening criteria, and the presence of spent bullet and casings have been found.
- Removal of up to 24 inches of surface soil from Area C within the perimeter of Site 60, as shown in Figure 5, as this area served as the bullet stop while the site was used as a pistol range.
- Removal of Building 1184 (Site 85), as well as all other metal emplacements including the pistol stand and target racks.
- Confirmatory sampling from all excavations to ensure that: (1) no additional contaminated soil above residential screening criteria (lead at 400 mg/kg) is present; and (2) spent bullets are not present.

- Replacement of excavated areas (primarily Areas A and B) with clean (laboratory tested), backfill soil. The source of this soil is the backstop area.
- Engineering controls to minimize fugitive dust and stormwater releases as well as all water related to decontamination procedures.

2. Contribution to Remedial Performance

The proposed removal action will remove residual surface soil contamination to the extent necessary to facilitate transfer of the property for unrestricted use. Removal of the soil will support a No Further Action determination for surface soil for Site 60 and the Northeast Open Area within the upcoming Record of Decision document for Dunn Field. Action will be required for groundwater underlying Dunn Field and some subsurface areas of the Northeast Open Area may be targeted for soil vapor extraction as part of the Dunn Field Remedial Action for subsurface soil.

3. Description of Alternative Technologies

Onsite and offsite treatment alternatives to excavation and removal may be potentially viable from a technical perspective, but in consideration of previous removal actions at the Memphis Depot and the relatively small volume of soil and low cost of landfill disposal, other treatment options would not be cost-effective. As a result, no treatment alternatives to landfill disposal were considered.

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

The proposed removal action is based on removal action requirements and an alternatives evaluation documented in the *Final Memphis Depot Dunn Field Engineering Evaluation/Cost Analysis, Former Pistol Range, Site 60*, dated July 2002, and information and decisions made prior to publication of that document.

5. Applicable or Relevant and Appropriate Requirements

The following list of applicable or relevant or appropriate requirements (ARARs) was developed based on the scope of work to be performed during the removal action:

- The excavation and disposal of soil that contains RCRA-restricted waste may trigger the RCRA land disposal restrictions (LDRs). In general, RCRA's LDRs were established for waste streams that differ significantly from Superfund wastes. Because the LDRs are not based on treating wastes that contain soil and debris, a treatability variance may be appropriate. Under a treatability variance, alternative treatment levels based on data from actual treatment of soil, or best management practices (BMPs) for debris, become the "treatment standard" that must be met. To determine if the soils are to be disposed of in a hazardous or solid waste landfill, a toxicity characteristic leaching procedure (TCLP) test is conducted on representative soil samples to determine if a waste is characterized as hazardous per Title 40 of the *Code of Federal Regulations* Part 261 Subpart C (40 CFR 261C). The excavation and off-site disposal of soil and debris that contain a RCRA hazardous waste must comply with transporter regulations under 40 CFR 263C). A transporter under Subtitle C is defined as any person engaged in off-site transportation of hazardous waste within the United States. Such transportation requires a manifest under 40 CFR 262.

- Applicable Occupational Safety and Health Administration (OSHA) health and safety regulations will be followed during removal actions. Workers performing the activities will be properly trained and under appropriate medical supervision. Appropriate personal protective equipment (PPE) will be used and appropriate safe work practices will be followed. This includes OSHA 29 CFR 1926.62, which also addresses when employees must follow mandatory hand-washing procedures and when full-body showers are required, and when employers must make available medical exams for workers as well as testing for blood lead levels. There are provisions for removing workers with high blood lead levels from jobs involving lead exposure.

- Lead contaminated materials, if any will be managed in accordance with appropriate OSHA, EPA, State of Tennessee and Memphis and Shelby County Health Department/Pollution Control Division requirements.

- Lead contaminated soils will be removed as necessary to achieve cleanup standards, as described in Description of Proposed Action above.

- Emissions to air during excavation and/or on-site treatment may require compliance with the substantive requirements of Tennessee Rule 1200-3-1, which includes requirements for the control of fugitive dust emissions, among others.

6. Project Schedule

The US Army Corps of Engineers, Mobile District, currently has a remedial action contractor under contract to perform remedial actions at the Memphis Depot. The procurement procedures for this action are being completed during development of this document.

Current projections indicate that the removal work will begin during the late fall of 2002 and completion of the work in winter of 2002/2003.

B. Estimated Costs

The conceptual level cost estimate for the proposed removal action is $300,000. This cost estimate includes a direct capital cost (for example, cost of remedial action workplan development, labor for oversight, mobilization, excavation, transportation, and disposal) of $240,000 and indirect costs as project management and contingency for $60,000. Indirect costs are assumed to be 25% of the capital costs.

These costs are order-of-magnitude capital costs. Order-of-magnitude estimates are made without detailed engineering data and included estimates of major cost components and quantities, typical costs for similar work, cost curves, and scale-up or scale-down factors or ratios. It is normally expected that estimates of this type would be accurate to within plus 50 percent to minus 30 percent. The final costs of this project will depend on actual labor and material costs, competitive market conditions, final project costs, implementation schedule, and other variable factors. As a result, the final project costs will vary from the estimates presented herein.

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

As long as surface soil contamination at Site 60 remains, there is potential for migration of surface contaminants via surface water drainage or dust. The presence of contaminant-laden surface soils presents a hazard to users of the Northeast Open Area.

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 Depot. It is not an enforcement action; however, review and oversight of the removal action by TDEC and EPA are expected. Since it is a voluntary action, an Enforcement Addendum is not required.

IX. Recommendation

This decision document represents the selected removal action for Site 60, and the Memphis Depot, developed in accordance with CERCLA, as amended, and is consistent with the NCP. The decision is based on 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 recommend approval of the proposed removal action.

R.J. RITCHIE
Captain, SC, USN
Commander

(Date)

Memphis Depot
Dunn Field

Record of Decision

Defense Distribution Center (Memphis)

February 2004 — Rev. 2

CH2MHILL

U.S. Army Engineering and Support Center, Huntsville

U.S. Army Engineering and Support Center, Huntsville
Contract No. DACA87-94-D-0009
Task Order No. 10

1.0 Declaration

1.1 Site Name and Location

Memphis Depot
Dunn Field, Operable Unit 1 (OU-1)
2163 Airways Boulevard
Memphis, Shelby County, Tennessee
U.S. Environmental Protection Agency (EPA) Identification Number (ID): TN4210020570

1.2 Statement of Basis and Purpose

This decision document presents the selected remedy for Dunn Field of the Memphis Depot, in Memphis, Tennessee. This action was chosen by the Defense Logistics Agency (DLA) in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and, to the extent practicable, the National Oil and Hazardous Pollution Contingency Plan (NCP, 40 CFR Part 300 *et. seq.*). This decision is based upon the Administrative Record file for Dunn Field, and EPA Policy including, *Land Use in the CERCLA Remedy Selection Process (OSWER Directive No. 9355.7-04)*. This policy provides for consideration of the likely future land use of the Memphis Depot when selecting the remedy.

The State of Tennessee Department of Environment and Conservation (TDEC) and EPA concur with and approve the selected remedy.

1.3 Assessment of the Site

The response action selected in this Record of Decision (ROD) is necessary to protect public health or welfare, or the environment, from actual or potential releases from the Dunn Field of pollutants, contaminants, or hazardous substances into the environment.

1.4 Description of the Selected Remedy

The selected remedy includes the remediation of disposal sites and associated subsurface soil, and groundwater contamination as well as volatile organic compound (VOC) contamination within subsurface soil that is outside of the disposal sites. The remedies will allow the transfer or lease of the Dunn Field property for its intended land use (industrial and recreational).

The major components of the selected remedy for Dunn Field include:

- Excavation, transport, and disposal of soil and material contained within disposal sites located in the western half of Dunn Field based upon results from a pre-design investigation into these sites.
- Use of soil vapor extraction (SVE) to reduce VOC concentrations in subsurface soils to levels that are protective of the intended land use and groundwater.
- Injection of zero-valent iron (ZVI) within Dunn Field to treat chlorinated volatile organic compounds (CVOCs) in the most contaminated part of the groundwater plume, and installation of a permeable reactive barrier (PRB) to remediate CVOCs within the off site areas of the groundwater plume.
- Monitored natural attenuation (MNA) and long-term groundwater monitoring (LTM) to document changes in plume concentrations, to detect potential plume migration to off-site areas or into deeper aquifers, and to track progress toward remediation goals.
- Implementation of land use controls, which consist of the following institutional controls: deed and/or lease restrictions; Notice of Land Use Restrictions; City of Memphis/Shelby County zoning restrictions and the Memphis and Shelby County Health Department groundwater well restrictions.

Subsurface soils, including the disposal sites, in the Disposal Area are considered to be principal threat wastes as defined by EPA guidance. The principal threat wastes have significantly degraded groundwater quality in the shallow fluvial aquifer. Based on the highest observed concentration of the detected solvents trichloroethene (TCE) and 1,1,2,2-tetrachloroethane (PCA) in groundwater, free-phase solvents may be present in Dunn Field groundwater and would be considered principal threat wastes. However, free-phase solvents have not been detected during the RI and subsequent groundwater sampling events.

1.5 Statutory Determinations

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to the remedial action, is cost-effective, and utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable. The selected remedy allows the entire Dunn Field to be available for the anticipated future land use.

The selected remedy for VOC contamination in groundwater and in subsurface soil outside of the disposal site locations at Dunn Field satisfies the statutory preference for treatment. The selected remedy for the disposal sites and associated subsurface soil non-VOC contamination at Dunn Field does not satisfy the statutory preference for treatment as a principal element of the remedy. However, the remedy for the disposal sites and associated subsurface soil was chosen for the following reasons:

- Excavation and off-site disposal provides permanent risk reduction through removal.
- The remedy will allow the Disposal Area of Dunn Field to be used for industrial land use, and does not preclude future response actions, if warranted.
- The remedy is cost-effective at achieving anticipated industrial land use criteria.
- Land use controls, which include institutional controls, can be implemented quickly and provide additional layers of protectiveness to the existing land use controls (zoning and groundwater well restrictions).

In-situ treatment is not selected primarily because of the homogeneity of disposed materials, which is incompatible with the technology. Ex-situ treatment calls for excavation and separation of pit contents, and return of residual mass to the pits. Either treatment alternative would leave residual concretized mass that could interfere with reuse options. As long as the disposal pit contents have to be excavated, it is prudent to dispose of them in a permitted landfill subject to all relevant regulations.

The remedy will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and recreational exposure; therefore, in accordance with Section 121(c) of CERCLA and NCP §300.430(f)(5)(iii)(c), a statutory review will be conducted within 5 years of initiation of remedial action, and every 5 years thereafter, to ensure that the remedy continues to be protective of human health and the environment.

Although active restoration is the remedial action objective for the contaminated groundwater, hazardous substances above health-based levels may remain in groundwater associated with Dunn Field after implementation of this remedy. Therefore, DLA, TDEC, and EPA recognize that Natural Resource Damage claims, in accordance with CERCLA, may be applicable. The remedy does address restoration or rehabilitation of groundwater, but does not determine the extent of any natural resource injuries that may have occurred. However, neither DLA nor TDEC waives any rights or defenses each may have under CERCLA, Sect. 107(a)4(c).

1.6 ROD Data Certification Checklist

The following information is included in the *Decision Summary* section (Section 2) of this ROD. Additional information can be found in the Administrative Record for Dunn Field.

- Current and reasonably anticipated future land use assumptions and current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD (Section 2.6).
- Chemicals of concern (COCs) and their respective concentrations (Section 2.7.1.1 and Table 2-6).
- Baseline risk represented by the COCs (Section 2.7.1.5 and Tables 2-11 through 2-19).
- Remediation goals for soil and groundwater established for COCs, and the basis for these levels (Section 2.7.3 and Tables 2-21A through 2-21G).

- Source materials constituting principal threats on Dunn Field and how these threats are being addressed (Section 2.11).
- Key factor(s) that led to the selection of the remedy (Section 2.12.1).
- Estimated capital costs, annual operation and maintenance (O&M) costs, total present worth costs, discount rate, and number of years over which the remedial cost estimates are projected (Section 2.12.3).
- Potential land and groundwater use that will be available at Dunn Field as a result of the selected remedy (Section 2.12.4).

1.7 Authorizing Signatures

R.J. Ritchie
Captain, SC, USN
Commander

Date

Winston A. Smith, Director
Waste Management Division
U.S. Environmental Protection Agency,
Region 4

Date

James W. Haynes, Director
Division of Superfund
Tennessee Department of Environment
and Conservation

Date

883 315
811 1

File:
C.H. 541.460.0009

ARH 811

October 21, 2004

MEMORANDUM FOR FILE

SUBJECT: Technical Memorandum: Early Implementation of Selected Remedy Component to Address Groundwater Contamination West of Dunn Field, Rev. 2, CH2M HILL/ATL, October 14, 2004

Defense Logistics Agency (DLA), U. S. Environmental Protection Agency, and Tennessee Department of Environment and Conservation, as the BRAC Cleanup Team (BCT) for the Former Memphis Defense Depot, concur in the need for this Early Implementation as described in the attached Technical Memorandum. The early implementation has been discussed at BCT meetings in July, August and September 2004. The technical memorandum provides background information and the basis for the early implementation and describes the action, which consists of zero valent iron injection in west of Dunn Field with groundwater monitoring before and after the injections. This implementation is within the scope of the Dunn Field Record of Decision (final approval April 12, 2004). The action represents a non-significant modification to the remedy, in order to optimize remedy performance in light of new technical information. The BCT understands that subsequent monitoring may identify areas where additional injection will be required.

MICHAEL A. DOBBS
Environmental Program Manager
Defense Distribution Center

WM. TURPIN BALLARD, RPM
Federal Facilities Branch
Environmental Protection Agency, Region 4

JAMES W. MORRISON
Program Manager
Division of Superfund
Tennessee Department of Environment and Conservation

TECHNICAL MEMORANDUM **CH2MHILL**

Early Implementation of Selected Remedy Component to Address Groundwater Contamination West of Dunn Field

PREPARED FOR:	USACE-Huntsville Center
PREPARED BY:	CH2M HILL/ATL
COPIES:	Defense Logistics Agency (DLA), U.S. Environmental Protection Agency, Region IV (EPA), Tennessee Department of Environment and Conservation (TDEC), MACTEC, Inc., and MitreTek Systems, Inc.
DATE:	October 14, 2004
REVISION:	01

I. Introduction & Objective

This memorandum documents the basis for conducting early implementation of a selected remedy in an area of groundwater contamination west of Dunn Field of the Defense Distribution Center (Memphis) in Memphis, Tennessee (see Figure 1).

Groundwater contaminant extent and remedies selected for remediation of the groundwater were identified in the April 2004 Final Dunn Field Record of Decision (ROD). The remedy selected for treatment of groundwater for chlorinated volatile organic compounds (CVOCs) in the most contaminated part of the plume is injection of zero-valent iron (ZVI). ZVI consists of pure iron metal granules or powder, which must be specially manufactured and packaged to prevent premature corrosion. Once released into the environment, iron oxidation fosters anaerobic conditions, which yields ferrous iron and hydrogen ions, both of which are reducing agents for chlorinated solvents.

New data collected during the Remedial Design (RD) phase of work show that contamination in the shallow aquifer is greater than previously known near areas known to be in connection with the Memphis aquifer and are approximately one-half mile upgradient of the Allen Well Field (Memphis aquifer) capture zone. Both Treatment Areas 1 and 2, identified in Figure 1, were not identified in the ROD as requiring treatment. Treatment Area 1 was previously identified for monitored natural attenuation (MNA) while Treatment Area 2 was expected to receive treatment by being within the zone of influence of a ZVI injection area. For site background and historical information, please refer to the ROD and administrative record on which the document is based.

Based on the results of sampling conducted subsequent to the ROD in June and August 2004, the DLA is conducting an early implementation of a component of the selected groundwater remedy (injection of ZVI) to address the concentrations of CVOCs at the leading edge of the high concentration portion of the plume (within the 500 µg/L total CVOCs).

II. Description of Current Situation

This section describes the hydrogeology of the site west of Dunn Field, the nature and extent of contaminants in this area, and fate and transport parameters associated with the plume.

A. Hydrogeology

Groundwater underlying the Dunn Field and areas west of Dunn Field is within a predominantly medium to fine-grained sand geological formation locally referred to as the fluvial aquifer. The aquifer varies in thickness but has been observed to range from 3 to over 30 feet thick west of Dunn Field with an average thickness of 18 feet. The fluvial aquifer is underlain by a massive clay unit that is regarded as an aquitard (i.e., little to no groundwater flows through the unit). This clay unit is part of the Jackson Formation/Upper Claiborne Formation. A top of clay contour map is presented as Figure 2. The clay map reveals that a swale exists beginning in the area of MW145 and is oriented northwards towards MW40. Current interpretation of the geology indicates that there is a geologic "window" to the underlying intermediate aquifer at MW40. The United States Geological Survey (USGS) has established that the intermediate aquifer is in connection with the lower Memphis aquifer at several points in Memphis. Figure 3 presents a lithologic cross-section through the early remedy implementation area.

As shown in Figure 4, groundwater predominantly flows to the west-northwest in the fluvial aquifer. However, a groundwater divide exists in the area of monitoring wells MW151 and MW152, where groundwater flow appears to split and begins to flow southwest and to the north. Seepage velocities range from 0.17 to 1.58 feet per day (ft/dy) across this area of the higher concentration portion of the area impacted by the subject plume. Seepage velocity from monitoring well MW-77 to MW-150 is estimated to be 0.91 ft/dy. Flow apparently slows down from MW-150 towards MW-152 as the velocity decreases to 0.17 ft/dy.

B. Nature and Extent of Groundwater Contaminants

Groundwater sample data was collected from the site in June 2004 from 7 new wells (MW144 through MW150) installed to identify and define groundwater contaminant extent west of Dunn Field. Analysis of groundwater samples from these wells revealed a high concentration plume in the area of MW144, MW54, and MW150. To verify the extent of the high concentration plume, seven additional wells (MW151 through MW157) were installed in August 2004 west of Dunn Field. Samples from these wells redefined the groundwater plume previously presented in the ROD. As shown in Figure 5, contaminants are highly concentrated within this area. Note that the principal VOC constituents within this plume are 1,1,2,2-tetrachloroethane (1,1,2,2-PCA), trichloroethene (TCE), and 1,2-dichloroethene (1,2-DCE). Figure 3 also displays the contaminant concentrations within the fluvial aquifer along the predominant groundwater flowpath from August 2004.

As shown in Table 1, concentrations of 1,1,2,2-PCA range from 2100 micrograms per liter (µg/L) to 8000 µg/L in the area of wells MW54, MW150 and MW155. TCE levels are also elevated in the area of wells MW54, MW150 and MW155, with concentrations ranging from 1000 to 3000 µg/L.

C. Fate and Transport

Figure 6 presents an historical view of the concentration of TCE and 1,1,2,2-PCA at MW54. Concentrations of these contaminants have been increasing since the beginning of 2002 and, as of the last sampling event, do not appear to have reached a peak. The rapid rise in contaminant concentration indicates that the plume is relatively dynamic and unstable in this area possibly as a result of recent water table fluctuations (periods of drought and recovery). The information from MW54 could suggest that the existing plume (observed at well MW150) is migrating in a more westerly direction than was previously observed.

As discussed in Section II A, groundwater seepage velocities are an order of magnitude higher from MW77 to MW150 than from MW150, through MW155 to MW152, where the solute front of the >500 µg/L total CVOC plume is interpreted to be at this time.

III. Basis of Decision

In the judgement of DLA, EPA, and TDEC, early implementation of a selected remedy is appropriate to address the contamination within the 500 µg/L total CVOC plume . The expedited response action is needed because of the following:

- The identification of higher concentrations of the COCs at the distal portion of the plume that could go untreated and adversely affect the MNA component of the selected remedy;
- At the time of the ROD, contaminant concentrations greater than or equal to 500 µg/L were targeted for active treatment. With the discovery of contamination greater than 500 µg/L downgradient of the proposed PRB, the BCT determined that engineered treatment is appropriate;
- Allowing concentrations to go untreated may adversely affect the proposed PRB component of the selected remedy for this area (e.g., the placement or location of the PRB could be in an area of greater saturated thickness, which may result in higher costs and potential encroachment onto offsite private property); and,
- Proximity of these COCs to potential migration pathways to the drinking water aquifer that supplies the City of Memphis.

Implementation of this action is within the scope of the Dunn Field ROD. The action represents a non-significant modification to the remedy, in order to optimize remedy performance in light of new technical information.

The selection of ZVI injection for this early remedy implementation was also based upon the results of a ZVI Treatability Study conducted as part of the RD for Dunn Field. The study was performed on Dunn Field in a known soil and groundwater contaminant source area centered around monitoring well MW73. The study was conducted from October 2003 to April 2004 and, during this study, four injection points were installed in the study area along with five new monitoring wells and, approximately 25,000 pounds of ZVI were injected into the fluvial aquifer. Over the course of five confirmatory separate sampling events, there was an observed 84 to 99 percent reduction of VOCs in the ZVI treatment zone.

This remedy will comply with all applicable or relevant and appropriate requirements (ARARs) as defined in the ROD, including State of Tennessee or Memphis-Shelby County Underground Injection Control (UIC) regulations (Page 2-69 of the Dunn Field ROD). Remedy actions (i.e., ZVI) will occur "onsite", as defined in 40 CFR Part 300.5 and 300.400(e)(1) (Page 2-68 of the Dunn Field ROD). Under CERCLA 121(e)(1), no permit is required for actions conducted entirely on-site; although, the substantive requirements must be met.

IV. Description of Remedial Action

The remedy selected within the Dunn Field ROD for high concentrations of contaminants in the fluvial aquifer underlying Dunn Field and the area west of Dunn Field is injection of ZVI (Page 2-57, Dunn Field ROD).

A. Summary of ZVI Remedy

There are two (2) engineered groundwater remediation components to the groundwater remedy selected within the Dunn Field ROD, including a permeable reactive barrier (PRB) and ZVI injections. The ROD states, "The [selected] alternative employs ZVI injection as a treatment technology of the most contaminated parts of the plume, and treatment of the remaining areas of contaminated groundwater through installation of a PRB and natural attenuation." ZVI does not require extensive lead time to design and implement, has the capacity to reduce contaminants concentrations effectively in the short-term, and requires no long-term operation and maintenance.

Applying the ZVI injection technology to the distal end of the plume where total CVOCs are greater than 500 µg/L is expected to reduce the time to achieve remedial action objectives (RAOs) for groundwater within the overall contaminant plume.

B. Location and Size of Early Remedy Implementation Areas

Figure 1 presents the primary and secondary treatment areas that are part of the early remedy implementation. The larger and primary of the two areas (noted as Area 1 in Figure 1) is west of Dunn Field and extends from the Canadian National (CN) railroad tracks northwest to the Memphis Light, Gas, and Water (MLGW) electrical substation and is bisected by Menager Avenue. The area encompasses monitoring wells MW54, MW150, and MW155. The total surface area in Area 1 is approximately 75,000 square feet.

Area 1 has several access restrictions within the perimeter, including five electric line support towers, CN railroad tracks along the southern edge, and a portion of an MLGW electric substation. Approximately 24,000 square feet of Area 1 is within a security fence for the MLGW substation and access to this area has been denied. There are also several power lines that extend from the towers to the substation, which are low enough that access underneath the lines for heavy equipment used to implement the remedy may not be permissible.

The secondary area (shown as Area 2 in Figure 1) is also west of Dunn Field but is between the perimeter of Dunn Field and the CN rail line. This area is centered around monitoring well MW-144. This area is approximately 80 feet wide and a maximum of 275 feet long for a

total surface area of approximately 22,000 square feet. There is one electric line support tower within Area 2, which also has access restrictions surrounding the tower.

C. Scope of Field Work for Early Remedy Implementation

The early remedy implementation field effort will include three main activities:

- Installation of additional monitoring wells
- Installation of ZVI injection points and injection of the ZVI into the fluvial aquifer
- Monitoring of groundwater prior to and subsequent to the injection

Additional Monitoring Well Installation

As shown in Figure 7, approximately 8 new monitoring wells will be installed in seven locations up- and downgradient to the proposed early remedy implementation areas. One new well cluster will be installed near Area 1, approximately midway between MW152 and MW155. The wells will be suitable for sampling using passive diffusion bag (PDB) samplers and have screen lengths of 15 feet or less. Two wells are required to screen the full saturated thickness.

Additional wells will be installed to confirm the limits of the planned early remedy implementation and to allow for monitoring results of the action. One well will be installed in Area 1 immediately south of the MLGW property along Menager Avenue about 160 feet west of MW148. Four wells will be installed in Area 2 at the north and south ends of the planned line of injections and upgradient and downgradient of MW144.

ZVI Injection Points and Injection Locations

Based upon the results of the Dunn Field ZVI Treatability Study, the radius of treatment of the ZVI injections was determined to be up to 40 feet. This radius of treatment is based upon the reduction of VOC concentrations within monitoring well MW131, which is located 40 feet from the study injection point IW-2. However, note that the quantities in this TM are based upon a 25 foot radius of influence (ROI) from each injection point. This distance is based upon observed thickness of ZVI within treatability study confirmation borings.

Area 1

Based on the anticipated 25-foot ZVI ROI, 13 points will be used for ZVI injection at Area 1 (Figure 7). The number of points proposed for this area will provide significant ROI overlap to treat groundwater flowing through the available treatment zone and, groundwater flowing through the treatment area should encounter ZVI at some point in the flowpath before exiting the area.

The aquifer directly beneath Area 1 varies from approximately 8 to 28 feet in thickness. Using an average thickness of 20 feet and the total surface area of approximately 25,525 square feet (thirteen 50-foot diameter injection areas), the amount of soil within the Area 1 aquifer is approximately 510,500 cubic feet. Assuming that there is 30 percent porosity in the aquifer, then the total cubic feet of soil in the Area 1 aquifer is approximately 357,000. Using an iron to soil mass ratio of a 0.5 percent (as was used during the treatability study) for each injection point, a soil density of approximately 100 pounds per cubic ft, then approximately 175,000 pounds of H-200 sponge ZVI will be required to treat the soil.

Area 2

Based on the anticipated ZVI ROI of 25 feet, 5 points will be used for injection of the ZVI at Area 2 (Figure 7). The number of points proposed for this area will provide significant ROI overlap to treat groundwater flowing through the available treatment zone and, groundwater flowing through the treatment area should encounter ZVI at some point in the flowpath before exiting the area.

Using an average thickness of 4 feet and the total surface area of approximately 9,820 square feet (five 50-foot diameter injection areas), the amount of soil within the Area 2 aquifer is approximately 39,300 cubic feet. Assuming that there is 30 percent porosity in the aquifer, then the total cubic feet of soil in the Area 1 aquifer is approximately 27,500. Using an iron to soil mass ratio of a 0.5 percent (as was used during the treatability study) for each injection point, a soil density of approximately 100 pounds per cubic ft, then approximately 14,000 pounds of H-200 sponge ZVI will be required to treat the soil.

Groundwater Monitoring

Groundwater samples will be collected from monitoring wells up- and downgradient from each of the treatment areas before and after injection of the ZVI to establish baseline groundwater chemistry and geochemical conditions and to confirm the reduction of the contaminants in groundwater. Samples will be collected through the use of PDB samplers and low-flow groundwater sampling techniques. The methods and procedures used in the field will adhere as closely as possible to procedures described in the site-specific Quality Assurance Project Plan, the U.S. EPA Region 4 Science and Ecosystems Services Division, *Environmental Investigations Standard Operating Procedures and Quality Assurance Manual* (EISOPQAM), dated November 2001, as well as sampling and purging procedures presented in *Low-Flow (Minimal Drawdown) Groundwater Sampling Procedures* (Puls and Barcelona, 1996), Sections 7.2.2 and 7.3.3.

Groundwater samples will be analyzed for VOC constituents as well as geochemical parameters, including the metals iron, magnesium, manganese, selenium, and arsenic, as well as calcium, alkalinity, nitrate, and nitrite.

V. Public Notification

A Fact Sheet describing the early implementation of a component of the selected remedy will be produced and distributed to the public in September 2004. The Fact Sheet is for general informational purposes and should present much of the same information contained within this technical memorandum. The Fact Sheet will also provide a date for presentation of this information to the public and the Restoration Advisory Board (RAB). The date for the presentation is currently set for October 21, 2004.

Appendix D

Contains summaries of the following documents. Complete copies located at Memphis Depot information repositories:

Findings of Suitability to Lease 1 through 8

Findings of Suitability to Transfer 1, 2, 3 and 4

FINDING OF SUITABILITY (FOSL) TO LEASE

DEFENSE DISTRIBUTION DEPOT MEMPHIS

NOVEMBER 1996
REVISED APRIL 1997

ENVIRONMENTAL PROTECTION AND SAFETY OFFICE
DEFENSE DISTRIBUTION DEPOT MEMPHIS

Attachment 5

FINDING OF SUITABILITY TO LEASE (FOSL) DEFENSE DISTRIBUTION DEPOT MEMPHIS

APRIL 1997

1. INTRODUCTION

In my capacity as Deputy Assistant Secretary of the Army for Environment, Safety, and Occupational Health, I have determined that certain parcels consisting of 48 buildings at Defense Distribution Depot Memphis, Tennessee (DDMT) are suitable for lease to the Memphis Redevelopment Agency (MDRA). This property is suitable for lease for like use without posing a threat to human health and the environment. The purpose of this Finding Of Suitability To Lease (FOSL) is to document environmentally-related findings for the proposed lease property and present use restrictions as specified in the attached environmental protection provisions.

2. PROPERTY DESCRIPTION

A site map of the proposed lease buildings is at enclosure 1. Information regarding each building addressed in this FOSL is included in Table 1, enclosure 2..

3. REGULATORY COORDINATION

The Tennessee Department of Environment and Conservation (TDEC) and the U.S. Environmental Protection Agency (EPA) Region IV were notified of the initiation of the FOSL. Regulatory comments received during the FOSL development were reviewed and incorporated into the document at enclosure 3. All comments received from TDEC and the EPA during review were resolved and incorporated into the FOSL.

4. EXISTING ORDERS/AGREEMENTS

On October 14, 1992, the EPA placed DDMT on the National Priority List (NPL) for environmental restoration. DDMT has since entered into a Federal Facilities Agreement (FFA) with the TDEC and the EPA. The FFA established regulatory coordination procedures and a schedule for environmental investigation and restoration activities.

5. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE

The environmental impacts associated with leasing the subject facilities have been adequately analyzed in accordance with the National Environmental Policy Act (NEPA). The results of this analysis have been documented in the Final Environmental Assessment for Master Interim Lease, Defense Distribution Depot Memphis, Tennessee, dated September 1996.

The proposed use of this property is consistent with the Defense Distribution Depot Memphis Reuse Plan. The environmental effects of the reuse activities anticipated under the proposed lease were determined to not be significant. The proposed lease will not have an adverse effect on human health and the environment.

6. ENVIRONMENTAL BASELINE SURVEY FINDINGS

A determination of the environmental condition of the facilities has been made in the form of a Community Environmental Response Facilitation Act (CERFA) evaluation, and Environmental Baseline Survey (EBS), dated September 1996. The information provided is a result of a complete search of agency files during the development of the EBS. The EBS documents the environmental condition of the property being offered for lease with regard to the storage, release, or disposal of hazardous substances and petroleum products.

6.1 Environmental Condition of Property Categories

The property addressed by this FOSL, is classified as Department of Defense (DoD) Environmental Condition of Property (ECP) Categories 1, 2, 3, and 4. The facilities are listed according to the appropriate ECP Categories.

Category 1[1]: Areas where storage, release, or disposal of hazardous substances or petroleum has occurred (including no migration of these substances from adjacent areas).

Category 2[1]: Areas where only storage of petroleum products has occurred, but no release, disposal, or migration has occured.

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

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

The EBS determined that the following 38 facilities are considered to be ECP Category 1: 1, 2, 7, 8, 9, 15, 22, 23, 24, 25, 129, 139, 144, 145, 155, 176, 178, 179, 181, 183, 184, 193, 195, 196, 198, 252, 270, 271, 360, 459, 727, 754, 755, 756, 787, 795, T860, S995.

6.2 Hazardous Substances

The EBS determined that 11 of the buildings being offered for lease contain areas considered as ECP Categories 2, 3, and 4. There is evidence that hazardous substances or petroleum products were stored and released at 12 areas within or outside buildings: 210, 470, 489, 490, 560, 670, 685, 689, 690, 753, and 756. Releases were the result of spills inside the buildings, except building 756 which had a fuel tank outside. The releases were remediated in accordance with federal, state, and local regulations. Although hazardous substances were stored or released in the subject facilities, these facilities can be leased without risk to human health or the environment and without interference to the environmental restoration process. Notification of hazardous substance and petroleum product storage, release, or disposal on the property shall be provided in the lease documents as required by DoD FOSL Guidance, and is at Table 2, enclosure 4.

[1] Changes in the FY97 Appropriations Act have since changed the definitions of Categories 1 and 2 to allow the inclusion of former hazardous substance and petroleum product storage areas.

6.3 Asbestos

Asbestos surveys indicate asbestos containing materials are present in all of the buildings proposed for lease with the exception of Buildings 24, 25, 193, 360, and 560. The buildings meet all local, state, and federal regulations for asbestos and do not pose a threat to human health or the environment. The lease will include the asbestos warning and covenant included in the Environmental Protection Provisions of this FOSL.

6.4 Lead-Based Paint (LBP)

Based on their age (construction prior to 1978), all of the buildings proposed for lease are assumed to contain lead-based paint with the exception of Buildings 360 and 560. The lease will include the lead-based paint warning and covenant included in the Environmental Protection Provisions of this FOSL.

6.5 Unexploded Ordnance

None of the buildings or surrounding land proposed for lease are known to have unexploded ordnance present.

7. FINDING OF SUITABILITY TO LEASE

On the basis of the above results from the site-specific EBS and subsequent investigations, certain terms, conditions, reservations, restrictions, and notifications are required for the proposed lease. Environmental Protection Provisions are at enclosure 5 and will be included in all lease documents. The subject property may be used by the Lessee pursuant to the terms and conditions specified in the lease, including the use restrictions detailed in the enclosed Environmental Protection Provisions, without posing a threat to human health and the environment or interference with environmental remediation efforts. Notifications of hazardous substance storage, release, and disposal on the property shall be provided in the lease documents, as required under DoD FOSL Guidance.

Based on the information detailed in the EBS and references cited therein, I have concluded that all Department of Defense requirements to reach a Finding of Suitability to Lease have been fully met for the subject properties.

for Richard E. Newsome

Raymond J. Fatz
Deputy Assistant Secretary of the Army
(Environment, Safety, and Occupational Health)
OASA(I,L&E)

4 Enclosures

TABLE 1

Gate 1	Sentry Station Gate #1	1	Sentry Post	Sentry Post	1959	280
Gate 2	Sentry Station Gate #2	1	Sentry Post	Sentry Post	1958	280
Gate 7	Sentry Station Gate #7	23	Sentry Post	Sentry Post	Unknown	67
Gate 8	Sentry Station Gate #8	23	Sentry Post	Sentry Post	1969	675
Gate 9	Sentry Station Gate #9	29	Sentry Post	Sentry Post	1946	420
Gate 15	Sentry Station Gate #15	15	Sentry Post	Sentry Post	1979	196
Gate 22	Sentry Station Gate #22	14	Sentry Post	Sentry Post	1942	67
Gate 23	Sentry Station Gate #23	13	Sentry Post	Sentry Post	1942	67
Gate 24	Sentry Station Gate #24	13	Sentry Post	Sentry Post	1961	100
Gate 25	Sentry Station Gate #25	13	Sentry Post	Sentry Post	1961	100
Building 129	Waiting Shelter	1	Shelter	Shelter	1980	75
Building 139	Waiting Shelter	1	Shelter	Shelter	1959	144
Building 144	Depot Headquarters Building	1	Administration	Administration	1942	13500
Building S145	Security Building	1	Pass and Identification	Security	1943	860
Building 155	Waiting Shelter	1	Shelter	Shelter	1960	144
Building 176	Military Family Housing (MFH)	2	Residential	Residential	1948	4787
Building S178	Detached Garage-Family Housing	2	Automobile parking, maintenance	Automobile parking, maintenance	1948	1440
Building 179	Military Family Housing (MFH)	2	Residential	Residential	1948	4835
Building 181	Military Family Housing (MFH)	2	Residential	Residential	1948	4835
Building S183	Detached Garage-Family Housing	2	Automobile parking, maintenance	Automobile parking, maintenance	1948	1440
Building 184	Military Family Housing (MFH)	2	Residential	Residential	1948	4739
Building 193	Outdoor Swimming Pool	3	Recreation	Recreation	1948	426
Building S195	Community Club	3	Recreation	Recreation	1949	4254
Building 196	MWR Office/Public Toilet	3	Recreation	Recreation	1952	896
Building S198	Equipment Shed	3	Dry goods	Dry goods	1959	323
Building 210	Admin/Computer Center - General Purpose Warehouse	13	Offices, equipment storage	Offices, storage, small photo lab	1942	240000
Building 252	Physical Fitness Center	4	Recreation	Unknown	1942	8455
Building 270	Facility Installation Services	4	Administration	Maintenance shop	1945	14400
Building S271	Engineer Admin. Building (USACE)	4	Administration	Former Golf Course Club House	1958	1436
Buildin_ 360	General Purpose Warehouse	34	Unused	None (new building)	1996	174665
Building P459	Training Facility	17	Classrooms	Parking lot	1990	4,00
Building 470	General Purpose Warehouse	20	Equipment/ clothing storage	Equipment/clothing storage	1954	218000
Building 489	General Purpose Warehouse	20	Equipment/ clothing storage	Equipment/clothing storage	1954	218000
Building 490	General Purpose Warehouse	21	Central receiving facility	Microfiche developing, historic dipping of machine parts as preservation	1954	218000
Building 560	General Purpose Warehouse	18	Medical and general supplies	Unknown	1990	174665
Building 670	General Purpose Warehouse	20	Equipment/ clothing storage	Equipment/clothing storage	1953	218000
Building 685	General Purpose Warehouse	21	Vehicle maintenance supplies	Unknown	1985	32000
Building 689	General Purpose Warehouse	21	Material handling equipment and materials awaiting shipment	Hazardous waste, Safety Kleen, unknown wastes	1953	228000
Building 690	General Purpose Warehouse	21	Material handling equipment and materials awaiting shipment	Unknown wastes, vehicle maintenance supplies	1953	218000
Building 727	Sentry Station	33	Vacant	None	1994	280
Building 753	Pump Station	33	Fire extinguisher	Pump station	1956	513

			refilling			
Building 754	Water Storage Tank	33	Water tank	Water tank	Unknown	1963
Building 755	Sewage Pump	33	Sewage pump house	Sewage pump house	1953	237
Building 756	Water Pump	33	Water distribution	Water distribution	Unknown	2400
Building 787	General Purpose Warehouse	23	Recycling warehouse	Steel processing	1988	5038
Building 795	Waiting Shelter	23	Shelter	Shelter	1974	240
Building T860	Admin. General Purpose	33	Administration	Administration	1944	800
Building S995	Transportation - Steel Building	23	Steel storage and handling	Unknown	Unknown	8000

FINDING OF SUITABILITY TO LEASE

(FOSL)

Parcel 5.1, Parcel 5.2, Parcel 30.1

Defense Distribution Depot Memphis, Tennessee

(FOSL Number 2)

November 5, 1997

1. PURPOSE

The purpose of this Finding Of Suitability To Lease (FOSL) is to document the environmental suitability of certain parcels of property at Defense Distribution Depot Memphis, Tennessee for leasing to the Depot Redevelopment Corporation consistent with the Department of Defense (DOD) and Army policy. In addition, this FOSL identifies use restrictions as specified in the text and attached Environmental Protection Provisions (enclosure 4) necessary to protect human health or the environment and to prevent interference with any existing or planned environmental restoration activities. Uses of the property will be restricted to light industry, storage, sorting operations, receiving, packaging and shipping, support activities, mechanical shop to support material handling equipment, recreation, welfare activities, training, education, and general office.

2. PROPERTY DESCRIPTION

The proposed property to be leased consists of 3.39 acres that include three buildings. The three buildings are identified as Building 274 ("J" Street Cafeteria), Building T272, and Building 925. A site map of the property proposed to be leased can be found at enclosure 1.

3. ENVIRONMENTAL CONDITION OF THE PROPERTY

A determination of the environmental condition of the facilities has been made based on the Community Environmental Response Facilitation Act (CERFA) Letter Report, dated December 5, 1996 and an Environmental Baseline Survey (EBS), dated November 6, 1996. The information provided is a result of a complete search of agency files during the development of the CERFA Letter Report and EBS. The following documents also provided information on environmental conditions of the property: Final Remedial Investigation Report (Law Environmental, August 1990), Final Environmental Assessment for Master Interim Lease (Tetra Tech, September 1996), Remedial Investigation Soil Sampling Letter Report (CH2M Hill, May 1997), OU - 3 and OU - 4 Field Sampling Plans (CH2M Hill, September 1995), RCRA Facilities Assessment (A.T. Kearnay, Inc., January 1990), and the Installation Assessment (USAEHA, March 1981).

3.1 Environmental Condition of Property Categories

The properties that are being considered for lease are classified as (DOD) Environmental Condition of Property (ECP) Categories 3, 4, and 6. The ECP Categories for the specific buildings and/or parcels are as follows:

ECP Category 3:	Parcel 5.1 to include Building T272
ECP Category 4:	Parcel 30.1 that is Building 925
ECP Category 6:	Parcel 5.2 to include Building 274

A summary of the ECP Categories for specific buildings or parcels is provided in

Table 1 – Description of Property (enclosure 2).

3.2 Storage, Release, Treatment or Disposal of Hazardous Substances

It was determined that no hazardous substances were stored, released, or disposed in excess of the 40 CFR Part 373 reportable quantities in Building T272. Accordingly, there is no need for any notification of hazardous substance storage, release, treatment, or disposal for this building.

It was determined that even though no hazardous substances were released or disposed in Building 274 in excess of the 40 CFR Part 373 reportable quantities, there was a possible previous spill involved with this area. Building 274 was constructed on a former transformer storage area. Prior to construction of the cafeteria, a spill probably occurred in this area as evidenced by the information obtained from the CH2M Hill sampling conducted in 1997. One out of five samples taken indicate a level of PCB's in the grassy area immediately surrounding the cafeteria slightly above the Residential Risk Based Concentration (RBC) for soil ingestion (1.39 mg/kg vs 0.83 mg/kg). DDE, DDT, DDD, and Dieldrin levels found in the five samples were all below the RBC for soil ingestion.

It was determined that even though no hazardous substances were released or disposed in Building 925 in excess of the 40 CFR Part 373 reportable quantities, there was a previous spill involved with this area. The release of hazardous substances was remediated at the time of the release as an emergency response. Building 925 was previously known as X - 25, an open storage area where flammable materials and petroleum products were stored in an earthen and then concrete bermed area. At one time the concrete bermed area was covered with a fabric tension structure that was called a spandome. This building was labeled Building T925. On January 19, 1988, during a period of inclement weather (wind/rain), the spandome collapsed resulting in a release of hazardous substances in the bermed area. In order to safely remove the collapsed laminate roof and associated steel girders, the bermed area needed to be emptied. Two tanker trucks with pumps removed approximately 36,000 gallons of product and rain water that had accumulated. The following is a list of the impacted products and the 40 CFR Part 373 reportable quantity associated with them: Toluene (1,000 pounds), Xylene (100 pounds), Methyl Ethyl Ketone (5,000 pounds), Methyl IsoButyl Ketone (5,000 pounds), Acetone (5,000 pounds), and Isopropyl Alcohol (5,000 pounds). It was later determined that approximately 325 gallons of product had been spilled although the exact proportions are now unknown. Therefore, a worst case scenario would assume that it was possible for Xylene to exceed the 40 CFR Part 373 reportable quantity of 100 pounds (13.92 gallons) and/or Toluene to exceed the 40 CFR Part 373 reportable quantity of 1,000 pounds (137 gallons).

Temporary Building 925 was replaced in 1993/1994 with Building 925. While Building 925 stored hazardous materials (acetone, methyl ethyl ketone, methanol, ethanol) and petroleum products, it was determined that there was no evidence of any release or disposal in excess of 40 CFR Part 373 reportable quantities. A summary of the buildings in

which hazardous substances were stored, released, or disposed in excess of 40 CFR Part 373 reportable quantities is provided in Table 2 - Notification of Hazardous Substance and Petroleum Products, Storage, Release, or Disposal (enclosure 3).

3.3 Petroleum and Petroleum Products

3.3.1 Storage, Release, or Disposal of Petroleum or Petroleum Products

There is no evidence that any petroleum or petroleum products were stored, released, or disposed at the properties listed in this FOSL except for the area involving Building 925. Building 925 was built on the former earthen and then concrete bermed area of X - 25 and Building T925. There is no evidence that any petroleum or petroleum products were released or disposed in this area. The January 19, 1988 spill did not contain petroleum products. A summary of the building or area in which petroleum or petroleum products were stored, released, or disposed is provided in Table 2 - Notification of Hazardous Substances and Petroleum Products Storage, Release, or Disposal (enclosure 3).

3.3.2 Underground and Above-Ground Storage Tanks (UST/AST)

The EBS and visual site inspection (VSI) reported or identified **no** underground storage tanks and **no** above-ground storage tanks on the property listed in this FOSL. There is no evidence of petroleum contamination at these sites.

3.4 Polychlorinated Biphenyls (PCB) Equipment

There are no PCB containing transformers or other PCB containing equipment located on the property listed in this FOSL. However, Building 274 was built on the location of a former storage area for electrical transformers that contained PCB's. During the Installation Assessment conducted in March 1981, two transformers were observed in the storage area. Testing of the fluid in the transformers indicated concentrations of less than 50 parts per million of PCBs. The site's date of initial operations is unknown but assumed to be prior to 1981. Activities ceased in the mid-1980's because of the construction of the new DDMT cafeteria.

Surface soil sampling in the grassy areas surrounding Building 274 revealed one out of five samples indicating a slightly elevated level of PCB (Aroclor - 1260) above the residential risk-based concentration for soil ingestion (1.39 mg/kg vs 0.83 mg/kg). There is no surface exposure. This site is a candidate for an early removal action or Baseline Risk Assessment to support a Record of Decision for No Further Action. A restriction associated with this Building will be that no digging (soil disturbance) will be allowed in any of the grassy areas surrounding the "J" Street Cafeteria without the express permission of the Government.

The lease will include the PCB notification provision included in the Environmental Protection Provisions (enclosure 4).

3.5 Asbestos

The EBS and the Asbestos Identification Survey (Pickering, December 1993 and January 1994) indicate asbestos containing materials (ACM) are present in Building 274. The tile mastic contained 3% to 5% chrysotile. The ACM does not currently pose a threat to human health or the environment because there is no friable asbestos. The lease will include the asbestos warning and covenant included in the Environmental Protection Provisions (enclosure 4).

3.6 Lead-Based Paint (LBP)

Based on the age of Buildings 925 and 274 (constructed after 1978), they are presumed to contain no lead-based paint. The construction date of Building T272 (lumber storage shed) was 1942, and therefore it is presumed to contain lead-based paint.

No residential use is to be permitted under the terms of the lease.

The lease will include the lead-based paint warning and covenant included in the Environmental Protection Provisions (enclosure 4).

3.7 Radiological Sources or Contamination

There is no evidence that the Army or DDMT used or stored radioactive sources on the property listed in this FOSL.

3.8 Radon

In keeping with DOD policy to not perform radon assessment and mitigation prior to transfer of BRAC property unless otherwise required by applicable law, there were no radon surveys conducted in the buildings listed in this FOSL. Radon surveys were conducted in accordance with regulations in the following residential structures at DDMT: Buildings 176, 179, 181, and 184. Radon was not detected above the EPA residential action level of 4 picocuries per liter (pCi/L) in these buildings.

3.9 Unexploded Ordnance

Based on a review of existing records and available information, none of the buildings or surrounding land proposed for lease are known to contain unexploded ordnance.

3.10 Other Hazardous Conditions

There are no other known hazardous conditions that present a threat to human health or the environment.

4. REMEDIATION

In October 1992, the U.S. Environmental Protection Agency (EPA) placed DDMT on the National Priorities List (NPL) for environmental restoration. DDMT has since entered into a Federal Facilities Agreement (FFA) with the Tennessee Department of Environment and Conservation (TDEC) and the EPA. Environmental contamination on the property does not present a hazard to leasing the property. In addition, environmental conditions on adjacent property do not present a hazard to the leasing of the property. Regulators have concurred with DDMT that the property does not pose risks above levels deemed protective provided that the property is used for the proposed purpose. The lease will include a provision reserving the Army's right to conduct remediation activities in the Environmental Protection Provisions (enclosure 4).

5. REGULATORY COORDINATION

TDEC and EPA Region 4 were notified of the initiation of the FOSL. Regulatory comments received during the FOSL development and the BRAC Cleanup Team meetings were reviewed and incorporated as appropriate. All comments received from TDEC and the EPA during the review process were resolved and incorporated into the FOSL. No written comments were received from the public.

6. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE AND CONSISTENCY WITH LOCAL REUSE PLAN

The environmental impacts associated with the proposed lease of the property have been adequately analyzed in accordance with the National Environmental Policy Act (NEPA). The results of this analysis have been documented in the Final Environmental Assessment for Master Interim Lease, Defense Distribution Depot Memphis, Tennessee, dated September 1996. The environmental effects of the activities anticipated under the proposed lease were determined not to be significant.

The proposed lease addressed by this FOSL is consistent with the reuse alternatives stated in the above referenced NEPA document and with the intended reuse of the property set forth in the Memphis Depot Redevelopment Plan dated May 1997.

7. ENVIRONMENTAL PROTECTION PROVISIONS

On the basis of the above results from the site-specific EBS, any subsequent or additional investigations, surveys, or studies identified in the FOSL, and in consideration of the intended use of the property, certain terms, conditions, reservations, and restrictions are required for the proposed lease. The Environmental Protection Provisions are at enclosure 4 and will be included in the proposed lease and all subleases.

are required for the proposed lease. The Environmental Protection Provisions are at enclosure 4 and will be included in the proposed lease and all subleases.

8. FINDING OF SUITABILITY TO LEASE

Based on the information detailed in the EBS, the references cited therein, and this FINDING OF SUITABILITY TO LEASE, I have concluded that all Department of Defense requirements to reach a FINDING OF SUITABILITY TO LEASE have been fully met for the subject property. The subject property is suitable to lease by the Lessee for the intended purpose, subject to the terms, conditions, reservations, and restrictions set forth in the Environmental Protection Provisions attached to this FOSL, without posing an unacceptable risk to human health or the environment and without interference with the environmental remediation process at Defense Distribution Depot Memphis, Tennessee, and the uses contemplated for the lease are consistent with protection of human health and the environment.

As required by CERCLA section 120(h)(3)(B), I have determined that the Environmental Protection Provisions of the lease and the terms of the lease provide adequate assurances that the United States will take any additional remedial action found to be necessary to protect human health and the environment with respect to any hazardous substances remaining on the property on the date of the lease which has not been taken on the date of the lease.

Notification of hazardous substance or petroleum product storage, release, treatment, or disposal on the property, Table 2 - Notification of Hazardous Substance or Petroleum Product Storage, Release, Treatment or Disposal (enclosure 3) shall be provided in the lease documents, as required under the DOD FOSL Guidance.

Earle C. Richardson
Colonel, GS
Deputy Chief of Staff
for Engineering, Housing,
Environmental, and Installation
Logistics

4 Enclosures
Encl 1 Site Map of Proposed Lease Area
Encl 2 Table 1 - Description of Property
Encl 3 Table 2 - Notification of Hazardous Substance or Petroleum Product Storage, Release, or Disposal
Encl 4 Environmental Protection Provisions

FINDING OF SUITABILITY TO LEASE

(FOSL)

Parcel 4.12 and Parcel 27.2

Defense Distribution Depot Memphis, Tennessee

(FOSL Number 3)

May 20, 1998

En

1. PURPOSE

The purpose of this Finding Of Suitability To Lease (FOSL) is to document the environmental suitability of certain parcels of property at Defense Distribution Depot Memphis, Tennessee (DDMT) for leasing to the Depot Redevelopment Corporation (DRC) consistent with the Department of Defense (DOD) and Army policy. The expected reuse of the properties are as follows: Building 251 - Portion of a Police Department Precinct; Building 972 - Wood Pallet Production. Expected reuse includes light industry, storage or general office use. In addition, this FOSL identifies use restrictions as specified in the text and attached Environmental Protection Provisions (Enclosure 5) necessary to protect human health or the environment and to prevent interference with any existing or planned environmental restoration activities.

2. PROPERTY DESCRIPTION

The proposed property to be leased consists of 6.52 acres that include two BRAC parcels. The two parcels are identified as 4.12 (Building 251) and 27.2 (Building 972). A site map of the property proposed to be leased can be found at Enclosure 1.

3. ENVIRONMENTAL CONDITION OF THE PROPERTY

A determination of the environmental condition of the facilities has been made based on the Community Environmental Response Facilitation Act (CERFA) Letter Report, dated December 5, 1996 and an Environmental Baseline Survey (EBS), dated November 6, 1996. The information provided is a result of a complete search of agency files during the development of the CERFA Letter Report and EBS. The following documents also provided information on environmental conditions of the property: Draft Final BRAC Cleanup Plan Version 2 (DDSP-FE, November 1997), Asbestos Reinspection (DDC-WP, October 1996), Final Environmental Assessment for Master Interim Lease (Tetra Tech, September 1996), Remedial Investigation Soil Sampling Letter Report (CH2M Hill, May 1997), OU - 2 and OU - 3 Field Sampling Plans (CH2M Hill, September 1995), Asbestos Identification Survey (Pickering, December 1993 and January 1994), RCRA Facilities Assessment (A.T. Kearney, Inc., January 1990), ; Final Remedial Investigation Report (Law Environmental, August 1990) and the Installation Assessment (USAEHA, March 1981).

3.1 Environmental Condition of Property Categories

The properties that are being considered for lease are classified as DOD Environmental Condition of Property (ECP) Category 4. The ECP category for the specific buildings and/or parcels are as follows:

ECP Category 4: Parcel 4.12 Building 251 only

ECP Category 4: Parcel 27.2 Building 972 only

A summary of the ECP Categories for the specific building is provided in Table 1 – Identification of Property and Environmental Conditions (Enclosure 2).

3.2 Storage, Release, Treatment or Disposal of Hazardous Substances

It was determined that there is no evidence that hazardous substances were stored or disposed in Building 251. However, a one square foot floor drain was sampled and found to contain sediment with levels of concern for Lead and Poly Aromatic Hydrocarbons. In accordance with direction from the BCT, the sediment was removed from the floor drain. The floor drain was then filled with concrete.

Building 972 stored flammables, solvents, and waste oils. Known releases in this building are addressed in paragraph 3.3.1, Storage, Release, or Disposal of Petroleum or Petroleum Products.

A summary of the buildings in which hazardous substances were stored, released, or disposed in excess of 40 CFR Part 373 reportable quantities is provided in Table 2 - Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 3).

3.3 Petroleum and Petroleum Products

3.3.1 Storage, Release, or Disposal of Petroleum or Petroleum Products

It was determined that petroleum products were used in Building 251. Building 251 housed a small engine/equipment shop area and a mechanic's work pit that contained a small sump. There is no evidence of any petroleum products being released or disposed in this area. The mechanic's work pit and sump were filled with concrete prior to 1976.

It was determined that petroleum products were stored in Building 972 and releases occurred. Operational spills were cleaned when they occurred. In addition, oil stained areas were observed during a visual inspection to facilitate the Screening Sites Field Sampling Plan (CH2M Hill 1995). Building 972 has been retrofitted with the floor being cleaned and sealed with new flooring material.

A summary of the buildings or areas in which petroleum or petroleum products were stored, released, or disposed is provided in Table 3 - Notification of Petroleum Products Storage, Release, or Disposal (Enclosure 4).

3.3.2 Underground and Above-Ground Storage Tanks (UST/AST)

There was no evidence that any petroleum or petroleum products were stored in USTs/ASTs on the properties listed in this FOSL.

3.4 Polychlorinated Biphenyls (PCB) Equipment

There are no PCB containing transformers or other PCB containing equipment, except hermetically sealed fluorescent light bulb ballasts that may contain PCBs, located on the property listed in this FOSL. There is no evidence these ballasts have leaked. There is no evidence of unremediated releases of PCB equipment. The lease will include the PCB notification provision included in the Environmental Protection Provisions (Enclosure 5).

3.5 Asbestos

The EBS and the Asbestos Identification Survey (Pickering, December 1993 and January 1994) indicate asbestos containing materials (ACM) are present in Buildings 251 and 972.

Asbestos findings in Building 251 were as follows:

Boiler/flue Insulation: Material contained 35% amosite and 10% to 20% chrysotile. Material was in good condition with minimal damage due to natural deterioration and maintenance activity. Boiler/flue insulation removed in 1995.

Thermal System Pipe Insulation: Contained 35% to 40% amosite and 8% to 25% chrysotile. Material was in good condition with minimal damage due to natural deterioration and maintenance activity. Insulation removed in 1995.

Boiler Door Insulation: Contained 35% to 55% chrysotile. Material was in good condition with minor natural deterioration. Insulation removed in 1995.

Exterior Window Putty: Contained 4% to 7% chrysotile. Material was in fair to poor condition due to physical damage and natural deterioration.

9 X 9 Floor Tile: Tile and mastic in the restrooms contained 20% to 25% chrysotile. Material was non-friable and in good condition.

Roof Flashing: Material used to seal the roof perimeter and all roof penetrations contained 5% chrysotile. Material was non-friable and in good condition.

Asbestos findings in Building 972 were as follows:

12 X 12/9 X 9 Floor Tile: Two layers of asbestos containing floor tile installed in the office and break room contained 10% to 25% chrysotile. Material was in good condition.

9 X 9 Beige Vinyl Floor Tile: Vinyl floor tile installed in the office area of Bay 5 contained 30% chrysotile. Material was non-friable and in good condition.

9 X 9 Floor Tile: Vinyl floor tile and mastic installed in the office area of Bay 5 contained 25% chrysotile Material was non-friable and in good condition.

Cement Asbestos Products: Cement asbestos board installed on the ceiling and wall area of the shop in Bay 6 contained 25% chrysotile. Material was in fair condition with moderate damage due to maintenance activity. Boards removed in 1998.

The ACM does not currently pose a threat to human health or the environment because there is no friable asbestos. The lease will include the asbestos warning and covenant included in the Environmental Protection Provisions (Enclosure 5).

3.6 Lead-Based Paint (LBP)

Based on the age of Buildings 972 and 251 (constructed prior to 1978), they are presumed to contain lead-based paint. No residential use is to be permitted under the terms of the lease. The lease shall include the lead-based paint warning and covenant included in the Environmental Protection Provisions (Enclosure 5).

3.7 Radiological Sources or Contamination

There is no evidence that the Army or DDMT used or stored radioactive sources on the property listed in this FOSL.

3.8 Radon

In keeping with DOD policy to not perform radon assessment and mitigation prior to transfer of BRAC property, there were no radon surveys conducted in the buildings in this FOSL. Radon surveys were conducted in accordance with regulations in the following residential structures at DDMT: Buildings 176, 179, 181, and 184. Radon was not detected above the Environmental Protection Agency (EPA) residential action level of 4 picocuries per liter (pCi/L) in these buildings.

3.9 Unexploded Ordnance

Based on a review of existing records and available information, none of the buildings or surrounding land proposed for lease are known to contain unexploded ordnance.

3.10 Other Hazardous Conditions

There are no other known hazardous conditions that present a threat to human health or the environment.

4. REMEDIATION

In October 1992, the U.S. EPA placed DDMT on the National Priorities List (NPL) for environmental restoration. DDMT has since entered into a Federal Facilities Agreement (FFA) with the Tennessee Department of Environment and Conservation (TDEC) and the EPA. Environmental contamination on the property does not present a hazard to leasing the property. In addition, environmental conditions on adjacent property do not present a hazard to the leasing of the property. Regulators have concurred with DDMT that the property does not pose risks above levels deemed protective provided that the property is used for the proposed purpose. No remediation is currently underway or planned. The lease will include a provision reserving the Army's right to conduct remediation activities in the Environmental Protection Provisions (Enclosure 5).

5. REGULATORY COORDINATION

TDEC and EPA Region 4 were notified of the initiation of this FOSL. Regulatory comments received during the FOSL development and the BRAC Cleanup Team meetings were reviewed and incorporated as appropriate. The FOSL was discussed with public at the January 22, 1998 Restoration Advisory Board meeting. No verbal or written comments were received from the public.

6. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE AND CONSISTENCY WITH LOCAL REUSE PLAN

The environmental impacts associated with the proposed lease of the property have been adequately analyzed in accordance with the National Environmental Policy Act (NEPA). The results of this analysis have been documented in the Final Environmental Assessment for Master Interim Lease, Defense Distribution Depot Memphis, Tennessee dated September 1996. The environmental effects of the activities anticipated under the proposed lease were determined not to be significant.

The proposed lease addressed by this FOSL is consistent with the reuse alternatives stated in the above referenced NEPA document and with the intended reuse of the property set forth in the Memphis Depot Redevelopment Plan dated May 1997.

7. ENVIRONMENTAL PROTECTION PROVISIONS

On the basis of the above results from the site-specific EBS, any subsequent or additional investigations, surveys, or studies identified in the FOSL, and in consideration of the intended use of the property, certain terms, conditions, reservations, and restrictions are required for the proposed lease. The Environmental Protection Provisions are at Enclosure 5 and will be included in the proposed lease and all subleases.

8. FINDING OF SUITABILITY TO LEASE

Based on the information detailed in the EBS, the references cited therein, and this FINDING OF SUITABILITY TO LEASE, I have concluded that all Department of Defense requirements to reach a FINDING OF SUITABILITY TO LEASE have been fully met for the subject properties. The subject property is suitable to lease by the Lessee for the intended purpose, subject to the terms, conditions, reservations, and restrictions set forth in the Environmental Protection Provision attached to this FOSL, without posing an unreasonable risk to human health or the environment and without interference with the environmental remediation process at Defense Distribution Depot Memphis, Tennessee, and the uses contemplated for the lease are consistent with protection of human health and the environment.

As required by CERCLA section 120(h)(3)(B), I have determined that the Environmental Protection Provisions of the lease and the terms of the lease provide adequate assurances that the United States will take any additional remedial action found to be necessary to protect human health and the environment with respect to any hazardous substances remaining on the property on the date of the lease which has not been taken on the date of the lease.

Notification of hazardous substance or petroleum product storage, release, treatment, or disposal on the property, Table 2 - Notification of Hazardous Substance Storage, Release, Treatment or Disposal (Enclosure 3) and Table 3 - Notification of Petroleum Products Storage, Release or Disposal (Enclosure 4) shall be provided in the lease documents, as required under the DOD FOSL Guidance.

Earle C. Richardson
Colonel, GS
Deputy Chief of Staff for Engineering, Housing,
Environmental, and Installation Logistics

7 Enclosures
Encl 1 Site Map of Proposed Lease Area
Encl 2 Table 1 - Identification of Property and Environmental Condition
Encl 3 Table 2 - Notification of Hazardous Substance Storage, Release, or Disposal
Encl 4 Table 3 - Notification of Petroleum Product Storage, Release or Disposal
Encl 5 Environmental Protection Provisions
Encl 6 Regulatory/Public Comments and Responses
Encl 7 References

FINDING OF SUITABILITY TO LEASE

(FOSL)

Parcel 4.4, Parcel 4.5, Parcel 4.6, Parcel 4.7,
Parcel 4.8, Parcel 4.9, Parcel 4.10, Parcel 4.11, Parcel 4.13

Defense Distribution Depot Memphis, Tennessee

(FOSL number 4)

July 8, 1998

1. PURPOSE

The purpose of this Finding Of Suitability To Lease (FOSL) is to document the environmental suitability of Parcels 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10, 4.1 and 4.13 at the Defense Distribution Depot Memphis, Tennessee (DDMT) for leasing to the Depot Redevelopment Corporation (DRC) for light industry, storage or general office use consistent with Department of Defense (DOD) and Army policy. This FOSL has been developed in accordance with the DRC's Reuse Plan. In addition, the FOSL identifies use restrictions as specified in the attached Environmental Protection Provisions (Enclosure 5) necessary to protect human health or the environment and to prevent interference with any existing or planned environmental restoration activities.

2. PROPERTY DESCRIPTION

The proposed property to be leased consists of 5.93 acres that includes nine (9) parcels (4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10, 4.11 and 4.13). Included in these parcels are nine (9) buildings (Buildings 253, 254, T256, 257, 260, T261, 263, 265 and 273), one pad (Pad 267) and one open area. The open land area contains Buildings T256 and T261. Site maps of the property proposed to be leased can be found at Enclosure 1.

3. ENVIRONMENTAL CONDITION OF THE PROPERTY

A determination of the environmental condition of the facilities has been made based on the Community Environmental Response Facilitation Act (CERFA) Letter Report dated December 5, 1996 and an Environmental Baseline Survey (EBS) dated November 6, 1996. The information provided is a result of a complete search of agency files during the development of these environmental surveys. The following documents also provided information on environmental conditions of the property: Draft Final BRAC Cleanup Plan Version 2 (DDSP-FE, November 1997), Asbestos Reinspection (DDC-WP, October 1996), Final Environmental Assessment for Master Interim Lease (Tetra Tech, September 1996), Remedial Investigation Soil Sampling Letter Report (CH2M Hill, May 1997), OU - 2 and OU - 3 Field Sampling Plans (CH2M Hill, September 1995), Asbestos Identification Survey (Pickering, December 1993 and January 1994), RCRA Facilities Assessment (A.T. Kearnay, Inc., January 1990), Final Remedial Investigation Report (Law Environmental, August 1990) and the Installation Assessment (USAEHA, March 1981).

3.1 Environmental Condition of Property Categories

The Department of Defense (DOD) Environmental Condition of Property (ECP) Categories for the properties are as follows:

ECP Category 1: Parcel 4.11 - Building 253 only

ECP Category 3:	Parcel 4.8 - Building 263 only Parcel 4.4 - Building 260 only
ECP Category 4:	Parcel 4.13 - Building 265 only
ECP Category 6:	Parcel 4.6 - Building 254 and surrounding area Parcel 4.7 - Building 257 and surrounding area
ECP Category 7:	Parcel 4.10 - Building 273 and surrounding area Parcel 4.9 - Pad 267 and surrounding area Parcel 4.5 - consisting of Buildings T256 and T261 plus all land areas in Parcel 4 except those within Parcels 4.6, 4.7, 4.9 and 4.10

A summary of the ECP Categories for specific buildings or parcels is provided in Table 1 – Description of Property (Enclosure 2).

3.2 Storage, Release or Disposal of Hazardous Substances

Hazardous substances were stored in Buildings 253, 254, 257, 260, 263, 265, 273, Pad 267 and the open areas of Parcel 4.5. It is assumed this storage was in excess of the 40 CFR Part 373 reportable quantities. Hazardous substances were released in Buildings 254, 257, 260, 273, Pad 267 and other areas in Parcel 4.5 surrounding Buildings 253, 263 and T256. It is assumed, unless otherwise noted, releases were in excess of the 40 CFR Part 373 reportable quantities. The release of hazardous substances was either remediated at the time of the release or is currently under evaluation as part of the installation restoration program. There is no risk to human health and the environment so long as the tenant adheres to the Environmental Protection Provisions (Enclosure 5) with particular reference to Provision 14 regarding ground distrubing activities. These activities shall not be allowed without prior written approval from the Government. A summary of the buildings or areas in which hazardous substances activities occurred is provided in Table 2 – Notification of Hazardous Substance Storage, Release or Disposal (Enclosure 3).

3.3 Petroleum and Petroleum Products

3.3.1 Storage, Release or Disposal of Petroleum Products

Petroleum products were stored in Buildings 253, 254, T256, 257 and the open grassy area in Parcel 4.5 directly south of Building 257. It is assumed this storage was in excess of 55 gallons. Petroleum products were released in Building 257 and the surrounding area as well as the open grassy area in Parcel 4.5 directly south of Building 257. It is assumed, unless otherwise noted, these releases were in excess of 55 gallons. The release of petroleum products was either remediated at the time of the release or is currently under evaluation as part of the installation restoration program. There is no risk to human health and the environment so long as the tenant adheres to the Environmental

to human health and the environment so long as the tenant adheres to the Environmental Protection Provisions (Enclosure 5) with particular reference to Provision 14 regarding ground distrubing activities. These activities shall not be allowed without prior written approval from the Government. An underground storage tank removal project for Parcel 4.5 is scheduled for the summer of 1998 and will include all associated piping and any petroleum contaminated soil. A summary of the buildings or areas in which petroleum products were stored or released is provided in Table 3 – Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4).

3.3.2 Underground and Above-Ground Storage Tanks (UST/AST)

There are two (2) underground storage tanks and two (2) aboveground storage tanks (UST/AST) on the property that were used for storage of petroleum products. There is no evidence of petroleum product releases at the following UST/AST sites: the 18,000-gallon UST gasoline tank (converted to diesel in 1995) and the 20,000-gallon UST gasoline tank installed in 1984 south of Building 257, the two (2) 1,000-gallon AST gasoline tanks (one was converted to diesel in 1995) located adjacent to Building 257. A summary of the buildings or areas in which petroleum product activities occurred is provided in Table 3 – Notification of Petroleum Products Storage, Release or Disposal (Enclosure 4).

3.4 Polychlorinated Biphenyls (PCB) Equipment

There are no PCB containing transformers or other PCB containing equipment, except hermetically sealed fluorescent light bulb ballasts that may contain PCBs, located on the property listed in this FOSL. There is no evidence of unremediated PCB releases from these ballasts.

3.5 Asbestos

The EBS and the Asbestos Identification Survey (Pickering, December 1993 and January 1994) indicate Asbestos Containing Materials (ACM) are present in the following buildings:

Building 260:	Thermal System Pipe Insulation (to include joints) Cement Ceiling Panels Exterior Window Putty 12 x 12 Floor Tiles and Mastic
Building 254:	Cement Asbestos Panels Felt Paper Roofing Material
Building 257:	12 x 12 Vinyl Floor Tiles Asphalt Built Up Roofing and Roof Flashing

Building 253: Exterior Window Frame Putty
12 x 12 Vinyl Floor Tile
Thermal System Pipe Insulation

Building 265: Boiler Flue Insulation
Thermal System Pipe Insulation (to include joints)
Interior Boiler Door Insulation
9 x 9 Floor Tile
12 x 12 Floor Tile
Roof Flashing

Building 273: No Survey Completed - Structure is a tin and wood shed; assumed no ACM present

Building T256: No Survey Completed - Structure is a tin and wood shed; assumed no ACM present

Building T261: No Survey Completed - Structure erected in 1993; assumed no ACM present

The ACM does not currently pose a threat to human health or the environment because all friable asbestos that posed an unacceptable risk to human health has been removed or encapsulated. The lease will include the asbestos warning and covenant included in the Environmental Protection Provisions (Enclosure 5).

3.6 Lead-Based Paint (LBP)

Based on the age of the buildings (constructed prior to 1978), the following buildings are presumed to contain lead-based paint: Buildings 260, 254, 257, 253, 265, 273, T256, and 263. The lease will include the lead-based paint warning and covenant provided in the Environmental Protection Provisions (Enclosure 5).

3.7 Radiological Materials

There is no evidence that the Department of Defense used or stored radioactive materials on the property.

3.8 Radon

In keeping with DOD policy to not perform radon assessment and mitigation prior to transfer of BRAC property, there were no radon surveys conducted in the buildings in this FOSL.

3.9 Unexploded Ordnance

Based on a review of existing records and available information, none of the buildings or surrounding land proposed for lease are known to contain unexploded ordnance.

3.10 Other Hazardous Conditions

There are no other known hazardous conditions that present an unacceptable threat to human health or the environment on the property.

4. REMEDIATION

In October 1992, the U.S. Environmental Protection Agency (EPA) placed DDMT on the National Priorities List (NPL) for environmental restoration. DDMT has since entered into a Federal Facilities Agreement (FFA) with the Tennessee Department of Environment and Conservation (TDEC) and the EPA. Environmental contamination on the property described in this document does not present a hazard to leasing it. In addition, environmental conditions on adjacent property do not present a hazard to the leasing of the property. Table 2 - Notification of Hazardous Substance Storage, Release or Disposal (Enclosure 3) and Table 3 - Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4) provide details regarding environmental conditions for each individual parcel or building contained within this FOSL. Regulators have concurred with DDMT that Buildings 253, 260, 263 and 265 do not pose risks above levels deemed protective provided that the property is used for the proposed purpose and the lessee strictly adheres to the Environmental Protection Provisions (Enclosure 5). Buildings 254 and 257 and the surrounding areas shall be remediated during the Parcel 4.5 underground storage tank removal project scheduled for the summer of 1998 and will not pose risks above levels deemed protective provided the property is used for the proposed purpose. The remaining property consisting of Building 273 and surrounding area, Building T261, Building T256, Pad 267 and surrounding area as well as the remaining open areas do not pose risks above levels deemed protective provided that the property is use for the proposed purpose and the lessee strictly adheres to the Environmental Protection Provisions (Enclosure 5). The lease will include a provision reserving the Army's right to conduct remediation activities in the Environmental Protection Provisions (Enclosure 5).

5. REGULATORY/PUBLIC COORDINATION

The U.S. EPA Region 4, TDEC and the public were notified of the initiation of the FOSL. Regulators have reviewed this FOSL and provided comments. These comments have been reviewed and incorporated as appropriate. Regulatory/public comments and responses are provided in Enclosure 6.

6. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE AND CONSISTENCY WITH LOCAL REUSE PLAN

The environmental impacts associated with proposed lease of the property have been analyzed in accordance with the National Environmental Policy Act (NEPA). The results of this analysis have been documented in the Final Environmental Assessment for Master Interim Lease, Defense Distribution Depot Memphis, Tennessee, dated September 1996. The environmental effects of the activities anticipated under the proposed lease were determined not to be significant. In addition, the proposed use of the property is consistent with the intended reuse of the property set forth in the Depot Redevelopment Corporation Reuse Plan.

7. ENVIRONMENTAL PROTECTION PROVISIONS

On the basis of the above results from the site-specific EBS and other environmental studies and in consideration of the intended use of the property, certain terms and conditions are required for the proposed lease. These terms and conditions are set forth in the attached Environmental Protection Provisions (Enclosure 5) and will be included in the lease.

8. FINDING OF SUITABILITY TO LEASE

Based on the above information, I have concluded that all Department of Defense (DOD) requirements to reach a Finding of Suitability to Lease (FOSL) to the Depot Redevelopment Corporation for light industrial use have been fully met for the property subject to the terms and conditions in the attached Environmental Protection Provision (Enclosure 5). As required by CERCLA section 120(h)(3)(B), I have determined that the property is suitable for lease for the intended purpose, the uses contemplated for the lease are consistent with protection of human health and the environment, and there are adequate assurances that the United States will take any additional remedial action found to be necessary that has not been taken on the date of the lease.

As required under the DOD FOSL Guidance, notification of hazardous substance activities and petroleum product activities shall be provided in the lease documents. Refer to Table 2 – Notification of Hazardous Substance Storage, Release or Disposal (Enclosure 3) and Table 3 – Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4).

DAVID S. ABDELNOUR
Acting Deputy Chief of Staff
For Engineering, Housing, Environment, and
Installation Logistics

7 Enclosures

FINDING OF SUITABILITY TO LEASE

(FOSL)

Parcel 8.1, Parcel 8.2, Parcel 8.3
Parcel 8.4, Parcel 8.5

Defense Distribution Depot Memphis, Tennessee

(FOSL Number 5)

July 8, 1998

1. PURPOSE

The purpose of this Finding Of Suitability To Lease (FOSL) is to document the environmental suitability of Parcels 8.1, 8.2, 8.3, 8.4 and 8.5 at the Defense Distribution Depot Memphis, Tennessee (DDMT) for leasing to the Depot Redevelopment Corporation (DRC) for light industry, storage or general office use consistent with Department of Defense (DOD) and Army policy. This FOSL has been developed in accordance with the DRC's Reuse Plan. In addition, the FOSL identifies use restrictions as specified in the attached Environmental Protection Provisions (Enclosure 5) necessary to protect human health and the environment and to prevent interference with any existing or planned environmental restoration activities.

2. PROPERTY DESCRIPTION

The proposed property to be leased consists of 17.6 acres that includes five (5) parcels. Included in these parcels are four (4) buildings (Buildings 229, 230, 329 and 330) and the open land area surrounding these buildings. Site maps of the property proposed to be leased can be found at Enclosure 1.

3. ENVIRONMENTAL CONDITION OF THE PROPERTY

A determination of the environmental condition of the facilities has been made based on the Community Environmental Response Facilitation Act (CERFA) Letter Report dated December 5, 1996 and an Environmental Baseline Survey (EBS) dated November 6, 1996. The information provided is a result of a complete search of agency files during the development of these environmental surveys. The following documents also provided information on environmental conditions of the property: Draft Final BRAC Cleanup Plan Version 2 (DDSP-FE, November 1997), Asbestos Reinspection (DDC-WP, October 1996), Final Environmental Assessment for Master Interim Lease (Tetra Tech, September 1996), Ordnance and Explosive Waste/Chemical Warfare Materials Archives Search Report (U.S. Army Corps of Engineers, January 1995), Remedial Investigation Soil Sampling Letter Report (CH2M Hill, May 1997), OU - 2 and OU - 3 Field Sampling Plans (CH2M Hill, September 1995), Asbestos Identification Survey (Pickering, December 1993 and January 1994), RCRA Facilities Assessment (A.T. Kearnay, Inc., January 1990), Final Remedial Investigation Report (Law Environmental, August 1990) and the Installation Assessment (USAEHA, March 1981).

3.1 Environmental Condition of Property Categories

The Department of Defense (DOD) Environmental Condition of Property (ECP) Categories for the property are as follows:

ECP Category 1: Parcel 8.2 - Building 229 only
Parcel 8.3 - Building 230 only
Parcel 8.4 - Building 329 only
Parcel 8.5 - Building 330 only

ECP Category 7: Parcel 8.1 - Open land areas surrounding the buildings in Parcel 8

A summary of the ECP Categories for specific buildings or parcels is provided in Table 1 – Description of Property (Enclosure 2).

3.2 Storage, Release or Disposal of Hazardous Substances

Hazardous substances were stored in Buildings 229, 230, 329 and 330. It is assumed this storage was in excess of the 40 CFR Part 373 reportable quantities. Hazardous substances were released in the open area surrounding the four (4) buildings in Parcel 8. It is assumed, unless otherwise noted, these releases were in excess of the 40 CFR Part 373 reportable quantities. The release of hazardous substances was either remediated at the time of the release or is currently under evaluation as part of the installation restoration program. There is no risk to human health and the environment so long as the tenant adheres to the Environmental Protection Provisions (Enclosure 5) with particular reference to Provision 14 regarding ground distrubing activities. These activities shall not be allowed without prior written approval from the Government. A summary of the buildings or areas in which hazardous substance activities occurred is provided in Table 2 – Notification of Hazardous Substance Storage, Release or Disposal (Enclosure 3).

3.3 Petroleum and Petroleum Products

3.3.1 Storage, Release, or Disposal of Petroleum Products

Petroleum products were stored in Buildings 229, 230, 329 and 330. It is assumed this storage was in excess of 55 gallons. There is no evidence that petroleum products were released in these buildings; therefore there is no risk to human health or the environment. A summary of the buildings or areas in which petroleum products were stored, released or disposed is provided in Table 3 – Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4).

3.3.2 Underground and Above-Ground Storage Tanks (UST/AST)

There is no evidence that petroleum products were stored in underground or aboveground storage tanks on the property.

3.4 Polychlorinated Biphenyls (PCB) Equipment

There are no PCB containing transformers or other PCB containing equipment, except hermetically sealed fluorescent light bulb ballasts that may contain PCBs, located on the property listed in this FOSL. There is no evidence of unremediated PCB releases from these ballasts.

3.5 Asbestos

The EBS and the Asbestos Identification Survey (Pickering, December 1993 and January 1994) indicate Asbestos Containing Materials (ACM) are present in the following buildings:

Building 229:	Thermal System Pipe Insulation (to include joints)
	Cement Asbestos Wall Board
	Cement Asbestos Transite Pipe
	Raised Roof Panel Putty
	12 x 12 Floor Tiles and Mastic
Building 230:	Cement Asbestos Wall Board
	12 x 12 Floor Tile
	Raised Roof Panel Putty
	Roof Flashing
Building 329:	Cement Asbestos Wall Board
	Floor Tile Mastic
	Raised Roof Panel Putty
	Roof Flashing
Building 330:	Cement Asbestos Wall Board
	Floor Tile Mastic
	Raised Roof Panel Putty
	Roof Flashing

The ACM does not currently pose a threat to human health or the environment because all friable asbestos that posed an unacceptable risk to human health has been removed or encapsulated. The lease will include the asbestos warning and covenant included in the Environmental Protection Provisions (Enclosure 5).

3.6 Lead-Based Paint (LBP)

Based on the age of the buildings (constructed prior to 1978), the following buildings are presumed to contain lead-based paint: 229, 230, 329 and 330. The lease will include the lead-based paint warning and covenant provided in the Environmental Protection Provisions (Enclosure 5).

3.7 Radiological Materials

There is no evidence that the Department of Defense used or stored radioactive materials on the property addressed in this FOSL.

3.8 Radon

In keeping with DOD policy to not perform radon assessment and mitigation prior to transfer of BRAC property, there were no radon surveys conducted in the buildings in this FOSL.

3.9 Unexploded Ordnance

Based on a review of existing records and available information, none of the buildings or surrounding land proposed for lease are known to contain unexploded ordnance.

3.10 Other Hazardous Conditions

There are no other known hazardous conditions that present an unacceptable threat to human health or the environment on the property.

4. REMEDIATION

In October 1992, the U.S. Environmental Protection Agency (EPA) placed DDMT on the National Priorities List (NPL) for environmental restoration. DDMT has since entered into a Federal Facilities Agreement (FFA) with the Tennessee Department of Environment and Conservation (TDEC) and the EPA. Environmental contamination on the property described in this document does not present a hazard to leasing it. In addition, environmental conditions on adjacent property do not present a hazard to the leasing of the property. Table 2 - Notification of Hazardous Substance Storage, Release or Disposal (Enclosure 3) and Table 3 - Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4) provide details regarding environmental conditions for each individual parcel or building contained within this FOSL. Regulators have concurred with DDMT that the open area surrounding buildings in Parcel 8 do not pose risks above levels deemed protective provided that the property is used for the proposed purpose and the lessee strictly adheres to the Environmental Protection Provisions (Enclosure 5).

5. REGULATORY/PUBLIC COORDINATION

The U.S. EPA Region 4, TDEC and the public were notified of the initiation of the FOSL. Regulators have reviewed this FOSL and provided comments. These comments have been incorporated as appropriate. Regulatory/public comments and responses are provided in Enclosure 6.

6. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE AND CONSISTENCY WITH LOCAL REUSE PLAN

The environmental impacts associated with proposed lease of the property have been analyzed in accordance with the National Environmental Policy Act (NEPA). The results of this analysis have been documented in the Final Environmental Assessment for Master Interim Lease, Defense Distribution Depot Memphis, Tennessee, dated September 1996. The environmental effects of the activities anticipated under the proposed lease were determined not to be significant. In addition, the proposed use of the property is consistent with the intended reuse of the property set forth in the Depot Redevelopment Corporation Reuse Plan.

7. ENVIRONMENTAL PROTECTION PROVISIONS

On the basis of the above results from the site-specific EBS and other environmental studies and in consideration of the intended use of the property, certain terms and conditions are required for the proposed lease. These terms and conditions are set forth in the attached Environmental Protection Provisions (Enclosure 5) and will be included in the lease.

8. FINDING OF SUITABILITY TO LEASE

Based on the above information, I have concluded that all Department of Defense (DOD) requirements to reach a Finding of Suitability to Lease (FOSL) to the Depot Redevelopment Corporation for light industrial use have been fully met for the property subject to the terms and conditions in the attached Environmental Protection Provision (Enclosure 5). As required by CERCLA section 120(h)(3)(B), I have determined that the property is suitable for lease for the intended purpose, the uses contemplated for the lease are consistent with protection of human health and the environment, and there are adequate assurances that the United States will take any additional remedial action found to be necessary that has not been taken on the date of the lease.

As required under the DOD FOSL Guidance, notification of hazardous substance activities and petroleum product activities shall be provided in the lease documents. Refer to Table 2 – Notification of Hazardous Substance Storage, Release or Disposal (Enclosure 3) and Table 3 – Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4).

P. S. MORRIS
Colonel, GS
Deputy Chief of Staff for Engineering, Housing, Environment and Installation Logistics

7 Enclosures
Encl 1 Site Maps of Property
Encl 2 Table 1 - Description of Property
Encl 3 Table 2 - Notification of Hazardous Substance Storage, Release or Disposal
Encl 4 Table 3 - Notification of Petroleum Product Storage, Release or Disposal
Encl 5 Environmental Protection Provisions
Encl 6 Regulatory/Public Comments and Responses
Encl 7 Reference Materials

FINDING OF SUITABILITY TO LEASE

(FOSL)

Parcel 1.8, Parcel 6.1, Parcel 9.1, Parcel 10.2, Parcel 10.3, Parcel 16.1, Parcel 16.2, Parcel 17.2, Parcel 17.3

Defense Distribution Depot Memphis, Tennessee

(FOSL Number 6)

883 356

July 8, 1998

1. PURPOSE

The purpose of this Finding Of Suitability To Lease (FOSL) is to document the environmental suitability of Parcels 1.8, 6.1, 9.1, 10.2, 10.3, 16.1, 16.2, 17.2 and 17.3 at the Defense Distribution Depot Memphis, Tennessee (DDMT) for leasing to the Depot Redevelopment Corporation (DRC) for light industry, storage or general office use consistent with Department of Defense (DOD) and Army policy. This FOSL has been developed in accordance with the DRC's Reuse Plan. In addition, the FOSL identifies use restrictions as specified in the attached Environmental Protection Provisions (Enclosure 5) necessary to protect human health and the environment and to prevent interference with any existing or planned environmental restoration activities.

2. PROPERTY DESCRIPTION

The proposed property to be leased consists of 52.35 acres that includes nine (9) parcels. Included in these parcels are two (2) buildings (Buildings 359 and 559) and the open land area surrounding these buildings as well as the open land area surrounding Buildings 250, 349, 350, 429, 430, 449, 450, 549, 550, 649 and 650. Site maps of the property proposed to be leased can be found at Enclosure 1.

3. ENVIRONMENTAL CONDITION OF THE PROPERTY

A determination of the environmental condition of the facilities has been made based on the Community Environmental Response Facilitation Act (CERFA) Letter Report dated December 5, 1996 and an Environmental Baseline Survey (EBS) dated November 6, 1996. The information provided is a result of a complete search of agency files during the development of these environmental surveys. The following documents also provided information on environmental conditions of the property: Draft Final BRAC Cleanup Plan Version 2 (DDSP-FE, November 1997), Asbestos Reinspection (DDC-WP, October 1996), Final Environmental Assessment for Master Interim Lease (Tetra Tech, September 1996), DDMT Radiological Survey (Administrative Support Center East, August 1996), Remedial Investigation Soil Sampling Letter Report (CH2M Hill, May 1997), OU - 2 and OU - 3 Field Sampling Plans (CH2M Hill, September 1995), Asbestos Identification Survey (Pickering, December 1993 and January 1994), RCRA Facilities Assessment (A.T. Kearnay, Inc., January 1990), Final Remedial Investigation Report (Law Environmental, August 1990) and the Installation Assessment (USAEHA, March 1981).

3.1 Environmental Condition of Property Categories

The Department of Defense (DOD) Environmental Condition of Property (ECP) Categories for the property are as follows:

ECP Category 1: Parcel 16.2 - Building 559 only

ECP Category 4: Parcel 17.3 - Building 359 only

ECP Category 7: Parcel 1.8 - Open land area surrounding the buildings in Parcel 1, including the parking lots and grassy areas, the flagpole (Building 143), switch station building (Building 147) and the antenna tower (Building 146)

883 358

Parcel 6.1 - Open land area surrounding buildings in Parcel 6
Parcel 9.1 - Open land area surrounding buildings in Parcel 9
Parcel 10.2 - Open land area surrounding buildings in Parcel 10 except land in Parcel 10.3
Parcel 10.3 - Open land area between southern corners of Buildings 550 and 650 (reported spill area)
Parcel 16.1 - Open land area surrounding buildings in Parcel 16
Parcel 17.2 - Open land area surrounding buildings in Parcel 17

A summary of the ECP Categories for specific buildings or parcels is provided in Table 1 – Description of Property (Enclosure 2).

3.2 Storage, Release or Disposal of Hazardous Substances

Hazardous substances were stored in Building 359. It is assumed this storage was in excess of the 40 CFR Part 373 reportable quantities. Hazardous substances were released in Building 359 as well as the open land area surrounding the buildings in Parcels 1, 6, 9, 10, 16 and 17. It is assumed, unless otherwise noted, these releases were in excess of the 40 CFR Part 373 reportable quantities. The release of hazardous substances was either remediated at the time of the release or is currently under evaluation as part of the installation restoration program. There is no risk to human health and the environment so long as the tenant adheres to the Environmental Protection Provisions (Enclosure 5) with particular reference to Provision 14 regarding ground distrubing activities. These activities shall not be allowed without prior written approval from the Government. A summary of the buildings or areas in which hazardous substance activities occurred is provided in Table 2 – Notification of Hazardous Substance Storage, Release or Disposal (Enclosure 3).

3.3 Petroleum and Petroleum Products

3.3.1 Storage, Release, or Disposal of Petroleum Products

Petroleum products were stored in excess of 55 gallons in underground and above-ground storage tanks at Building 359. See Section 3.3.2 for more information regarding these tanks. There is no evidence that any petroleum or petroleum products in excess of 55 gallons at one time were released or disposed on the property. A summary of the buildings or areas in which petroleum products activities occured is provided in Table 3 – Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4).

3.3.2 Underground and Above-Ground Storage Tanks (UST/AST)

There is one (1) above-ground storage tank at Building 359 that was used for the storage of petroleum products. There were seven (7) underground storage tanks at Building 359 that

were used for the storage of petroleum products. There is no evidence of petroleum product releases at the following Building 359 USTs/ASTs: 12,000-gallon fuel oil UST (closed in place); 500-gallon fuel oil UST (closed in place); 500-gallon blow down UST (closed in place); 500-gallon fuel oil UST (removed); 1,000-gallon fuel oil UST (removed); 12,000-gallon fuel oil UST (removed); 500-gallon fuel oil UST (removed); 500-gallon diesel fuel AST (currently in place).

A summary of the buildings or areas in which petroleum products were stored is provided in Table 3 – Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4).

3.4 Polychlorinated Biphenyls (PCB) Equipment

There are no PCB containing transformers or other PCB containing equipment, except hermetically sealed fluorescent light bulb ballasts that may contain PCBs, located on the property listed in this FOSL. There is no evidence of unremediated PCB releases from these ballasts.

3.5 Asbestos

The EBS and the Asbestos Identification Survey (Pickering, December 1993 and January 1994) indicate Asbestos Containing Materials (ACM) are present in the following buildings:

Building 359:	Thermal System Pipe Insulation (to include joints) Interior Window Putty Duct Tape 12 x 12 Floor Tiles and Mastic 9 x 9 Floor Tiles and Mastic
Building 559:	Cement Asbestos Wall Board Floor Tile Mastic Roof Flashing

The ACM does not currently pose a threat to human health or the environment because all friable asbestos that posed an unacceptable risk to human health has been removed or encapsulated. The lease will include the asbestos warning and covenant included in the Environmental Protection Provisions (Enclosure 5).

3.6 Lead-Based Paint (LBP)

Based on the age of the buildings (constructed prior to 1978), the following buildings are presumed to contain lead-based paint: 359 and 559. The lease will include the lead-based paint warning and covenant provided in the Environmental Protection Provisions (Enclosure 5).

3.7 Radiological Materials

There is evidence that the Department of Defense used or stored radioactive materials on the following properties included in this FOSL: Building 359, Section 3 - storage of items such as

watches and compasses containing tritium (H-3). There is no evidence that any releases of radiological materials occured at these buildings. A radiological field survey was conducated at the site, and the survey concluded that this area was suitable for unrestricted use.

3.8 Radon

In keeping with DOD policy to not perform radon assessment and mitigation prior to transfer of BRAC property, there were no radon surveys conducted in the buildings in this FOSL.

3.9 Unexploded Ordnance

Based on a review of existing records and available information, none of the buildings or surrounding land proposed for lease are known to contain unexploded ordnance.

3.10 Other Hazardous Conditions

There are no other known hazardous conditions that present an unacceptable threat to human health or the environment on the property.

4. REMEDIATION

In October 1992, the U.S. Environmental Protection Agency (EPA) placed DDMT on the National Priorities List (NPL) for environmental restoration. DDMT has since entered into a Federal Facilities Agreement (FFA) with the Tennessee Department of Environment and Conservation (TDEC) and the EPA. Environmental contamination on the property described in this document does not present a hazard to leasing it. In addition, environmental conditions on adjacent property do not present a hazard to the leasing of the property. Table 2 - Notification of Hazardous Substance Storage, Release or Disposal (Enclosure 3) and Table 3 - Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4) provide details regarding environmental conditions for each individual parcel or building contained within this FOSL. Regulators have concurred with DDMT that the open area surrounding buildings in Parcels 1, 6, 9, 10, 16 and 17 does not pose risks above levels deemed protective provided that the property is used for the proposed purpose and the lessee strictly adheres to the Environmental Protection Provisions (Enclosure 5).

5. REGULATORY/PUBLIC COORDINATION

The U.S. EPA Region 4, TDEC and the public were notified of the initiation of the FOSL. Regulators have reviewed this FOSL and provided comments. These comments have been incorporated as appropriate. Regulatory/public comments and responses are provided in Enclosure 6.

6. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE AND CONSISTENCY WITH LOCAL REUSE PLAN

The environmental impacts associated with proposed lease of the property have been analyzed in accordance with the National Environmental Policy Act (NEPA). The results of this analysis have been documented in the Final Environmental Assessment for Master Interim Lease, Defense Distribution Depot Memphis, Tennessee, dated September 1996. The environmental effects of the activities anticipated under the proposed lease were determined not to be significant. In addition, the proposed use of the property is consistent with the intended reuse of the property set forth in the Depot Redevelopment Corporation Reuse Plan.

7. ENVIRONMENTAL PROTECTION PROVISIONS

On the basis of the above results from the site-specific EBS and other environmental studies and in consideration of the intended use of the property, certain terms and conditions are required for the proposed lease. These terms and conditions are set forth in the attached Environmental Protection Provisions (Enclosure 5) and will be included in the lease.

8. FINDING OF SUITABILITY TO LEASE

Based on the above information, I have concluded that all Department of Defense (DOD) requirements to reach a Finding of Suitability to Lease (FOSL) to the Depot Redevelopment Corporation for light industrial use have been fully met for the property subject to the terms and conditions in the attached Environmental Protection Provision (Enclosure 5). As required by CERCLA section 120(h)(3)(B), I have determined that the property is suitable for lease for the intended purpose, the uses contemplated for the lease are consistent with protection of human health and the environment, and there are adequate assurances that the United States will take any additional remedial action found to be necessary that has not been taken on the date of the lease.

As required under the DOD FOSL Guidance, notification of hazardous substance activities and petroleum product activities shall be provided in the lease documents. Refer to Table 2 – Notification of Hazardous Substance Storage, Release or Disposal (Enclosure 3) and Table 3 – Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4).

P. S. MORRIS
Colonel, GS
Deputy Chief of Staff for Engineering, Housing, Environment and Installation Logistics

7 Enclosures
Encl 1 Site Maps of Property
Encl 2 Table 1 - Description of Property
Encl 3 Table 2 - Notification of Hazardous Substance Storage, Release or Disposal

FINDING OF SUITABILITY TO LEASE

(FOSL)

Parcel 2.7, Parcel 6.2, Parcel 6.3, Parcel 6.4, Parcel 7.1, Parcel 7.2, Parcel 9.2, Parcel 9.3, Parcel 9.4, Parcel 9.5, Parcel 10.1, Parcel 10.4, Parcel 10.5, Parcel 10.6, Parcel 11.1, Parcel 11.2, Parcel 11.3, Parcel 11.4, Parcel 12.1, Parcel 12.2, Parcel 24.3, Parcel 32.1, Parcel 32.2 and Parcel 33.11

Defense Distribution Depot Memphis, Tennessee

(FOSL Number 7)

October 26, 1998

1. PURPOSE

The purpose of this Finding of Suitability to Lease (FOSL) is to document the environmental suitability of Parcels 2.7, 6.2, 6.3, 6.4, 7.1, 7.2, 9.2, 9.3, 9.4, 9.5, 10.1, 10.4, 10.5, 10.6, 11.1, 11.2, 11.3, 11.4, 12.1, 12.2, 24.3, 32.1, 32.2 and 33.11 at the Defense Distribution Depot Memphis, Tennessee (DDMT) for leasing to the Depot Redevelopment Corporation (DRC) for light industry, storage, general office or residential (Parcel 2.7 only) use consistent with Department of Defense (DOD) and Army policy. This FOSL has been developed in accordance with the DRC's Reuse Plan. In addition, the FOSL identifies use restrictions as specified in the attached Environmental Protection Provisions (Enclosure 5) necessary to protect human health and the environment and to prevent interference with any existing or planned environmental restoration activities.

2. PROPERTY DESCRIPTION

The proposed property to be leased consists of 66.90 acres which includes twenty-four (24) parcels. Included in these parcels are nineteen (19) buildings (Buildings 249, 250, 349, 350, 429, 430, 449, 450, 529, 530, 549, 550, 629, 630, 649, 650, 770, 771 and 835); the open land area in Parcel 2.7 surrounding the Family Housing units; the open land area in Parcel 7.1 surrounding Building 249; the open land area in Parcel 12.1 surrounding Building 629; the open land area in Parcel 11.1 surrounding Buildings 529, 530 and 630; the open land area in parcel 24.3 surrounding Buildings 770 and 771; the open land area in Parcel 32.1 surrounding Building 835; and the open land area in Parcel 33.11 that contains the 1,000-gallon diesel above ground storage tank outside Building 756. Site maps of the property proposed to be leased can be found at Enclosure 1.

3. ENVIRONMENTAL CONDITION OF THE PROPERTY

A determination of the environmental condition of the facilities has been made based on the Community Environmental Response Facilitation Act (CERFA) Letter Report dated December 5, 1996 and an Environmental Baseline Survey (EBS) dated November 6, 1996. The information provided is a result of a complete search of agency files during the development of these environmental surveys. The following documents also provided information on environmental conditions of the property: Draft Final BRAC Cleanup Plan Version 2 (DDSP-FE, November 1997), Asbestos Reinspection (DDC-WP, October 1996), Final Environmental Assessment for Master Interim Lease (Tetra Tech, September 1996), DDMT Radiological Survey (Administrative Support Center East, August 1996), Remedial Investigation Soil Sampling Letter Report (CH2M Hill, May 1997), OU - 2 and OU - 3 Field Sampling Plans (CH2M Hill, September 1995), Asbestos Identification Survey (Pickering, December 1993 and January 1994), RCRA Facilities Assessment (A.T. Kearnay, Inc., January 1990), Final Remedial Investigation Report (Law Environmental, August 1990) and the Installation Assessment (USAEHA, March 1981).

3.1 Environmental Condition of Property Categories

The Department of Defense (DOD) Environmental Condition of Property (ECP) Categories for the property are as follows:

ECP Category 1:
- Parcel 6.3 - Building 349
- Parcel 9.2 - Building 429
- Parcel 9.4 - Building 449
- Parcel 9.5 - Building 450
- Parcel 10.4 - Building 549
- Parcel 10.6 - Building 650
- Parcel 11.3 - Building 530
- Parcel 11.4 - Building 630

ECP Category 2:
- Parcel 33.11 - Open land area containing the 1,000-gallon diesel above ground storage tank outside Building 756

ECP Category 3:
- Parcel 6.2 - Building 250
- Parcel 6.4 - Building 350
- Parcel 9.3 - Building 430
- Parcel 10.1 - Building 649
- Parcel 10.5 - Building 550
- Parcel 11.2 - Building 529
- Parcel 32.1 - Open land area in north and west of Building 835

ECP Category 4:
- Parcel 7.2 - Building 249
- Parcel 12.2 - Building 629
- Parcel 32.2 - Building 835

ECP Category 5:
- Parcel 2.7 - Open land area surrounding the Family Housing Units (Buildings 176, S178, 179, 181, S183 and 184)

ECP Category 6:
- Parcel 7.1 - Open land area surrounding Building 249

ECP Category 7:
- Parcel 11.1 - Open land area surrounding Buildings 529, 530 and 630
- Parcel 12.1 - Open land area surrounding Building 629
- Parcel 24.3 - Buildings 770 and 771 as well as the open land area surrounding Buildings 770 and 771

A summary of the ECP Categories for specific buildings or parcels is provided in Table 1 – Description of Property (Enclosure 2).

3.2 Storage, Release or Disposal of Hazardous Substances

Hazardous substances were stored in Buildings 249, 250, 350, 430, 529, 550, 629, 649, 770 and 835 as well as the open land area north and west of Building 835 (Parcel 32.1). It is assumed this storage was in excess of the 40 CFR Part 373 reportable quantities. Hazardous substances were released in the following locations: Buildings 249, 250, 350, 430, 529, 550, 629, 649, 770 and 835; the open land area surrounding the Family Housing Units (Parcel 2.7); the open land area surrounding Building 249 (Parcel 7.1); the open land area surrounding Buildings 529, 530 and 630 (Parcel 11.1); the open land area surrounding Building 629 (Parcel 12.1); the open land area surrounding Buildings 770 and 771 (Parcel 24.3); and the open land area north and west of Building 835 (Parcel 32.1). Existing records do not support the determination that releases exceeded the 40 CFR Part 373 reportable quantities unless otherwise noted. The release of hazardous substances was either remediated at the time of the release or is currently under evaluation as part of the installation restoration program. There is no risk to human health and the environment so long as the tenant adheres to the Environmental Protection Provisions (Enclosure 5) with particular reference to Provision 14 regarding ground disturbing activities. These activities shall not be allowed without prior written approval from the Government. A summary of the buildings or areas in which hazardous substance activities occurred is provided in Table 2 – Notification of Hazardous Substance Storage, Release or Disposal (Enclosure 3).

3.3 Petroleum and Petroleum Products

3.3.1 Storage, Release, or Disposal of Petroleum Products

Petroleum products were stored in excess of 55 gallons in underground and above-ground storage tanks at Building 770 and in Parcel 33.11 outside of Building 756. See Section 3.3.2 for more information regarding these tanks. There is evidence that petroleum or petroleum products were released at Building 770. It is assumed, unless otherwise noted, that the release was in excess of 55 gallons. The release of petroleum products was either remediated at the time of the release or is currently under evaluation as part of the installation restoration program. There is no risk to human health and the environment so long as the tenant adheres to the Environmental Protection Provisions (Enclosure 5) with particular reference to Provision 14 regarding ground disturbing activities. These activities shall not be allowed without prior written approval from the Government. A summary of the buildings or areas in which petroleum product activities occurred is provided in Table 3 – Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4).

3.3.2 Underground and Above-Ground Storage Tanks (UST/AST)

In Parcel 24.3, outside of Building 770, there were four (4) underground storage tanks (USTs) and two (2) above-ground storage tanks (ASTs) used for the storage of petroleum products. There is no evidence of petroleum product releases at the Building 770 USTs/ASTs. In Parcel 33.11, outside Building 756, there is a 1,000-gallon diesel above ground storage tank that replaced a 1,000-gallon diesel UST removed in 1994. A summary of the buildings or areas in

which petroleum products activities occurred is provided in Table 3 – Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4).

3.4 Polychlorinated Biphenyls (PCB) Equipment

There are no PCB containing transformers or other PCB containing equipment, except hermetically sealed fluorescent light bulb ballasts that may contain PCBs, located on the property listed in this FOSL. On July 9, 1990, a 50-gallon PCB-containing liquid spill was reported at Building 770. The Spill Team responded, applied absorbent, excavated all stained soil and removed soil and absorbent to the appropriate disposal facility. The lease will include the PCB notification provision contained in the Environmental Protection Provisions (Enclosure 5).

3.5 Asbestos

The EBS and the Asbestos Identification Survey (Pickering, December 1993 and January 1994) indicate Asbestos Containing Materials (ACM) are present in the following buildings:

Building 249:	Raised Roof Putty and Roof Flashing 12 x 12 Gray Marble Floor Tiles and Mastic 12 x 12 Beige Marble Floor Tile and Mastic 9 x 9 Brown Vinyl Floor Tile and Mastic Cement Asbestos Panels on Raised Roof
Building 250:	12 x 12 Floor Tiles and Mastic Domestic Water Pipe Insulation (Including Joints) Cement Asbestos Panels on Raised Roof Raised Roof Putty and Roof Flashing Asphalt Built-up Roofing
Building 349:	Domestic Water Pipe Joint Insulation 12 x 12 Floor Tile and Mastic Cement Asbestos Panels on Raised Roof Raised Roof Putty and Roof Flashing
Building 350:	Domestic Water Pipe Insulation (Including Joints) Cement Asbestos Panels on Raised Roof Raised Roof Putty and Roof Flashing
Building 429:	Domestic Water Pipe Joint Insulation 12 x 12 Vinyl Floor Tile Exterior Window Frame Putty Cement Asbestos Panels on Raised Roof Raised Roof Putty and Roof Flashing

Building 430:	Domestic Water Pipe Joint Insulation Exterior Window Frame Putty Cement Asbestos Panels on Raised Roof Raised Roof Putty and Roof Flashing
Building 449:	Domestic Water Pipe Insulation (Including Joints) 12 x 12 Beige Vinyl Floor Tile and Mastic 12 x 12 Brown Marble Floor Tile Concrete Sealant Putty Exterior Window Frame Putty Cement Asbestos Panels on Raised Roof Raised Roof Putty and Roof Flashing
Building 450:	Domestic Water Pipe Insulation (Including Joints) 12 x 12 Dark Brown Vinyl Floor Tile Exterior Window Frame Putty Cement Asbestos Panels on Raised Roof Raised Roof Putty and Roof Flashing
Building 529:	Domestic Water Pipe Joint Insulation 12 x 12 Dark Vinyl Floor Tile and Mastic Cement Asbestos Panels on Raised Roof Raised Roof Putty and Roof Flashing
Building 530:	12 x 12 Beige Vinyl Floor Tile and Mastic Cement Asbestos Panels on Raised Roof Raised Roof Putty
Building 549:	Domestic Water Pipe Joint Insulation 12 x 12 Dark Brown Vinyl Floor Tile Cement Asbestos Panels on Raised Roof Raised Roof Putty and Roof Flashing
Building 550:	Domestic Water Pipe Insulation (Including Joints) 12 x 12 Beige Vinyl Floor Tile and Mastic
Building 629:	Domestic Water Pipe Joint Insulation 12 x 12 Vinyl Floor Tile 12 x 12 Beige Vinyl Floor Tile Cement Asbestos Panels on Raised Roof Raised Roof Putty
Building 630:	Domestic Water Pipe Joint Insulation Interior and Exterior Window Frame Putty 12 x 12 Vinyl Floor Tile

	Cement Asbestos Panels on Raised Roof Raised Roof Putty
Building 649:	Domestic Water Pipe Joint Insulation 12 x 12 Beige Vinyl Floor Tile Cement Asbestos Panels on Raised Roof Raised Roof Putty
Building 650:	Domestic Water Pipe Joint Insulation Exterior Window Frame Putty Cement Asbestos Panels on Raised Roof Raised Roof Putty
Building 770:	Thermal System Pipe Insulation (Includes Joints) Boiler/Flue Insulation and Boiler Rope Gasket 12 x 12 Brown Vinyl Floor Tile Mastic 12 x 12 Brown Vinyl Floor Tile Cement Asbestos Exterior Siding Cement Asbestos Ceiling Panels Roof Flashing
Building 771:	Cement Asbestos Exterior Siding Original Roofing Shingles Cement Asbestos Board on Restroom Walls

The ACM does not currently pose a threat to human health or the environment because all friable asbestos that posed an unacceptable risk to human health has been removed or encapsulated. The lease will include the asbestos warning and covenant included in the Environmental Protection Provisions (Enclosure 5).

3.6 Lead-Based Paint (LBP)

Based on the age of the buildings (constructed prior to 1978), the following buildings are presumed to contain lead-based paint: 249, 250, 349, 350, 430, 449, 450, 530, 549, 550, 630 and 650. Lead-based paint on the Family Housing Units, which are not in this FOSL is being abated. These units are surrounding by Parcel 2.7. Appropriate measures will be implemented during the abatement to ensure protection of the soil. The lease will include the lead-based paint warning and covenant provided in the Environmental Protection Provisions (Enclosure 5).

3.7 Radiological Materials

The following buildings were used for radiological activities:

- Building 629, Bay 2 - storage of wrist watches containing tritium (H-3) and radium-226 and compasses containing tritium (H-3); possible storage of lantern

mantles containing thorium-232; smoke detectors containing americium 241; electron tubs containing thorium-232, tritium (H-3) and radium-226; and indicator and toggles switches containing radium-226.

- Building 835, Section 6 (east side) - storage of lantern mantles containing thorium-232; smoke detectors containing americium 241; electron tubs containing thorium-232, tritium (H-3) and radium-226; wrist watches containing tritium (H-3) and radium-226; indicator and toggles switches containing radium-226; and compasses containing tritium (H-3).

There is no evidence that any releases of radiological materials occurred at these buildings. A radiological field survey was conducted at those sites having radiological activities, and the survey concluded that these areas were suitable for unrestricted use.

3.8 Radon

In accordance with the Department of Defense Memorandum, Subject: Asbestos, Lead Paint and Radon Policies at BRAC Properties, dated October 31, 1994, no radon surveys were conducted in the buildings included in this FOSL as their intended use will not be residential.

3.9 Unexploded Ordnance

Based on a review of existing records and available information, none of the buildings or land proposed for lease are known to contain unexploded ordnance.

3.10 Other Hazardous Conditions

There are no other known hazardous conditions that present an unacceptable threat to human health or the environment on the property.

4. REMEDIATION

In October 1992, the U.S. Environmental Protection Agency (EPA) placed DDMT on the National Priorities List (NPL) for environmental restoration. DDMT has since entered into a Federal Facilities Agreement (FFA) with the Tennessee Department of Environment and Conservation (TDEC) and the EPA. Environmental contamination on the property described in this document does not present a hazard to persons leasing it. In addition, environmental conditions on adjacent federal government property do not present a hazard to the leasing of the property. Table 2 - Notification of Hazardous Substance Storage, Release or Disposal (Enclosure 3) and Table 3 - Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4) provide details regarding environmental conditions for each individual parcel or building contained within this FOSL. Regulators have concurred with the Depot that the following areas and buildings do not pose risks above levels deemed protective provided that the property is used for the proposed purpose and the lessee strictly adheres to the Environmental Protection Provisions (Enclosure 5): Buildings 249, 250, 349, 350, 429, 430, 449, 450, 529, 530, 549, 550,

629, 630, 649, 650, 770, 771 and 835; the open land area surrounding the Family Housing Units (Parcel 2.7); the open land area surrounding Building 249 (Parcel 7.1); the open land area surrounding Buildings 529, 530 and 630 (Parcel 11.1); the open land area surrounding Building 629 (Parcel 12.1); the open land area surrounding Buildings 770 and 771 (Parcel 24.3); and the open land area north and west of Building 835 (Parcel 32.1) and open land area containing the 1,000-gallon diesel above ground storage tank outside Building 756 (Parcel 33.11).

5. REGULATORY/PUBLIC COORDINATION

The U.S. EPA Region 4, TDEC and the public were notified of the initiation of this FOSL. EPA, Defense Logistics Agency and Army Materiel Command have reviewed this FOSL and provided comments. Regulatory/public comments and responses are provided in Enclosure 6.

6. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE AND CONSISTENCY WITH LOCAL REUSE PLAN

The environmental impacts associated with proposed lease of the property have been analyzed in accordance with the National Environmental Policy Act (NEPA). The results of this analysis have been documented in the Final Environmental Assessment for Master Interim Lease, Defense Distribution Depot Memphis, Tennessee, dated September 1996. The environmental effects of the activities anticipated under the proposed lease were determined not to be significant. In addition, the proposed use of the property is consistent with the intended reuse of the property set forth in the Depot Redevelopment Corporation Reuse Plan.

7. ENVIRONMENTAL PROTECTION PROVISIONS

On the basis of the above results from the site-specific EBS and other environmental studies and in consideration of the intended use of the property, certain terms and conditions are required for the proposed lease. These terms and conditions are set forth in the attached Environmental Protection Provisions (Enclosure 5) and will be included in the lease.

8. FINDING OF SUITABILITY TO LEASE

Based on the above information, I have concluded that all Department of Defense (DOD) requirements to reach a Finding of Suitability to Lease (FOSL) to the Depot Redevelopment Corporation for light industrial and residential (Parcel 2.7 only) use have been fully met for the property subject to the terms and conditions in the attached Environmental Protection Provision (Enclosure 5). As required by CERCLA section 120(h)(3)(B), I have determined that the property is suitable for lease for the intended purpose, the uses contemplated for the lease are consistent with protection of human health and the environment, and there are adequate assurances that the United States will take any additional remedial action found to be necessary that has not been taken on the date of the lease.

As required under the DOD FOSL Guidance, notification of hazardous substance activities and petroleum product activities shall be provided in the lease documents. Refer to Table 2 – Notification of Hazardous Substance Storage, Release or Disposal (Enclosure 3) and Table 3 – Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4).

P. S. MORRIS
Colonel, GS
Deputy Chief of Staff
for Engineering,
Housing, Environment,
and Installation Logistics

Enclosures
1 Site Maps of Property
2 Table 1 - Description of Property
3 Table 2 - Notification of Hazardous Substance Storage, Release or Disposal
4 Table 3 - Notification of Petroleum Product Storage, Release or Disposal
5 Environmental Protection Provisions
6 Regulatory/Public Comments and Responses
7 Reference Materials

10,00

883 372

FINDING OF SUITABILITY TO LEASE

(FOSL)

Parcel 3.5, Parcel 3.6, Parcel 3.7, Parcel 3.8, Parcel 3.9, Parcel 3.10, Parcel 3.11, Parcel 13.5, Parcel 14.2, Parcel 15.2, Parcel 15.3, Parcel 15.4, Parcel 15.5, Parcel 15.6, Parcel 18.2, Parcel 19.1, Parcel 19.2, Parcel 19.3, Parcel 20.1, Parcel 20.5, Parcel 20.6, Parcel 21.5, Parcel 22.1, Parcel 22.2, Parcel 23.6, Parcel 23.7, Parcel 23.8, Parcel 23.9, Parcel 23.10, Parcel 23.11, Parcel 24.1, Parcel 24.2, Parcel 25.1, Parcel 25.2, Parcel 26.1, Parcel 26.2, Parcel 27.1, Parcel 28.1, Parcel 28.2, Parcel 29.2, Parcel 29.3, Parcel 30.2, Parcel 30.3, Parcel 30.4, Parcel 30.5, Parcel 31.1, Parcel 32.3, Parcel 33.6, Parcel 33.7, Parcel 33.8, Parcel 33.9, Parcel 34.2, Parcel 35.1, Parcel 35.2, Parcel 35.3, Parcel 35.4 and Parcel 35.5

Defense Distribution Depot Memphis, Tennessee

(FOSL Number 8)

July 1999

1. PURPOSE

The purpose of this Finding of Suitability to Lease (FOSL) is to document the environmental suitability of Parcels 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11, 13.5, 14.2, 15.2, 15.3, 15.4, 15.5, 15.6, 18.2, 19.1, 19.2, 19.3, 20.1, 20.5, 20.6, 21.5, 22.1, 22.2, 23.6, 23.7, 23.8, 23.9, 23.10, 23.11, 24.1, 24.2, 25.1, 25.2, 26.1, 26.2, 27.1, 28.1, 28.2, 29.2, 29.3, 30.2, 30.3, 30.4, 30.5, 31.1, 32.3, 33.6, 33.7, 33.8, 33.9, 34.2, 35.1, 35.2, 35.3, 35.4 and 35.5 at the former Defense Distribution Depot Memphis, Tennessee (the Depot) for inclusion in the Interim Master Lease held by the Depot Redevelopment Corporation (DRC) for light industry, storage, general office and recreation use consistent with Department of Defense (DOD) and Army policy. This FOSL has been developed in accordance with the DRC's Reuse Plan. In addition, the FOSL identifies use restrictions as specified in the attached Environmental Protection Provisions (Enclosure 5) necessary to protect human health and the environment and to prevent interference with any existing or planned environmental restoration activities.

2. PROPERTY DESCRIPTION

The proposed property to be leased consists of 367.52 acres which includes fifty-seven (57) parcels. Included in these parcels are thirty-three (33) buildings (Buildings 194, 197, 211, 301, 308, 309, 319, 398, T416, T417, 465, 468, 469, 717, 720, 737, 783, 793, 801, 802, 863, 865, 873, 875, 949, 970, 1084, 1086, 1087, 1088, 1089, 1090 and 1091); concrete foundations remaining after the demolition of Buildings 209, 702 and 1085; open land areas surrounding these buildings and foundations and extending to Airways Boulevard, Dunn Road, Ball Road and Perry Road; open storage areas X01, X02, X03, X04, X05, X06, X07, X08, X09, X10, X11, X12, X17, X19, X20, X21, X23, X27, X30, Y10, Y50; spill area west of Building 737; spill area on the north dock of Building 489; spill area between Buildings 489 and 490; spill area east of Building 685; spill area between Buildings 925 and 949; spill area northwest of Building 995; former material recoupment area at southeast corner of Building 873; former waste material storage area west of Buildings 308 and 309; recreational area including the golf course, playground, softball field, volleyball and tennis courts, wading pool and open land area surrounding the community club complex; Lake Danielson and associated storm drain ditch; the golf course pond and associated storm drain ditch; open land area between east ends of Buildings 689 and 690; open land area surrounding Building 972; storm drain adjacent to Gate 9; former spray paint area south of Building 949; open land area surrounding Buildings 490, 689 and 690; open land area surrounding Buildings 470, 489 and 670; and a former aboveground storage tank east of Building 770. Site maps of the property proposed for lease can be found at Enclosure 1.

3. ENVIRONMENTAL CONDITION OF THE PROPERTY

A determination of the environmental condition of the facilities has been made based on the Community Environmental Response Facilitation Act (CERFA) Letter Report dated December 5, 1996 and an Environmental Baseline Survey (EBS) dated November 6, 1996. The information provided is a result of a complete search of agency files during the development of these environmental surveys. The following documents also provided information on environmental conditions of the property: Nuclear Regulatory Commission letter approving Building 319 for unrestricted use (April 16, 1999), Final Baseline Risk Assessment for Golf Course Impoundments (Radian International, May 1999), Final Streamlined Risk Assessment Parcel 3 Technical Memorandum (CH2M Hill, January 1999), BRAC Cleanup Plan Version 2

(DDSP-FE, October 1998), Revised BRAC Parcel Summary Reports (CH2M Hill, October 1998), Final Remedial Investigation Sites Letter Reports (CH2M Hill, May 1998), Final Screening Sites Letter Reports (CH2M Hill, March 1998), Environmental Baseline Study Radiological Survey for Defense Distribution Depot Memphis (ASCE-IW, August 1996), Termination Radiological Survey for Defense Distribution Depot Memphis Building 319, Bay 6 (ASCE-IW, April 1997), Asbestos Reinspection (DDC-WP, October 1996), Final Environmental Assessment for Master Interim Lease (Tetra Tech, September 1996), DDMT Radiological Survey (Administrative Support Center East, August 1996), Remedial Investigation Soil Sampling Letter Report (CH2M Hill, May 1997), OUs 2, 3 and 4 Field Sampling Plans (CH2M Hill, September 1995), Asbestos Identification Survey (Pickering, December 1993 and January 1994), RCRA Facilities Assessment (A.T. Kearnay, Inc., January 1990), Final Remedial Investigation Report (Law Environmental, August 1990) and the Installation Assessment (USAEHA, March 1981).

883 374

3.1 Environmental Condition of Property Categories

The Department of Defense (DOD) Environmental Condition of Property (ECP) Categories for the property are as follows:

ECP Category 1:	Parcel 30.4 -	Building 949
ECP Category 2:	Parcel 20.1 -	Spill area on north dock of Building 489
	Parcel 23.9 -	Spill area northwest of Building 995
	Parcel 26.2 -	Building 970
	Parcel 33.6 -	Spill area west of Building 737
ECP Category 3:	Parcel 15.2 -	Building 308
	Parcel 15.4 -	Building 702 concrete foundation
	Parcel 18.2 -	Open land area surrounding Building 560
	Parcel 19.1 -	Building 468 and open land area surrounding Buildings 465, 468 and 469 (Building 467, fabric tension structure, removed in 1996)
	Parcel 19.2 -	Building 465
	Parcel 23.6 -	Open land area surrounding Buildings 783, 787 and 793, Gates 6, 7 and 8, and extending to Ball Road
	Parcel 23.7 -	Building 783
	Parcel 23.8 -	Building 793
	Parcel 23.10 -	Open storage area X01
	Parcel 28.1 -	Open storage area X04 and open land area extending to Perry Road
	Parcel 33.8 -	Building 863
	Parcel 34.2 -	Open land area surrounding Building 360
ECP Category 4:	Parcel 15.3 -	Building 319
	Parcel 19.3 -	Building 469
	Parcel 25.1 -	Building 873
	Parcel 30.2 -	Spill area between Buildings 925 and 949
ECP Category 5:	Parcel 24.1 -	Former material recoupment area at southeast corner of Building 873

ECP Category 6:	Parcel 15.5 -	Former waste material storage area west of Buildings 308 and 309
	Parcel 25.2 -	Building 875 and open land area surrounding Buildings 873 and 875
	Parcel 28.2 -	Building 1089 and surrounding open land area extending to Perry Road
	Parcel 35.1 -	Building 1090
	Parcel 35.2 -	Building 1084, Building 1085 concrete foundation and surrounding open land area
	Parcel 35.3 -	Building 1086
	Parcel 35.4 -	Building 1087, metal-roofed shed south of Building 1088 and open land area surrounding south ends of these buildings
	Parcel 35.5 -	Buildings 1088 and 1091 and surrounding open land area extending to Perry Road
ECP Category 7:	Parcel 3.5 -	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
	Parcel 3.6 -	Lake Danielson
	Parcel 3.7 -	Lake Danielson storm drain ditch
	Parcel 3.8 -	Golf course pond
	Parcel 3.9 -	Golf course pond storm drain ditch
	Parcel 3.10 -	Former pistol range near Hole 9
	Parcel 3.11 -	Former flamethrower test site west of Hole 9
	Parcel 13.5 -	Building 211, Gates 23, 24 and 25, and surrounding open land area extending to Airways Boulevard
	Parcel 14.2 -	Building 209 concrete foundation and surrounding open land area extending to Airways Boulevard and to Dunn Road
	Parcel 15.6 -	Open storage areas X09, Y10 and Y50, Buildings 301, 309, T416, T417, 701 and 717 and surrounding open land area extending to Dunn Road
	Parcel 20.5 -	Open land area surrounding Buildings 470, 489 and 670
	Parcel 20.6 -	Spill area between Buildings 489 and 490
	Parcel 21.5 -	Open land area surrounding Buildings 490, 689 and 690
	Parcel 22.1 -	Open land area between east ends of Buildings 689 and 690
	Parcel 22.2 -	Spill area east of Building 685
	Parcel 23.11 -	Open land area surrounding Building 995
	Parcel 24.2 -	Open storage area X03
	Parcel 26.1 -	Open land area surrounding Building 970
	Parcel 27.1 -	Open land area surrounding Building 972

Parcel 29.2 -	Open storage areas X27 and X30, Buildings 801 and 802, and surrounding open land area extending to Dunn Road and to Perry Road
Parcel 29.3 -	Storm drain ditch adjacent to Gate 9
Parcel 30.3 -	Open storage area X23 and open land area surrounding Buildings 925 and 949
Parcel 30.5 -	Former spray paint area south of Building 949
Parcel 31.1 -	Open storage areas X17, X19, X20 and X21
Parcel 32.3 -	Open storage area X02, Building 865 and surrounding open land area
Parcel 33.7 -	Former aboveground storage tank east of Building 770
Parcel 33.9 -	Open storage areas X05, X06, X07, X08, X10, X11 and X12, Buildings 720 and 737, and open land area surrounding Buildings 720, 737, 753, 755, 756, 860 and 863

A summary of the ECP Categories for specific buildings or parcels is provided in Table 1 – Description of Property (Enclosure 2).

3.2 Storage, Release or Disposal of Hazardous Substances

Hazardous substances were stored at the following locations: Buildings 194, 308, 319, 469, 720, 737, 783, 793, 865, 873, 875, 1084, 1086, 1087, 1089, 1090 and 1091; open storage areas X03, X07, X08, X10, X11, X12, X17, X19, X20, X21, X23, Y10 and Y50; former waste material storage area west of Buildings 308 and 309 (Parcel 15.5); former material recoupment area at southeast corner of Building 873 (Parcel 24.1); and open land area surrounding Buildings 925 and 949. It is assumed this storage was in excess of the 40 CFR Part 373 reportable quantities. Hazardous substances were also stored in Building 702 (Parcel 15.4/demolished in 1998), the officer's hobby shop, in small quantities for use by military officers. Hazardous substances were released at the following locations: inside Buildings 465, 469, 737, 863, 865, 873, 1086 and 1087; open storage area X10; Lake Danielson (Parcel 3.6) and associated storm drain ditch (Parcel 3.7); golf course pond (Parcel 3.8) and associated storm drain ditch (Parcel 3.9); former pistol range near Hole 9 (Parcel 3.10); former flamethrower test site west of Hole 9 (Parcel 3.11); storm drain ditch adjacent to Gate 9 (Parcel 29.3); spill area between Buildings 489 and 490 (Parcel 20.6); spill area east of Building 685 (Parcel 22.2); spill area between Buildings 925 and 949 (Parcel 30.2); former waste material storage area west of Buildings 308 and 309 (Parcel 15.5); former material recoupment area at southeast corner of Building 873 (Parcel 24.1); open land area surrounding Buildings 873 and 875 (Parcel 25.2); and former spray paint area south of Building 949 (Parcel 30.5).

In the past, all grassed areas (Parcels 3.5, 3.10, 3.11, 13.5, 14.2, 15.6, 18.2, 20.5, 21.5, 23.6, 23.10, 23.11, 28.1, 28.2, 29.2, 33.9, 34.2 and 35.5) were sprayed with pesticides and herbicides. In the past, all gravel areas (15.5, 15.6, 19.1, 20.5, 21.5, 22.1, 22.2, 23.6, 23.10, 23.11, 24.1, 24.2, 25.2, 26.1, 27.1, 28.1, 28.2, 29.2, 30.3, 32.3, 33.7, 33.9, 35.2, 35.4 and 35.5) were sprayed with pesticides, herbicides and waste oil containing pentachlorophenol (PCP). In the past, all gravel open storage areas (X01, X02, X03, X04, X05, X06, X07, X08, X09, X10,

X11, X12, X17, X19, X20, X21, X23, X27, X30, Y10 and Y50) were sprayed with pesticides, herbicides and waste oil containing pentachlorophenol (PCP). In the past, all railroad tracks (Parcels 13.5, 14.2, 15.6, 18.2, 19.1, 20.5, 23.6, 24.2, 25.2, 26.1, 29.2, 30.3, 31.1, 33.9 and 34.2) were sprayed with pesticides, herbicides and waste oil containing pentachlorophenol (PCP). Existing records do not support the determination that releases exceeded the 40 CFR Part 373 reportable quantities unless otherwise noted in Table 2. The release of hazardous substances was either remediated at the time of the release or is currently under evaluation as part of the installation restoration program. There is no risk to human health and the environment so long as the tenant adheres to the Environmental Protection Provisions (Enclosure 5) with particular reference to Provision 14 regarding ground disturbing activities. These activities shall not be allowed without prior written approval from the Government. A summary of the buildings or areas in which hazardous substance activities occurred is provided in Table 2 – Notification of Hazardous Substance Storage, Release or Disposal (Enclosure 3).

Results from the Preliminary Risk Evaluation (PRE) (CH2M Hill, April 1998) indicated industrial reuse scenario carcinogenic risks were within or below (i.e., even less risk) the acceptable exposure level [(40 CFR 300.430 (e)(2)(i)(A)(2)] as defined by the Environmental Protection Agency for the following parcels included in this FOSL: 13.5, 14.2, 15.2, 15.3, 15.4, 15.5, 15.6, 18.2, 19.1, 19.2, 19.3, 20.1, 20.5, 20.6, 21.5, 22.1, 22.2, 23.6, 23.7, 23.8, 23.9, 23.10, 23.11, 24.1, 24.2, 25.1, 25.2, 26.1, 26.2, 27.1, 28.1, 28.2, 29.2, 29.3, 30.2, 30.3, 30.4, 30.5, 31.1, 32.3, 33.6, 33.7, 33.8, 33.9, 34.2, 35.1, 35.2, 35.3, 35.4 and 35.5. Risk assessment information for the Parcel 3 is contained in subsequent paragraphs of this FOSL.

Results from the PRE(CH2M Hill, April 1998) indicated industrial reuse scenario non-carcinogenic risks were within or below (i.e., even less risk) the acceptable exposure level [(40 CFR 300.430 (e)(2)(i)(A)(1)] as defined by the Environmental Protection Agency for the following parcels included in this FOSL: 13.5, 14.2, 15.2, 15.3, 15.5, 15.6, 18.2, 19.1, 19.2, 19.3, 20.1, 20.5, 20.6, 21.5, 22.1, 22.2, 23.6, 23.7, 23.8, 23.9, 23.10, 23.11, 24.1, 24.2, 25.1, 25.2, 26.1, 26.2, 27.1, 29.2, 30.2, 30.3, 30.4, 31.1, 32.3, 33.6, 33.7, 33.8, 33.9, 34.2, 35.1, 35.2, 35.3, 35.4 and 35.5.

Results from the PRE (CH2M Hill, April 1998) indicated Parcels 15.4, 28.1, 28.2, 29.3, 30.5 and 35.4 industrial resuse scenario non-carcinogenic risks were above the acceptable exposure level [(40 CFR 300.430 (e)(2)(i)(A)(1)] as defined by the Environmental Protection Agency. One sample for Parcel 15.4 taken adjacent to the remaining concrete pad from the demolition of Building 702 was above acceptable exposure levels and will be further evaluated under the installation restoration program. One sample for Parcel 28.1 was taken adjacent to a railroad track and was on the threshold of the acceptable exposure level. All railroad tracks will be further evaluated under the installation restoration program. Samples for Parcel 30.5 were collected adjacent to Screening Site 83 and will be further evaluated under the installation restoration program. Parcel 28.2 and 35.4 include Remedial Investigation Site 32 and Screening Sites 31, 33 and 89 all of which are included in a proposed removal action that, if approved, is anticipated to occur in 1999. Parcel 29.3 is a concrete lined stormwater drainage ditch at which no beneficial occupancy will occur. There is no risk to human health and the environment so long as the tenant adheres to the Environmental Protection Provisions (Enclosure 5) with particular reference to Provision 14 regarding ground disturbing activities. These activities shall not be allowed without prior written approval from the Government.

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). The assessment is unique in that it has been expedited when compared to the typical "Superfund" process. From late 1996 through 1998, over fifty surface soil samples from throughout these parcels were collected, analyzed, and the results processed through several risk assessment scenarios reflected of intended, like 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. 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. Golf courses in the city of Memphis usually notify course users about the application of pesticides by posting signs and flyers. Therefore, the Lessee is required to comply with Environmental Protection Provision 20 (Enclosure 5) regarding the posting of signs regarding historical and current pesticide use.

Health risks associated with surface water, sediments and aquatic animals in Lake Danielson (Parcel 3.6) and the Golf Course Pond (Parcel 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. However, the Lessee should maintain the signage around the impoundments as the Lessee may decide to continue the ban on fishing and swimming for safety reasons.

3.3 Petroleum and Petroleum Products

3.3.1 Storage, Release, or Disposal of Petroleum Products

Petroleum products were stored in excess of 55 gallons at following locations: Buildings 209 (Parcel 14.2/demolished in 1998), 465, 469, 865, 873, 875, 970, 1085 (in Parcel 35.2/demolished in 1988), 1090 and 1091; open storage areas X03, X07, X10, X11, X12, X17, X19, X20, X21, X23 and Y10; former waste material storage area west of Buildings 308 and 309 (Parcel 15.5); former material recoupment area at southeast corner of Building 873 (Parcel 24.1); former aboveground storage tank (Tank 765) east of Building 770 (Parcel 33.7); in Parcel 13.5 at the current aboveground storage tank for the emergency generator associated with Building 211; in Parcel 15.6 at a former underground storage tank adjacent to Building 319; in Parcel 33.9 at a former aboveground storage tank (Tank 721) adjacent to Building 720 and at a former underground storage tank adjacent to Building 754 (Building 754 is Parcel 33.2 and is not included in this FOSL). Small quantities of petroleum products were stored and used at former Building 702 (Parcel 15.4/demolished in 1998), the officer's hobby shop. See Section 3.3.2 for more information regarding underground and aboveground storage tanks.

There is evidence that petroleum or petroleum products were released at the following locations: inside Buildings 465, 468, 469, 863, 873 and 970; at open storage areas X03, X11, X27 and X30; the spill area on north dock of Building 489 (Parcel 20.1); spill area northwest of Building 995 (Parcel 23.9); spill area west of Building 737 (Parcel 33.6); former flamethrower test site west of Hole 9 (Parcel 3.11); open land area surrounding Buildings 689 and 690 (Parcel 21.5); in open storage area X03 between Buildings 771 and 873 (Parcel 24.2); open land area surrounding Buildings 873 and 875 (Parcel 25.2); open land area surrounding Building 972 (Parcel 27.1).

In the past, all gravel areas (15.5, 15.6, 19.1, 20.5, 21.5, 22.1, 22.2, 23.6, 23.10, 23.11, 24.1, 24.2, 25.2, 26.1, 27.1, 28.1, 28.2, 29.2, 30.3, 32.3, 33.7, 33.9, 35.2, 35.4 and 35.5) were sprayed with pesticides, herbicides and waste oil containing pentachlorophenol (PCP). In the past, all gravel open storage areas (X01, X02, X03, X04, X05, X06, X07, X08, X09, X10, X11, X12, X17, X19, X20, X21, X23, X27, X30, Y10 and Y50) were sprayed with pesticides, herbicides and waste oil containing pentachlorophenol (PCP). In the past, all railroad tracks (Parcels 13.5, 14.2, 15.6, 18.2, 19.1, 20.5, 23.6, 24.2, 25.2, 26.1, 29.2, 30.3, 31.1, 33.9 and 34.2) were historically sprayed with pesticides, herbicides and waste oil containing pentachlorophenol (PCP).

It is assumed, unless otherwise noted in Table 3 and with the exception of the waste oil sprayed on gravel areas and railroad tracks, that releases were in excess of 55 gallons. The release of petroleum products was either remediated at the time of the release or is currently under evaluation as part of the installation restoration program. There is no risk to human health and the environment so long as the tenant adheres to the Environmental Protection Provisions (Enclosure 5) with particular reference to Provision 14 regarding ground disturbing activities. These activities shall not be allowed without prior written approval from the Government. A summary of the buildings or areas in which petroleum product activities occurred is provided in Table 3 – Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4).

3.3.2 Underground and Aboveground Storage Tanks (UST/AST)

There were eight underground storage tanks (UST) and two aboveground storage tanks (AST) on the property that were used for storage of petroleum products. There is no evidence of release or disposal at the following UST/AST sites: In Parcel 14.2 on north side of Building 209: 12,000-gallon heating oil UST removed in July 1994, 500-gallon heating oil UST removed in July 1995, and 500-gallon boiler blow down UST removed in July 1995. In Parcel 13.5 west of Building 211: 500-gallon diesel fuel AST that remains active. In Parcel 15.6 north of Building 319: 4,000-gallon heating oil UST removed in July 1994. In Parcel 33.9 west of Building 720: 12,000-gallon AST removed in July 1997. In Parcel 33.9 on east side of Building 754: 200-gallon gasoline UST removed in 1986. In Parcel 25.2 on east side of Building 875: 1,000-gallon heating oil UST closed in place in 1994. In Parcel 35.2 on east side of former Building 1085 that was demolished by 1988: 1,000-gallon waste oil UST removed in 1988 and 100-gallon hydraulic fluid UST closed in place in 1995. A summary of the buildings or areas in which petroleum product activities occurred is provided in Table 3 – Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4).

3.4 Polychlorinated Biphenyls (PCB) Equipment

There are no PCB containing transformers or other PCB containing equipment, except hermetically sealed fluorescent light bulb ballasts that may contain PCBs, located on the property listed in this FOSL. There has been no evidence of release from this equipment. There is evidence that PCBs or PCB contaminated fluids were released from PCB-containing equipment, that has since been removed, at Building 469.

On December 16, 1993, approximately 4 to 6 ounces of PCB (PCB-1242) contaminated fluid was spilled on a small portion of the southern interior wall and floor (2 square feet on wall and 2 square feet on floor) of Building 469. The Spill Team responded, applied absorbent and disposed of all residue in accordance with federal, state and local regulations. The sheet rock wall and concrete floor absorbed some of the fluid. According to the Spill Team Leader, the effected sheet rock and concrete floor were removed during sampling efforts. The BRAC Cleanup Team performed a visual inspection and identified no remaining contamination and determined no further action was required to address the spill. There is no risk to human health and the environment. The lease will include the PCB notification provision in the Environmental Protection Provisions (Enclosure 5)

3.5 Asbestos

The EBS and the Asbestos Identification Survey (Pickering, December 1993 and January 1994) indicate Asbestos Containing Materials (ACM) are present in the following buildings:

Building 308:	Roof flashing: non-friable
Building 309:	Roof flashing: non-friable Asphalt built-up roof: non-friable Cement asbestos wall panels: assessment does not indicate friability, indicates poor condition/heavy damage

Building 319:	Asphalt built-up roof: non-friable
Building 398:	Dry wall leveling compound: non-friable
Building T416:	Cement asbestos siding shingles: non-friable Interior window frame putty: non-friable Exterior door frame putty: non-friable
Building T417:	Cement asbestos siding shingles: non-friable Exterior window and door frame putty: non-friable
Building 717:	Window and door frame putty: non-friable
Building 720:	12 x 12 brown vinyl floor tile and mastic: non-friable Exterior window and door putty: non-friable Asphalt built-up roofing: non-friable Roof flashing: non-friable
Building 737:	Cement asbestos shingle siding/exterior gables: non-friable
Building 783:	Mastic crack sealant: non-friable
Building 801:	Exterior window and door frame putty: non-friable
Building 873:	Asphalt built-up roofing: non-friable Roof flashing: non-friable
Building 875:	Cement asbestos wall board/breakroom heater: non-friable Cement asbestos shingles/Bay 4 office exterior: non-friable Restroom floor tile mastic: non-friable Thermal system pipe insulation: non-friable 12 x 12 brown floor tile and mastic in office: non-friable Boiler room pipe insulation: non-friable Boiler room pipe joint insulation: non-friable Boiler room tank insulation: non-friable Asphalt built-up roofing: non-friable Roof flashing: non-friable
Building 1084:	Roof flashing: non-friable
Building 1087:	Thermal system duct insulation/paint booth: non-friable
Building 1090:	Mastic/sealant coating roof bolts: non-friable
Building 1091:	Mastic/sealant coating roof bolts: non-friable

The ACM does not currently pose a threat to human health or the environment because all friable asbestos that posed an unacceptable risk to human health has been removed or encapsulated. The lease will include the asbestos warning and covenant included in the Environmental Protection Provisions (Enclosure 5).

3.6 Lead-Based Paint (LBP)

Based on the age of the buildings (constructed prior to 1978), the following buildings are presumed to contain lead-based paint: 194, 197, 301, 308, 309, 319, 398, T416, T417, 465, 468, 469, 717, 720, 783, 793, 801, 802, 863, 865, 873, 875, 970, 1084, 1086, 1087, 1088, 1089, 1090 and 1091. The lease will include the lead-based paint warning and covenant provided in the Environmental Protection Provisions (Enclosure 5).

3.7 Radiological Materials

The following buildings were used for radiological activities:

- Building 319, Bay 6 - storage of lantern mantles containing thorium-232; smoke detectors containing americium 241; electron tubs containing thorium-232, tritium (H-3) and radium-226; wrist watches containing tritium (H-3) and radium-226; indicator and toggles switches containing radium-226; and compasses containing tritium (H-3).

A radiological field survey was conducted in 1996 at those sites having radiological activities. The survey indicated Building 319 had several wall surfaces with alpha radiation above the alpha background radiation level and recommended additional characterization be performed to determine the cause of the slightly elevated alpha radiation before being released for unrestricted use. The characterization study was completed in April 1997 and concluded that the higher levels of alpha radiation resulted from naturally occurring radioactivity in the pre-cast concrete building materials. The characterization study concluded that Building 319 could be released for unrestricted use. In a letter dated April 16, 1999, the NRC approved the Defense Distribution Center's request to amend the Depot's license and released Building 319 for unrestricted use.

3.8 Radon

In accordance with the Department of Defense Memorandum, Subject: Asbestos, Lead Paint and Radon Policies at BRAC Properties, dated October 31, 1994, no radon surveys were conducted in the buildings included in this FOSL as their intended use will not be residential.

3.9 Unexploded Ordnance

Based on a review of existing records and available information, none of the buildings or land proposed for lease are known to contain unexploded ordnance.

3.10 Other Hazardous Conditions

There are no other known hazardous conditions that present an unacceptable threat to human health or the environment on the property.

4. REMEDIATION

In October 1992, the U.S. Environmental Protection Agency (EPA) placed the Depot on the National Priorities List (NPL) for environmental restoration. The Depot has since entered into a Federal Facilities Agreement (FFA) with the Tennessee Department of Environment and Conservation (TDEC) and the EPA. Environmental contamination on the property described in this document does not present a hazard to persons leasing it. In addition, environmental conditions on adjacent federal government property do not present a hazard to the leasing of the property. Table 2 - Notification of Hazardous Substance Storage, Release or Disposal (Enclosure 3) and Table 3 - Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4) provide details regarding environmental conditions for each individual parcel or building contained within this FOSL. The EPA has concurred that the areas and buildings included in this Finding of Suitability to Lease are suitable to lease provided that the property uses are consistant with the Depot Redevelopment Plan and that the lessee strictly adheres to the Environmental Protection Provisions (Enclosure 5).

5. REGULATORY/PUBLIC COORDINATION

The U.S. EPA Region 4, TDEC and the public were notified of the initiation of this FOSL. EPA and TDEC were provided copies of the draft for review and comment. EPA, DLA and the Department of Army have provided comments. All comments and responses are located at Enclosure 6.

6. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE AND CONSISTENCY WITH LOCAL REUSE PLAN

The environmental impacts associated with proposed lease of the property have been analyzed in accordance with the National Environmental Policy Act (NEPA). The results of this analysis have been documented in the Final Environmental Assessment for Master Interim Lease, Defense Distribution Depot Memphis, Tennessee, dated September 1996. The environmental effects of the activities anticipated under the proposed lease were determined not to be significant. In addition, the proposed use of the property is consistent with the intended reuse of the property set forth in the Depot Redevelopment Corporation Reuse Plan.

7. ENVIRONMENTAL PROTECTION PROVISIONS

On the basis of the above results from the site-specific EBS and other environmental studies and in consideration of the intended use of the property, certain terms and conditions are required for the proposed lease. These terms and conditions are set forth in the attached Environmental Protection Provisions (Enclosure 5) and will be included in the lease.

8. FINDING OF SUITABILITY TO LEASE

Based on the above information, I have concluded that all Department of Defense (DOD) requirements to reach a Finding of Suitability to Lease (FOSL) to the Depot Redevelopment Corporation for light industrial and recreational use have been fully met for the property subject to the terms and conditions in the attached Environmental Protection Provision (Enclosure 5). As required by CERCLA section 120(h)(3)(B), I have determined that the property is suitable for lease for the intended purpose, the uses contemplated for the lease are consistent with protection

of human health and the environment, and there are adequate assurances that the United States will take any additional remedial action found to be necessary that has not been taken on the date of the lease.

As required under the DOD FOSL Guidance, notification of hazardous substance activities and petroleum product activities shall be provided in the lease documents. Refer to Table 2 – Notification of Hazardous Substance Storage, Release or Disposal (Enclosure 3) and Table 3 – Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4).

for P. S. MORRIS
Colonel, GS
Deputy Chief of Staff
for Engineering,
Housing, Environment
and Installation Logistics

7 Enclosures
Encl 1 Site Maps of Property
Encl 2 Table 1 - Description of Property
Encl 3 Table 2 - Notification of Hazardous Substance Storage, Release or Disposal
Encl 4 Table 3 - Notification of Petroleum Product Storage, Release or Disposal
Encl 5 Environmental Protection Provisions
Encl 6 Regulatory/Public Comments and Responses
Encl 7 Reference Materials

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY MATERIEL COMMAND
5001 EISENHOWER AVENUE, ALEXANDRIA, VA 22333 - 0001

REPLY TO
ATTENTION OF

AMCIS-R

23 FEB 2001

MEMORANDUM THRU Commander, U.S. Army Engineers Division, South Atlantic, ATTN: CESAD-RE, Room 9M7, 60 Forsyth Street, SW, Atlanta, GA 30303-8801

FOR Commander, U.S. Army Corps of Engineer, Mobile District, ATTN: CESAM-RE-MM, New Federal Building, 109 Saint Joseph St., Mobile, AL 36628-0001

SUBJECT: Finding of Suitability to Transfer (FOST-1), Revised for Transfer of Property at Defense Distribution Depot Memphis, Tennessee (DDMT)

1. Reference memorandum, DDSP-F, 31 Oct 00, SAB.

2. Enclosed for your action is a copy of the FOST-1, Revised documents for the transfer of approximately 6.51 acres that include seven (7) parcels at DDMT. The enclosed pages are to replace the corresponding pages on the previously approved FOST-1, 7 Jun 00.

3. Request a deed be executed in accordance with the enclosed approved documents.

4. Points of contact for this action are Mr. John Farrar, AMCIS-R, commercial (703) 617-0726, DSN 767-0726, and Mr. Joe Goetz, AMCIS-R, commercial (703) 617-9282, DSN 767-9282.

5. AMC – Army READINESS Command . . . Supporting Every Soldier Every Day.

FOR THE COMMANDER:

CHRISTOPHER J. YOUNG
COL, GS
Deputy Chief of Staff
for Installations

4 Encls
as

FINDING OF SUITABILITY TO TRANSFER (FOST)

#1

(Parcel 2.1, Parcel 2.2, Parcel 2.3, Parcel 2.4, Parcel 2.5, Parcel 2.6, Parcel 2.7)

at the former Defense Distribution Depot Memphis, Tennessee

January 2000
(Corrected September 2000)

1. PURPOSE

The purpose of this Finding Of Suitability To Transfer (FOST) is to document the environmental suitability of Parcels 2.1, 2.2, 2.3, 2.4, 2.5, 2.6 and 2.7 at the former Defense Distribution Depot Memphis, Tennessee (Depot) for transfer for residential use consistent with Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Section 120(h), Department of Defense (DOD) and Army policy. This FOST has been developed in accordance with the Depot Redevelopment Corporation's (DRC) Reuse Plan. In addition, this FOST identifies use restrictions as specified in the attached Environmental Protection Provisions necessary to protect human health or the environment after such transfer.

2. PROPERTY DESCRIPTION

The proposed property to be transferred consists of 6.51acres that includes seven (7) parcels. Included in these parcels are six buildings and the open land area surrounding these buildings. Site maps of the property proposed for transfer can be found at Enclosure 1.

3. ENVIRONMENTAL CONDITION OF THE PROPERTY

A determination of the environmental condition of the facilities has been made based on the Post Removal Report Family Housing Memphis Depot Tennessee, the Comprehensive Environmental Response Facilitation Act (CERFA) letter to EPA dated December 5, 1997 and the Environmental Baseline Survey (EBS) dated November 6, 1996. The information provided is a result of a complete search of agency files during the development of these environmental surveys. The following documents also provided information on environmental conditions of the property: Revised BRAC Parcel Summary Reports (CH2M Hill, October 1998), Final BRAC Cleanup Plan Version 2 (DDSP-FE, October 1998), Asbestos Reinspection (DDRE-WP, October 1996), Final Environmental Assessment for BRAC 95 Disposal and Reuse (Tetra Tech, February 1998), Lead-Based Paint Risk Assessment for the Defense Distribution Depot Memphis, Tennessee (Barge, Waggoner, Sumner and Cannon, April 1996), Lead-Based Paint Survey Letter Report (Memphis/Shelby County Health Department, August 2, 1997), Asbestos Identification Survey (Pickering, December 1993 and January 1994).

3.1 Environmental Condition of Property Categories

The Department of Defense (DOD) Environmental Condition of Property (ECP) Categories for the property are as follows:

ECP Category 1:	Parcel 2.1 - Family housing unit Building 176
	Parcel 2.2 - Detached garage Building S178
	Parcel 2.3 - Family housing unit Building 179
	Parcel 2.4 - Family housing unit Building 181
	Parcel 2.5 - Detached garage Building S183
	Parcel 2.6 - Family housing unit Building 184
ECP Category 4:	Parcel 2.7 - Open land area surrounding these buildings and

extending to the installation fenceline south of N Street.

A summary of the ECP Categories for specific buildings or parcels is provided in Table 1 – Description of Property (Enclosure 2).

3.2 Storage, Release or Disposal of Hazardous Substances

Hazardous substances were released or disposed of in excess of the 40 CFR Part 373 reportable quantities in the following area: northern portion of Parcel 2.7 - open land area surrounding the family housing units. The release or disposal of these hazardous substances was remediated as part of the installation restoration program. All necessary response actions have been taken at this site. A summary of the area in which hazardous substance activities occurred is provided in Table 2 - Notification of Hazardous Substance Storage, Release or Disposal (Enclosure 3).

3.3 Petroleum and Petroleum Products

3.3.1 Storage, Release, or Disposal of Petroleum Products

There is no evidence that any petroleum or petroleum products in excess of 55 gallons at one time were stored, released or disposed of on the property. Accordingly, there is no need for any notification of petroleum product storage, release or disposal.

3.3.2 Underground and Above-Ground Storage Tanks (UST/AST)

There is no evidence that petroleum products were stored in underground or above-ground storage tanks on the property.

3.4 Polychlorinated Biphenyls (PCB) Equipment

There are no PCB containing transformers or other PCB containing equipment located on the property and no evidence of unremediated releases from PCB equipment.

3.5 Asbestos

The EBS and the Asbestos Identification Survey (Pickering, December 1993 and January 1994) indicate Asbestos Containing Materials (ACM) are present in the following buildings:

Building 176 -	Rolled flooring in kitchen areas - non-friable Thermal pipe insulation and pipe joint insulation in basement - non-friable/encapsulated Pipe insulation between basement ceiling and upstairs bathroom (Encased in exterior wall) - non-friable
Building S178 -	Cement siding shingles - non-friable

Building 179 - Rolled flooring in kitchen areas - non-friable
Thermal pipe insulation and pipe joint insulation in basement - non-friable/encapsulated
Pipe insulation between basement ceiling and upstairs bathroom (Encased in exterior wall) - non-friable

Building 181 - Rolled flooring in kitchen areas - non-friable
Thermal pipe insulation and pipe joint insulation in basement - non-friable/encapsulated
Pipe insulation between basement ceiling and upstairs bathroom (Encased in exterior wall) - non-friable

Building 183 - Cement siding shingles - non-friable

Building 184 - Thermal pipe insulation and pipe joint insulation in basement - non-friable/encapsulated
Pipe insulation between basement ceiling and upstairs bathroom (Encased in exterior wall) - non-friable

The ACM does not currently pose a threat to human health or the environment because all friable asbestos that posed an unacceptable risk to human health has been either removed or encapsulated. The deed will include the asbestos warning and covenant included in the Environmental Protection Provisions (Enclosure 5).

3.6 Lead-Based Paint (LBP)

Based on the following LBP surveys, Lead-Based Paint Risk Assessment for the Defense Distribution Depot Memphis Tennessee, revised April 1996, and Memphis/Shelby County Health Department LBP Survey letter report dated August 2, 1997, the following buildings were determined to contain lead-based paint on the exterior and bathroom surfaces only: 176, 179, 181 and 183. Subsequent to these surveys, the exterior LBP was abated by removal of all painted trim pieces. The Lead-Based Paint Risk Assessment for the Defense Distribution Depot Memphis Tennessee, revised April 1996 indicated that the LBP present in the bathrooms was in good condition and posed no risk while in good condition. Subsequent to the exterior LBP abatement, an October 1999 inspection of the interior bathrooms found the painted surfaces remained in good condition. Only encapsulated LBP is on the garages, Building S178 and S183. The deed will include the lead-based paint warning and covenant provided in the Environmental Protection Provisions (Enclosure 5).

3.7 Radiological Materials

There is no evidence that radiological material or sources were used or stored on the property included in this FOST.

3.8 Radon

Radon surveys were conducted in the following buildings: 176, 179, 181 and 184. Radon was not detected at above the EPA residential action level of 4 picocuries per liter (pCi/L) in these buildings.

3.9 Unexploded Ordnance

Based on a review of existing records and available information, none of the buildings or surrounding land proposed for transfer are known to contain unexploded ordnance.

3.10 Other Hazardous Conditions

There are no other known hazardous conditions which required remediation or a response action for the property to be suitable for transfer for the intended use.

4. REMEDIATION

In October 1992, the U.S. Environmental Protection Agency (EPA) placed DDMT on the National Priorities List (NPL) for environmental restoration. The following environmental orders/agreements are applicable to the property: Federal Facilities Agreement (FFA) among the Defense Logistics Agency, the Tennessee Department of Environment and Conservation (TDEC) and the Environmental Protection Agency, Region IV. All necessary remediation activities on the property by such agreement or order are completed. A removal action to remove soil impacted by the pesticide dieldrin was completed in the winter of 1998. The Post Removal Reports for Family Housing Units are available at the Depot's Information Repositories. In addition, environmental conditions on adjacent government property do not present a hazard to the transfer of the property. Table 2 - Notification of Hazardous Substance Storage, Release or Disposal (Enclosure 3) and Table 3 - Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4) provide details regarding environmental conditions for each individual parcel or building contained within this FOST.

5. REGULATORY/PUBLIC COORDINATION

TDEC has provided comments and has generally concurred with this FOST. TDEC comments have been resolved and incorporated. EPA has provided comments. These comments have generally been resolved and incorporated. A portion of EPA comment #3 is no longer applicable. The public comment period began on December 9, 1999 and closed on January 17, 2000. All public comments are included and addressed in Enclosure 6.

6. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE AND CONSISTENCY WITH LOCAL REUSE PLAN

The environmental impacts associated with proposed transfer of the property have been analyzed in accordance with the National Environmental Policy Act (NEPA). The results of this analysis have been documented in the Final Environmental Assessment for BRAC 95 Disposal and Reuse, Defense Distribution Depot Memphis, Tennessee, dated February 1998. Any encumbrances or conditions identified in such analysis as necessary to protect human health and

the environment have been incorporated into the FOST. Conditions are provided in Enclosures 3, 4, and 5 while encumbrances are detailed in Enclosure 5. In addition, the proposed transfer is consistent with the intended reuse of the property set forth in the Depot Redevelopment Corporation Reuse Plan.

7. ENVIRONMENTAL PROTECTION PROVISIONS

On the basis of the above results from the site-specific EBS and other environmental studies and in consideration of the intended use of the property, certain terms and conditions are required for the proposed transfer. These terms and conditions are set forth in the attached Environmental Protection Provisions (Enclosure 5) and will be included in the deed.

8. FINDING OF SUITABILITY TO TRANSFER

Based on the above information, I have concluded that all Department of Defense (DOD) requirements to reach a Finding of Suitability to Transfer (FOST) to the Depot Redevelopment Corporation for residential use have been fully met for the property subject to the terms and conditions in the attached Environmental Protection Provision (Enclosure 5). All removal or remedial actions necessary to protect human health and the environment have been taken and the property is transferable under CERCLA Section 120(h)(3).

In addition to the Environmental Protection Provisions, the deed for this transaction will contain:

- The covenant under CERCLA 120(h)(3)(A)(ii)(I) warranting that all remedial actions under CERCLA necessary to protect human health and the environment with respect to hazardous substances remaining on the property have been taken before the date of transfer.

- The covenant under CERCLA 120(h)(3)(A)(ii)(II) warranting that any remedial action under CERLCA found to be necessary after the date of transfer with respect to such hazardous substances remaining on the property shall be conducted by the United States.

- The clause as required by CERCLA 120(h)(3)(A)(iii) granting the United States access to the property in any case in which remedial action or corrective action is found to be necessary after the date of transfer.

As required under the CERCLA Section 120(h) and DOD FOST Guidance, notification of hazardous substance activities and petroleum product activities shall be provided in the deed. Refer to Table 2 – Notification of Hazardous Substance Storage, Release or Disposal (Enclosure 3) and Table 3 – Notification of Petroleum Product Storage, Release or Disposal (Enclosure 4).

FOR P.S. MORRIS
Colonel, GS
Deputy Chief of Staff
for Engineering, Housing,
Environment and Installation
Logistics

7 Enclosures
Encl 1 Site Maps of Property
Encl 2 Table 1 - Description of Property.
Encl 3 Table 2 - Notification of Hazardous Substance Storage, Release or Disposal
Encl 4 Table 3 - Notification of Petroleum Product Storage, Release or Disposal
Encl 5 Environmental Protection Provisions
Encl 6 Regulatory/Public Comments
Encl 7 References

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY MATERIEL COMMAND
5001 EISENHOWER AVENUE, ALEXANDRIA, VA 22333-0001

REPLY TO
ATTENTION OF

27 [illegible] 2001

AMCIS-R

MEMORANDUM THRU Commander, U.S. Army Engineers Division, South Atlantic (CESAD-ET-R), Room 9N15, 60 Forsyth Street, S.W., Atlanta, GA 30303-8801

FOR Commander, U.S. Army Corps of Engineer, Mobile District (CESAM-RE-MM), P.O. Box 2288, Mobile, AL 36628-0001

SUBJECT: Base Realignment and Closure (BRAC) Disposal Support Package-2 (BDSP-2) and Finding of Suitability to Transfer (FOST-2) for Transfer of Property at Defense Distribution Depot Memphis, Tennessee (DDMT)

1. References:

a. Memorandum, DDSP-F, 23 July 01, subject: FOST #2 (Parcel #1).

b. Approved Memorandum of Agreement (MOA) among U.S. Army, Tennessee State Historic Preservation Officer, and Advisory Council on Historic Preservation, dated 12 Jun 98.

2. Enclosed for your action is a copy of the BDSP-2, FOST-2 and Record of Non-Applicability Concerning the General Conformity Rule (RONA) for the transfer of approximately 15.55 acres that include seven (7) buildings at DDMT.

3. Request a deed be executed in accordance with the enclosed approved documents.

4. Points of contact for this action are Mr. John Farrar, AMCIS-R, commercial (703) 617-0726, DSN 767-0726, and Mr. Joe Goetz, AMCIS-R, commercial (703) 617-9282, DSN 767-9282.

5. AMC -- Army READINESS Command . . . Supporting Every soldier Every Day.

FOR THE COMMANDER:

CHRISTOPHER J. YOUNG
COL, GS
Deputy Chief of Staff
for Installations

Encls
as

FINDING OF SUITABILITY TO TRANSFER (FOST #2)

Former Defense Distribution Depot Memphis, Tennessee

Parcel 1.1, Parcel 1.2, Parcel 1.3, Parcel 1.4, Parcel 1.5, Parcel 1.6, Parcel 1.7, Parcel 1.8

May 2001

FINDING OF SUITABILITY TO TRANSFER #2
Former Defense Distribution Depot Memphis, Tennessee
Parcels 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7 and 1.8
May 2001

1. PURPOSE

The purpose of this Finding Of Suitability To Transfer (FOST) is to document the environmental suitability of certain parcels or property at the former Defense Distribution Depot Memphis, Tennessee (Depot) for transfer to the Depot Redevelopment Corporation (DRC) consistent with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 120(h) and Department of Defense policy

2. PROPERTY DESCRIPTION

The property consists of 15.55 acres that includes eight (8) parcels. Within these parcels are seven (7) buildings, the open land area surrounding Building 144 and two paved parking lots. The property was previously used for administrative purposes. The property is intended to be transferred for industrial reuse and is consistent with the intended reuse of the property as set forth in the DRC's Memphis Depot Redevelopment Plan. A site map of the property is attached (Enclosure 1).

3. ENVIRONMENTAL DOCUMENTATION

A determination of the environmental condition of the property has been made based on the Comprehensive Environmental Response Facilitation Act (CERFA) letter to EPA dated December 5, 1997 and the Environmental Baseline Survey (EBS) dated November 6, 1996. The information provided is a result of a complete search of agency files during the development of these environmental surveys. A complete list of documents that provide information on environmental conditions of the property is attached (Enclosure 2).

4. ENVIRONMENTAL CONDITION OF PROPERTY

4.1 Environmental Condition of Property Categories

The Department of Defense (DOD) Environmental Condition of Property (ECP) Categories for the property is as follows:

ECP Category 1: Parcel 1.1 – Sentry Station Building 1
Parcel 1.2 – Sentry Station Building 2

Parcel 1.3 – Waiting Shelter Building 129
Parcel 1.4 – Waiting Shelter Building 139
Parcel 1.5 – Administrative Building 144
Parcel 1.6 – Security Building 145
Parcel 1.7 – Waiting Shelter Building 155 (demolished in 1999)

ECP Category 3: Parcel 1.8 – Open land area surrounding the buildings in Parcel 1, including two parking lots and grassy areas, flagpole (Building 143), switch station building (Building 147) and the antenna tower (Building 146)

A summary of the ECP Categories for specific buildings, parcels, or study areas/operable units is provided in Table 1 – Description of Property (Enclosure 3).

4.2 Storage, Release, or Disposal of Hazardous Substances

4.2.1 Hazardous Substance Storage, Release, or Disposal

There was no evidence of hazardous substance storage for one year or more in excess of 40 CFR Part 373 reportable quantities on the property. In addition, there was no evidence of release or disposal of hazardous substances in excess of 40 CFR 373 reportable quantities on the property. Accordingly, there is no need for any notification of any hazardous substance storage, release, or disposal activities.

4.2.2 Investigation/Remediation Sites

There were environmental investigations conducted on the property. A summary of the investigations is as follows:

- Screening Site 73. The Main Installation Remedial Investigation baseline risk assessment included Screening Site 73. Pesticides were applied to the grassed areas of the property (Parcel 1.8) as part of routine grounds maintenance activities. All grassed areas on the Depot were incorporated into Screening Site 73, and the pesticide dieldrin was investigated on a Depot-wide basis. Dieldrin levels on the property were not inconsistent with unrestricted reuse; therefore, no remediation (to include institutional controls) is required on the property.

There are no other investigation/remediation sites located on the property. In addition, there is no evidence of contaminated soil or groundwater on the property. A summary of the investigation site is provided on in Table 1 – Description of Property (Enclosure 3).

4.3 Petroleum and Petroleum Products

4.3.1 Underground and Above-Ground Storage Tanks (UST/AST)

There was no evidence that petroleum products were stored in underground or aboveground storage tanks on the property. Accordingly, there is no need for any notification of any UST/AST petroleum product storage, release, or disposal.

4.3.2 Non-UST/AST Storage, Release, or Disposal of Petroleum Products

There was no evidence that any petroleum or petroleum products in excess of 55 gallons at one time were stored, released, or disposed on the property as the result of non-UST/AST petroleum activities. Accordingly, there is no need for any notification of non-UST/AST petroleum product storage, release, or disposal.

4.4 Polychlorinated Biphenyls (PCB) Equipment

The following PCB containing equipment is located on the property: hermetically sealed fluorescent light bulb ballasts that may contain PCBs. This equipment is operational and has been determined not to be leaking. There is no evidence of past releases from the fluorescent light bulb ballasts on the property.

4.5 Asbestos

There is asbestos containing material in the following buildings:

Building 1: Roof flashing. Renovation accomplished without removing original roofing system

Building 2: Roof flashing and 12 x 12 floor tile mastic

Building 139: Window caulk and cement kick panels

Building 144: 9 x 9 vinyl floor tiles, 12 x 12 vinyl floor tiles, window frame putty, rolled linoleum flooring in the BX restroom, and the mastic used to install the 12x12 acoustical ceiling tiles in the basement through second floors, with the exception of the BX area

Building 145: 12 x 12 floor tile and mastic, vibration dampers (assumed/no analysis to confirm) and gypsum board leveling compound

The ACM does not currently pose a threat to human health or the environment because all friable asbestos that posed an unacceptable risk to human health has been removed or encapsulated. The deed will include the asbestos warning and covenant included in the Environmental Protection Provisions (Enclosure 4).

4.6 Lead-Based Paint (LBP)

Based on the age of the buildings (constructed prior to 1978), all of the buildings are presumed to contain lead-based paint. The property was not used for residential purposes and the transferee does not intend to use the property for residential purposes in the future. The deed will include the lead-based paint warning and covenant provided in the Environmental Protection Provisions (Enclosure 4).

4.7 Radiological Materials

There was no evidence that any radioactive material or sources were used or stored on the property.

4.8 Radon

Radon surveys were not conducted in the buildings proposed for transfer. Radon surveys were only conducted in the military family housing units, but those results indicated that radon was not detected at or above the EPA residential action level of 4 picocuries per liter (pCi/L) in these buildings.

4.9 Unexploded Ordnance

Based on a review of existing records and available information, none of the buildings or surrounding land proposed for transfer is known to contain unexploded ordnance. The open land area surrounding the buildings in Parcel 1 was either paved for parking lots or landscaped when the Depot opened and was never used for firing or testing military munitions. The buildings proposed for transfer were used for administrative, sentry and employee transportation purposes and were not used for ammunition storage purposes.

4.10 Other Hazardous Conditions

There are no other hazardous conditions that present an unacceptable risk to human health or the environment.

5. ADJACENT HAZARDOUS CONDITIONS

There are the following hazardous conditions adjacent to the property:

Groundwater contamination. In the Groundwater Feasibility Study (July 2000), two distinct groundwater plumes were delineated in the fluvial aquifer on the main installation (MI), one in the southwest part of the MI and one in the southeast portion. The groundwater contaminants of concern are PCE and TCE. The selected groundwater remedy at the MI is enhanced bioremediation, which includes institutional controls and long-term monitoring.

These conditions do not make the property proposed for transfer unsuitable to transfer because the groundwater is currently not used as potable water and city and county zoning restricts use of the groundwater. In addition, the ground water hydrology is such that the adjacent contamination will not migrate to the property (Enclosure 6). The fluvial aquifer lies at a depth of 80 to 100 ft below ground surface and is believed to have been impacted by Depot operations. The groundwater plume located on the southeast portion of the MI is located down gradient of Parcel 1. Groundwater flows from northeast to southwest on this portion of the MI, away from Parcel 1, towards the center of the MI. Groundwater flow on the southwest portion of the MI flows from southwest to northeast, towards the center on the MI. Groundwater flow in the center portion of the MI appears to flow to the south.

6. ENVIRONMENTAL AGREEMENTS

The following environmental orders/agreements are applicable to the property: Federal Facilities Agreement (FFA) among the Defense Logistics Agency, the Tennessee Department of Environment and Conservation (TDEC) and the Environmental Protection Agency, Region IV and Main Installation Record of Decision. The deed will include a provision reserving the Government's right to conduct remediation activities (See Enclosure 4).

7. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE AND CONSISTENCY WITH LOCAL REUSE PLAN

The environmental impacts associated with proposed transfer of the property have been analyzed in accordance with the National Environmental Policy Act (NEPA). The results of this analysis have been documented in the Final Environmental Assessment for BRAC 95 Disposal and Reuse of Defense Distribution Depot Memphis, Tennessee. Any encumbrances or condition identified in such analysis as necessary to protect human health or the environmental have been incorporated into the FOST.

8. REGULATORY/PUBLIC COORDINATION

The U.S. EPA Region IV, the Tennessee Department of Environment and Conservation, and the public were notified of the initiation of the FOST. Regulatory and public comments received during the FOST development were reviewed and incorporated as appropriate. All regulatory comments were resolved. A copy of the regulatory/public comments is included in the FOST (Enclosure 5).

9. FINDINGS OF SUITABILITY TO TRANSFER

Based on the above information, I conclude that all removal or remedial actions necessary to protect human health and the environment have been taken and the property is transferable under CERCLA section 120(h)(3). In addition, all Department of Defense requirements to reach a finding of suitability to transfer have been met subject to the terms

and conditions set forth in the attached Environmental Protection Provisions (Enclosure 4), which shall be included in the deed for the property. The Environmental Protection Provisions also include the CERCLA 120(h)(3) covenant and access provisions.

CHRISTOPHER J. YOUNG
COL, GS
Deputy Chief of Staff for Installations

6 Enclosures
Encl 1 Site Map of Property
Encl 2 Environmental Documentation
Encl 3 Table 1 - Description of Property
Encl 4 Environmental Protection Provisions/Deed Restrictions
Encl 5 Regulatory/Public Comments
Encl 6 Groundwater Flow Directions Map

Memphis Depot
Main Installation

Finding of Suitability to Transfer

Defense Distribution Center (Memphis)
May 2004 — Rev. 3

CH2MHILL

U.S. Army Engineering
and Support Center, Huntsville

U.S. Army Engineering and Support Center, Huntsville
Contract No. DACA87-02-D-0006
Task Order No. 05

Revision 3

FINDING OF SUITABILITY TO TRANSFER
(FOST)

Defense Distribution Center (Memphis)
FOST 3

(Subparcels 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11, 6.1, 6.2, 6.3, 6.4, 7.1, 7.2, 8.1, 8.2, 8.3, 8.4, 8.5, 9.1, 9.2, 9.3, 9.4, 9.5, 10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 11.1, 11.2, 11.3, 11.4, 12.1, 12.2, 13.1, 13.2, 13.3, 13.4, 13.5, 14.1, 14.2, 15.1, 15.2, 15.3, 15.4, 15.5, 15.6, 16.1, 16.2, 17.1, 17.2, 17.3, 18.1, 18.2, 19.1, 19.2, 19.3, 20.1, 20.2, 20.3, 20.4, 20.5, 20.6, 21.1, 21.2, 21.3, 21.4, 21.5, 22.1, 22.2, 23.1, 23.2, 23.3, 23.4, 23.6, 23.7, 23.8, 23.10, 24.4, 29.4, 33.1, 33.2, 33.3, 33.4, 33.7, 33.10, 33.11, 33.12, 33.13, 34.1 and 34.2)

May 2004

1.0 Purpose

The purpose of this Finding of Suitability to Transfer (FOST) is to document the environmental suitability of certain property (Subparcels 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11, 6.1, 6.2, 6.3, 6.4, 7.1, 7.2, 8.1, 8.2, 8.3, 8.4, 8.5, 9.1, 9.2, 9.3, 9.4, 9.5, 10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 11.1, 11.2, 11.3, 11.4, 12.1, 12.2, 13.1, 13.2, 13.3, 13.4, 13.5, 14.1, 14.2, 15.1, 15.2, 15.3, 15.4, 15.5, 15.6, 16.1, 16.2, 17.1, 17.2, 17.3, 18.1, 18.2, 19.1, 19.2, 19.3, 20.1, 20.2, 20.3, 20.4, 20.5, 20.6, 21.1, 21.2, 21.3, 21.4, 21.5, 22.1, 22.2, 23.1, 23.2, 23.3, 23.4, 23.6, 23.7, 23.8, 23.10, 24.4, 29.4, 33.1, 33.2, 33.3, 33.4, 33.7, 33.10, 33.11, 33.12, 33.13, 34.1 and 34.2) at Former Defense Distribution Depot Memphis, Tennessee (Depot), currently known as the Defense Distribution Center (Memphis), for transfer to the Depot Redevelopment Corporation for light industrial, commercial (except daycare), and recreational (Parcel 3 only) use consistent with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 120(h), Department of Defense (DOD) policy, and the Depot Redevelopment Corporation's Memphis Depot Redevelopment Plan. In addition, the FOST identifies use restrictions as specified in Enclosure 1 necessary to protect human health and the environment after such transfer.

2.0 Property Description

The property proposed for transfer consists of approximately 356.68 acres, which includes 65 buildings encompassing 70.02 acres, 37.45 acres of recreational property, and approximately 249.21 acres of open land areas (including open storage areas, paved areas, and grassed areas around buildings). A site map of the property is attached (Enclosure 2).

3.0 Environmental Condition of Property

A determination of the environmental condition of the facilities has been made based on the Environmental Baseline Survey (EBS) (Woodward-Clyde, November 1996), Main Installation (MI) Remedial Investigation (RI) Report (CH2M HILL, January 2000), MI Record of Decision (ROD) (CH2M HILL, February 2001), MI Land Use Control and Implementation Plan (LUCIP) (CH2M HILL, March 2004) Base Realignment and Closure (BRAC) Cleanup Plan Version 7 (Labat-Anderson, December 2003), Final Environmental Assessment for BRAC 95 Disposal and Reuse of Defense Depot Memphis, Tennessee (Tetra Tech, September 1998), Ordnance and Explosive Waste Chemical Warfare Materiels Archives Search Report for Memphis Defense Depot (U. S. Army Corps of Engineers - St. Louis, 1995), Asbestos Identification Survey (Pickering, December 1993 and January 1994), Environmental Baseline Study, Radiological Survey, Defense Distribution Depot Memphis, Tennessee (Defense Distribution Center Radiological Health Group, Safety and Occupational Health Office, 1996). The information provided herein is a result of a complete search of agency files during the development of these environmental surveys. A comprehensive list of documents that provide information on environmental conditions of the property is attached (Enclosure 3).

Residual contamination remains in soils at the property proposed for transfer. Residual soil contamination levels do not present an unacceptable risk for the proposed reuse, as overall human health risks and non-carcinogenic hazards to workers are within acceptable limits for carcinogenic and non-carcinogenic end points. Levels are not protective of human health for residential or child-occupied facilities, including daycare operations.

Residual soil contamination levels do not present an unacceptable risk to the environment. The natural habitat in the MI area is very limited to non-existent. Ecological receptors, such as terrestrial or aquatic animals and plants in the ponds and streams, are not being exposed to the site groundwater, and are not likely to be exposed in the future. Occasional terrestrial animals visiting the facility or living nearby are not subject to a significant threat from the site media. A screening level Ecological Risk Assessment conducted across the MI indicated little potential for significant ecological impacts or adverse effects to wildlife. No ecological contaminants of concern were identified at the facility. The land uses on the MI are expected to remain unchanged in the future; therefore, the potential for wildlife exposure is low. There are no unacceptable risks posed to ecological receptors at the MI.

Residual contamination remains in groundwater beneath the property proposed for transfer. Results from groundwater samples collected beneath these areas indicate contaminant levels do not exceed the Safe Drinking Water Act maximum contaminant levels (MCLs). As a result of the remedy selected in the MI ROD, dated September 2001, residual groundwater contamination levels do not present an unacceptable risk because of the lack of exposure.

At current contamination levels, the property is not safe for residential or child-occupied facilities, including daycare operations; nor is groundwater safe for production/consumptive use or for drilling groundwater wells that may allow contamination to migrate or move to the deeper drinking water aquifer. There is no unacceptable risk to human health and the environment so long as the Transferee, and any subsequent lessee(s) or sublessee(s), adheres to the Environmental Protection Provisions (Enclosure 1), which include the institutional controls required by the MI ROD. These activities shall not be allowed without prior written approval from the Army. The institutional controls shall be implemented and monitored in accordance with the MI LUCIP (Enclosure 4).

3.1 Environmental Condition of Property Categories

The complete list of the DOD Environmental Condition of Property (ECP) Categories for the property proposed for transfer is located in Enclosure 5.

ECP Category 4:

- Subparcel 3.1 - Building 193
- Subparcel 3.2 - Building 195
- Subparcel 3.3 - Building 196
- Subparcel 3.4 - Building 198
- Subparcel 3.5 - 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, Site 73 (2,4-dichlorophenoxyacetic acid, all grassed areas)
- Subparcel 3.6 - Lake Danielson, Site 26
- Subparcel 3.7 - Lake Danielson Outlet Ditch, Site 51
- Subparcel 3.8 - Golf Course Pond, Site 25
- Subparcel 3.9 - Golf Course Pond Outlet Ditch, Site 52
- Subparcel 3.10 - Former pistol range near Hole 9
- Subparcel 3.11 - Former flamethrower test site west of Hole 9, Site 69
- Subparcel 6.1 - Open land area surrounding Buildings 250, 349, and 350
- Subparcel 6.2 - Building 250
- Subparcel 6.3 - Building 349
- Subparcel 6.4 - Building 350
- Subparcel 7.1 - Open land area surrounding Building 249

- Subparcel 7.2 - Building 249, Site 65 (XXCC-3)
- Subparcel 8.1 - Open land area surrounding Buildings 229, 230, 329, and 330
- Subparcel 8.2 - Building 229
- Subparcel 8.3 - Building 230
- Subparcel 8.4 - Building 329
- Subparcel 8.5 - Building 330
- Subparcel 9.1 - Open land area surrounding Buildings 429, 430, 449 and 450
- Subparcel 9.2 - Building 429
- Subparcel 9.3 - Building 430
- Subparcel 9.4 - Building 449
- Subparcel 9.5 - Building 450
- Subparcel 10.1 - Building 649
- Subparcel 10.2 - Open land area surrounding Buildings 549, 550, 649, and 650
- Subparcel 10.3 - Spill location between the southern corners of Buildings 550 and 650
- Subparcel 10.4 - Building 549
- Subparcel 10.5 - Building 550
- Subparcel 10.6 - Building 650
- Subparcel 11.1 - Open land area surrounding Buildings 529, 530, and 630
- Subparcel 11.2 - Building 529
- Subparcel 11.3 - Building 530
- Subparcel 11.4 - Building 630
- Subparcel 12.1 - Open land area surrounding Building 629
- Subparcel 12.2 - Building 629, Site 57 (Building 629 Spill Area)
- Subparcel 13.1 - Sentry Station/Gate 23
- Subparcel 13.2 - Sentry Station/Gate 24
- Subparcel 13.3 - Sentry Station/Gate 25
- Subparcel 13.4 - Building 210, Site 41 (Satellite Drum Accumulation Area)
- Subparcel 13.5 - Building 211 and open land area surrounding Building 211, Sentry Stations 23, 24, and 25

- Subparcel 14.1 - Sentry Station/Gate 22
- Subparcel 14.2 - Building 209 (demolished) and open land area surrounding Building 209 and Sentry Station 22
- Subparcel 15.1 - Sentry Station/Gate 15
- Subparcel 15.2 - Building 308, Site 35 (Hazardous Waste Storage)
- Subparcel 15.3 - Building 319, Site 74 (Flammables, Toxics)
- Subparcel 15.4 - Building 702 (demolished)
- Subparcel 15.5 - Open gravel storage area Y50 (west of Buildings 308 and 309), Site 36 (Defense Reutilization and Marketing Office [DRMO] Hazardous Waste Concrete Storage Pad), Site 37 (DRMO Hazardous Waste Gravel Storage Pad), Site 38 (DRMO Damaged/Empty Hazardous Materials Drum Storage Area), and Site 39 (DRMO Damaged/Empty Lubricant Container Area)
- Subparcel 15.6 - Open storage areas Y10, Y11, Y50, and Y60; Buildings 301, 304, 305, 306, 307, 309, T416 (demolished), T417 (demolished), 701 and 717, Site 54 (DRMO East Stormwater Runoff Canal), Site 55 (DRMO North Stormwater Runoff Canal), Site 72 (Waste oil for dust control in Property Disposal Office Yard), and Site 79 (Fuels, Miscellaneous Liquids, Wood and Paper – Vicinity 702)
- Subparcel 16.1 - Open land area surrounding Building 559
- Subparcel 16.2 - Building 559
- Subparcel 17.1 - Land area where temporary Building 459 once stood
- Subparcel 17.2 - Open land area surrounding Building 359
- Subparcel 17.3 - Building 359, Site 49 (Medical Waste Storage Area)
- Subparcel 18.1 - Building 560
- Subparcel 18.2 - Open land area surrounding Building 560
- Subparcel 19.1 - Buildings 467 (fabric tension structure removed in 1996), 468, and open land area surrounding Buildings 465, 467, 468, and 469
- Subparcel 19.2 - Building 465
- Subparcel 19.3 - Building 469, Site 40 (Safety Kleen Units), Site 41 (Satellite Drum Accumulation Areas)
- Subparcel 20.1 - Building 489
- Subparcel 20.2 - Building 670
- Subparcel 20.3 - Building 470
- Subparcel 20.4 - Building 489

- Subparcel 20.5 - Open land area surrounding Buildings 470, 489, and 670
- Subparcel 20.6 - Spill area between western ends of Buildings 489 and 490
- Subparcel 21.1 - Building 690
- Subparcel 21.2 - Building 490, Site 40 (Safety Kleen Units)
- Subparcel 21.3 - Building 689, Site 78 (Alcohol, Acetone, Toluene, Naphtha, Hydrofluoric Acid Spills), Site 40 (Safety Kleen Units)
- Subparcel 21.4 - Building 685
- Subparcel 21.5 - Open land area surrounding Buildings 490, 685, 689, and 690
- Subparcel 22.1 - Open land area between east ends of Buildings 689 and 690
- Subparcel 22.2 - Spill area east of Building 685 between Buildings 689 and 690, Site 77 (Unknown Wastes Near Buildings 689 and 690)
- Subparcel 23.1 - Sentry Station/Gate 7
- Subparcel 23.2 - Sentry Station/Gate 8
- Subparcel 23.3 - Building 787 (demolished)
- Subparcel 23.4 - Waiting Shelter/ Building 795
- Subparcel 23.6 - Open land area south of Buildings 690 and 490 and surrounding Buildings 783, 787, and 793 and Sentry Stations 8 and 7
- Subparcel 23.7 - Building 783 (demolished), Site 82 (Flammables)
- Subparcel 23.8 - Building 793, Site 82 (Flammables)
- Subparcel 23.10 - Area X01
- Subparcel 24.4 - Open storage area X03
- Subparcel 29.4 - Eastern side of Parcel 29 (portion of open storage area X30)
- Subparcel 33.1 - Building 727
- Subparcel 33.2 - Building 754 (demolished)
- Subparcel 33.3 - Building 755
- Subparcel 33.4 - Building 756
- Subparcel 33.7 - Former aboveground storage tank, Site 81 (Fuel Oil Building 765)
- Subparcel 33.10 - Building 753 (demolished)
- Subparcel 33.11 - Aboveground storage tank outside Building 756
- Subparcel 33.12 - Open land area surrounding Subparcels 33.1, 33.2, 33.3, 33.4, 33.7, 33.10, and 33.11

- Subparcel 33.13 - Open storage areas X08 and X09, Building 720, open land area surrounding Buildings 720 and 727, Site 80 (Fuel and Cleaner Dispensing at Building 720)
- Subparcel 34.1 - Building 360
- Subparcel 34.2 - Open land area surrounding Building 360

3.2 Storage, Release, or Disposal of Hazardous Substances

Hazardous substances were stored for one year or more in excess of the 40 CFR Part 373 reportable quantities on the property proposed for transfer. All hazardous substance storage operations have been terminated on the property. A summary of the buildings or areas in which hazardous substances were stored is provided in Enclosures 5 and 6.

In the past:

- All grassed areas (Parcels 3.5, 3.10, 3.11, 6.1, 7.1, 8.1, 9.1, 10.2, 11.1, 12.1, 13.5, 14.2, 15.6, 16.1, 17.2, 18.2, 19.1, 20.5, 21.5, 22.1, 23.6, 23.10, 33.12, and 34.2) were sprayed with pesticides (dieldrin, DDT) and herbicides and were investigated as part of the MI RI (Site 73 - 2,4-dichlorophenoxyacetic acid, all grassed areas).
- All gravel areas (15.5, 15.6, 19.1, 20.5, 21.5, 22.1, 22.2, 23.6, 23.10, 24.4, 29.4, 33.7, 33.12, and 33.13) were sprayed with pesticides (dieldrin, DDT), herbicides, and waste oil containing pentachlorophenol (PCP) and were investigated as part of the MI RI.
- All railroad tracks (Parcels 6.1, 7.1, 8.1, 9.1, 10.2, 11.1, 12.1, 13.5, 14.2, 15.6, 16.1, 17.2, 18.2, 19.1, 20.5, 21.5, 23.6, 24.4, 29.4, 33.12, 33.13 and 34.2) were sprayed with pesticides, herbicides, and waste oil containing PCP and were investigated as part of the MI RI (Site 70 – POL/various chemical leaks, railroad tracks, Site 71 – Herbicides, all railroad tracks). The railroad tracks and ballasts were removed from 1999 through 2001.

Existing records do not support a conclusion that releases in these areas exceeded the 40 CFR Part 373 reportable quantities unless otherwise noted in Table 2. The release of hazardous substances was either remediated at the time of the release or was evaluated as part of the Installation Restoration Program (IRP). There is no risk to human health and the environment so long as the Transferee, and any subsequent lessee(s) or sublessee(s), adheres to the Environmental Protection Provisions (Enclosure 1), which include the institutional controls required by the MI ROD (Enclosure 4).

State of Tennessee law, Memphis/Shelby County ordinances, and local zoning regulations provide a high level of control, preventing drilling of groundwater wells, production/consumptive use of groundwater, and use of the property for residential or child-occupied facilities, including daycare operations (see Enclosure 4 for more information).

3.2.1 Solid Waste Management Units (SWMUs)

There are 29 SWMUs located within the boundaries of the property. The SWMUs have been addressed, as required by CERCLA. Enclosure 5 provides a summary of the remedial actions at each of the 29 SWMUs, as well as a description of the activities conducted to date at each site. The level of cleanup to be undertaken at each of the SWMUs is consistent with the intended reuse identified in the Memphis Depot Redevelopment Plan for light industrial, commercial (except daycare), and recreational (Parcel 3 only).

Due to the restrictions described in Enclosure 1, the transfer will not affect ongoing remediation efforts. Additionally, the Transferee will not conduct activities that will adversely affect ongoing remedial activities or human health or cause further degradation of the environment.

3.2.2 Groundwater Contamination

Groundwater contamination was discovered under portions of the Memphis Depot. Results from groundwater samples collected from areas beneath the property proposed for transfer indicate contaminant levels do not exceed the Safe Drinking Water Act MCLs, except at a monitoring well south of Building 308 in Subparcel 15.6 and a monitoring well south of Building 360 in Subparcel 34.2. Samples from these monitoring wells indicate levels of tetrachloroethene (PCE) and trichloroethene (TCE) that slightly exceed the MCLs. Due to the relatively low concentrations, the MI ROD, dated February 2001, did not include these areas for active remediation. The remedy selected in the MI ROD, which includes land use controls prohibiting the drilling of groundwater wells and production/consumptive use of groundwater, provides sufficient protection of human health. Groundwater beneath the property is not currently used for potable purposes and as long as the land use controls are enforced groundwater does not pose a threat to human health.

3.3 Petroleum and Petroleum Products

3.3.1 Storage, Release, or Disposal of Petroleum Products Not in Underground or Above-Ground Storage Tanks (USTs or ASTs)

Petroleum products in excess of 55 gallons were stored in the following buildings or areas (subparcel in parenthesis): 629 (12.2), 308 (15.2), 319 (15.3), Y50 (15.5), Y10 (15.6), 416 (demolished, 15.6), 468 (19.1), 469 (19.3), 690 (21.1), 490 (21.2), 689 (21.3), X03 (24.4), and X08 (33.13). There was no evidence that any petroleum or petroleum products in excess of 55 gallons at one time were released or disposed of on the property as the result of non-UST/AST petroleum activities. Accordingly, there is no need for any notification of non-UST/AST petroleum product storage, release, or disposal.

3.3.2 USTs and ASTs

Current UST/AST Sites - There are no USTs on the property. The only UST on the property is currently used for storage of petroleum products. There is no evidence of petroleum releases from this site.

Former UST/AST Sites - There were 11 USTs and 2 ASTs on the property that were used for storage of petroleum products. There is no evidence that petroleum product releases occurred at the former UST/AST sites. A summary of the petroleum product activities is provided in Enclosure 7.

3.4 Polychlorinated Biphenyls (PCBs)

Based on a review of existing records and available information, the following PCB-containing equipment is located on the property: hermetically sealed fluorescent light bulb ballasts that may contain PCBs. This equipment is operational, properly labeled in accordance with federal and state regulations, and has been determined not to be leaking. There is evidence that PCBs or PCB-contaminated fluids were released from PCB-containing equipment at: Y50 (15.5) and 469 (19.3) The PCBs or PCB-contaminated fluids were remediated at the time of the release or as part of the IRP. The deed/easement will include the PCB notification and covenant contained in Enclosure 1.

3.5 Asbestos

Based on the Asbestos-Containing Material (ACM) Survey Report (1993 and 1994), ACM was found in the following buildings:

- Building 195 (3.2): 9-inch x 9-inch floor tile in old dining hall and lounge area, 12-inch by 12-inch floor tile in dance floor bar area and exterior AHU duct mastic; non-friable and in good condition.
- Building 196 (3.3): 12-inch by 12-inch floor tile and asphalt built-up roofing; non-friable and in good condition.
- Building 198 (3.4): 12-inch by 12-inch floor tile and mastic; non-friable and in fair condition
- Building 398 (3.5): dry wall leveling compound; non-friable and in good condition
- Building 250 (6.2): 12-inch by 12-inch floor tile, domestic water pipe insulation, domestic water pipe joint insulation, cement asbestos wall panels, putty, and roof flashing; non-friable and in good/fair condition. **Abatement:** Removed 25 linear feet (lf) of 2-inch pipe insulation in dock janitorial closet.
- Building 349 (6.3): Domestic water pipe joint insulation in janitor's closet and pipe chase, 12-inch by 12-inch floor tile and mastic in office area, cement asbestos wall board and putty on raised roof, and roof flashing; non-friable and in good condition. **Abatement:** Removed 25 lf of 2-inch pipe insulation in dock janitor's closet.
- Building 350 (6.4): Domestic water straight run pipe insulation, domestic water pipe joint insulation in janitor's closet, cement asbestos wall board and putty on raised roof, and roof flashing; non-friable and in good condition. **1997 Abatement:** Removed 25 lf of 2-inch pipe insulation in dock janitor's closet.

- Building 249 (7.2): 12-inch by 12-inch floor tile, 9-inch by 9-inch floor tile, cement asbestos wall panels, putty, and roof flashing; non-friable and in good condition.
- Building 229 (8.2): Thermal system pipe insulation, thermal system pipe joint insulation, cement asbestos wall board, 12-inch by 12-inch floor tile, window putty, domestic water pipe joint insulation, window frame putty, putty, and roof flashing; non-friable and in good/fair condition. **1997 Abatement:** Removed total of 3 lf of 4-inch pipe insulation from Bays 1, 3, and 5.
- Building 230 (8.3): Cement asbestos wall board, 12-inch by 12-inch floor tile, putty, and roof flashing; non-friable and in good condition.
- Building 329 (8.4): 12-inch by 12-inch floor tile and mastic in office area, 12-inch by 12-inch floor tile mastic in break room, cement asbestos products on raised roof, putty on raised roof, and roof flashing; non-friable and in good condition. **1997 Abatement:** Removed 25 lf of 2-inch pipe in the dock janitor closet.
- Building 330 (8.5): 12-inch by 12-inch black floor tile mastic in office and break room, cement asbestos wall board on raised roof; non-friable and in good condition.
- Building 429 (9.2): Domestic water pipe joint insulation, 12-inch by 12-inch floor tile in office area, exterior window putty, cement asbestos wall board and putty on raised roof, and roof flashing; non-friable and in good/fair condition. **1997 Abatement:** Removed 25 lf of 2-inch pipe insulation in dock janitor's closet.
- Building 430 (9.3): Domestic water pipe joint insulation, window frame putty, cement asbestos wall board and putty on raised roof, and roof flashing; non-friable and in good/fair condition. **1997 Abatement:** Removed 15 lf of 2-inch pipe insulation in dock janitor's closet.
- Building 449 (9.4): Domestic water straight run pipe joint insulation, domestic water pipe joint insulation, 12-inch by 12-inch beige vinyl floor tile and mastic in office area, concrete sealant putty, window frame putty, 12-inch by 12-inch brown floor tile in food inspection office, cement asbestos wall board and putty on raised roof section, and roof flashing; non-friable and in good/fair condition. **1997 Abatement:** Removed 25 lf of 2-inch pipe insulation in dock janitor's closet.
- Building 450 (9.5): Domestic water straight run pipe joint insulation, domestic water pipe joint insulation, exterior window putty, old door frame putty, 12-inch by 12-inch floor tile in office and break room area, cement asbestos wall board and putty on raised roof, and roof flashing; non-friable and in good/fair condition. **1997 Abatement:** Removed 25 lf of 2-inch pipe insulation in dock janitor's closet.
- Building 649 (10.1): Domestic water pipe joint insulation, 12-inch by 12-inch floor tile mastic in office area, and cement asbestos wall boards and putty on raised roof; non-friable and in good/fair condition. **1997 Abatement:** Removed 25 lf of 2-inch pipe insulation in dock janitor's closet.
- Building 549 (10.4): Domestic water pipe joint insulation, 12-inch by 12-inch floor tile in office area and break room, and cement asbestos wall boards and putty on raised

roof; non-friable and in good/fair condition. **1997 Abatement:** Removed 15 lf of 2-inch pipe insulation in dock janitor's closet.

- Building 550 (10.5): Domestic water straight run pipe joint insulation, domestic water pipe joint insulation, and 12-inch by 12-inch floor tile mastic in office area; non-friable and in good/fair condition. **1997 Abatement:** Removed 25 lf of 2-inch pipe insulation in dock janitor's closet.
- Building 650 (10.6): Domestic water pipe joint insulation, exterior window frame putty on raised roof; non-friable and in good/fair condition. **1997 Abatement:** Removed 25 lf of 2-inch pipe insulation in dock janitor's closet.
- Building 529 (11.2): Domestic water pipe joint insulation, 12-inch by 12-inch floor tile and mastic in office area, and cement asbestos wall board and putty on raised roof; non-friable and in good/fair condition. **1997 Abatement:** Removed 25 lf of 2-inch pipe insulation in dock janitor's closet.
- Building 530 (11.3): 12-inch by 12-inch floor tile and mastic in office area, and cement asbestos wall boards and putty on raised roof; non-friable and in good condition.
- Building 630 (11.4): Domestic water pipe joint insulation, interior window frame putty, exterior window frame putty, 12-inch by 12-inch floor tile in office area, and cement asbestos wall boards and putty on raised roof; non-friable and in good/fair condition. **1997 Abatement:** Removed 25 lf of 2-inch pipe insulation in dock janitor's closet.
- Building 629 (12.2): Domestic water straight run pipe joint insulation, 12-inch by 12-inch floor tile in office area, 12-inch by 12-inch beige vinyl floor tile in break room and smoking room, and cement asbestos wall boards and putty on raised roof; non-friable and in good/fair condition. **1997 Abatement:** Removed 30 lf of 2-inch pipe insulation in dock janitor's closet.
- Sentry Station/Gate 23 (13.1): Asphalt built-up roofing and roof flashing; non-friable and in good condition.
- Building 210 (13.4): Thermal system pipe insulation, thermal system pipe joint insulation, 9-inch by 9-inch floor tile, gypsum leveling compound, 12-inch by 12-inch orange floor tile south entrance Bay 3, cement asbestos panels exterior cooling tower Bay 4 mechanical room, thermal system tank insulation mechanical room Bay 5, boiler feed pipe insulation, and AHU duct insulation Bay 6; non-friable and in good/fair condition. **1994 Abatement:** Removed ACM around air handling units in Bays 1-6. **1997 Abatement:** Installed HEPA vacuum around air handling units, sprayed encapsulant around air handling units, and removed pipe insulation for approximately 20 feet from air handling units.
- Sentry Station/Gate 22 (14.1): Door and window putty, asphalt built-up roofing and roof flashing; non-friable and in good condition.
- Sentry Station/Gate 15 (15.1): Cement exterior kick panels, asphalt built-up roofing and roof flashing; non-friable and in good condition.

- Building 308 (15.2): Roof flashing; non-friable and in good condition.
- Building 319 (15.3): Asphalt built-up roof; non-friable and in good condition.
- Building 309 (15.6): Roof flashing, asphalt built-up roofing, and cement asbestos wall panels; non-friable and in good condition, except cement asbestos wall panels in poor condition.
- Building 717 (15.6): Cement asbestos wall boards on interior walls and ceiling, window putty and door frame putty; non-friable and in good/fair condition. **1997 Abatement:** Removed cement asbestos wallboards on walls and ceiling.
- Building 670 (20.2): 12-inch by 12-inch vinyl floor tile and mastic in break room and office areas; non-friable and in good condition. **1995 Abatement:** During window replacement project, window caulk was found to contain 2-5% chrysotile and was removed.
- Building 470 (20.3): 12-inch by 12-inch floor tile and mastic in break room and office areas and vibration dampers on air handling units in mechanical room; non-friable and in good condition **1995 Abatement:** During window replacement project, window caulk was found to contain 2-5% chrysotile and was removed.
- Building 489 (20.4): 12-inch by 12-inch floor tile mastic and duct insulation mastic; non-friable and in good condition **1995 Abatement:** During window replacement project, window caulk was found to contain 2-5% chrysotile and was removed.
- Building 690 (21.1): 12-inch by 12-inch brown and white floor tile and mastic in break room and office area, 12-inch by 12-inch black vinyl floor tile and mastic in Bay 1 temporary offices, thermal system pipe insulation on steam lines in Bay 1 and tunnel area and duct insulation in mechanical room; non-friable and in good condition. **1995 Abatement:** During window replacement project, window caulk was found to contain 2-5% chrysotile and was removed.
- Building 490 (21.2): Thermal system pipe insulation, 12-inch by 12-inch grey vinyl floor tile and mastic in Bay 1, 12-inch by 12-inch beige vinyl floor tile and mastic in temporary offices in Bays 2 and 3, 12-inch by 12-inch off-white floor tile and mastic in strip office area, and 9-inch by 9-inch brown vinyl floor tile and mastic in break room of strip office area; non-friable and in good condition. **1995 Abatement:** During window replacement project, window caulk was found to contain 2-5% chrysotile and was removed.
- Building 689 (21.3): 12-inch by 12-inch brown vinyl floor tile and mastic in strip office break room, 12-inch by 12-inch light brown vinyl floor tile and mastic in Bay 3 office area, and 12-inch by 12-inch beige vinyl floor tile mastic on top of Bay 1 office area; non-friable and in good condition. **1995 Abatement:** During window replacement project, window caulk was found to contain 2-5% chrysotile and was removed.
- Building 685 (21.4): Roof flashing; non-friable and in good condition

- Sentry Station/Gate 8 (23.2): 12-inch by 12-inch floor tile, cement board on soffits; non-friable and in good condition.
- Building 720 (33.13): Interior window putty, exterior window putty, door putty asphalt built-up roof, roof flashing, and 12-inch by 12-inch brown vinyl floor tile and mastic in break room, kitchen, and bathrooms; non-friable and in good condition.

The ACM does not currently pose a threat to human health or the environment because all friable asbestos that posed an unacceptable risk to human health has been removed or encapsulated. The deed/easement will include the asbestos warning and covenant included in Enclosure 1.

3.6 Lead-Based Paint (LBP)

Based on the age of the buildings (constructed prior to 1978), the following buildings (subparcels) are presumed to contain LBP: 195 (3.2), 196 (3.3), 198 (3.4), 398 (3.5), 250 (6.2), 349 (6.3), 350 (6.4), 249 (7.2), 229 (8.2), 230 (8.3), 329 (8.4), 330 (8.5), 429 (9.2), 430 (9.3), 449 (9.4), 450 (9.5), 649 (10.1), 549 (10.4), 550 (10.5), 650 (10.6), 529 (11.2), 529 (11.3), 630 (11.4), 629 (12.2), 23 (13.1), 24 (13.2), 25 (13.3), 210 (13.4), 22 (14.1), 15 (15.1), 308 (15.2), 319 (15.3), 301 (15.6), 309 (15.6), 717 (15.6), 468 (19.1), 465 (19.2), 469 (19.3), 670 (20.2), 470 (20.3), 489 (20.4), 690 (21.1), 490 (21.2), 689 (21.3), 685 (21.4), 8 (23.2), 795 (23.4), 793 (23.8), 720 (33.13). The deed/easement will include the LBP warning and covenant provided in Enclosure 1.

3.7 Radiological Materials

The following buildings were used for radiological activities: 319 Bay 6, 629 Bay 2, and 359 Bay 3 (demolished). These buildings were used for storage of low level radiological materials including, but not limited to, lantern mantels containing thorium-232, smoke detectors containing americium-241, electron tubes containing thorium-232, watch dials containing tritium (H-3) and radium-226, indicator and toggle switches containing radium-226, and compasses containing tritium (H-3). Evidence of a release of radiological materials in Building 319 was indicated in the Environmental Baseline Study Radiological Survey, Defense Distribution Depot, Memphis, Tennessee, 1996. The area was remediated and the follow-up radiological survey concluded the area was suitable for unrestricted use (Termination Radiological Survey for Defense Distribution Depot Memphis, Building 319, Bay 6, 1997).

3.8 Radon

Radon surveys were not conducted in the buildings included on the property proposed for transfer. In 1996, radon surveys conducted in the former military family housing units (Parcel 2) indicated that radon was not detected above the United States Environmental Protection Agency (EPA) residential action level of 4 picoCuries per liter (pCi/L).

3.9 Unexploded Ordnance

Based on a review of existing records and available information, none of the buildings or surrounding land proposed for transfer are known to contain unexploded ordnance. One site on the land proposed for transfer (Subparcel 3.10 – Former pistol range) was identified as possibly containing unexploded ordnance in the Ordnance and Explosive Waste Chemical Warfare Materiels Archives Search Report for Memphis Defense Depot (U. S. Army Corps of Engineers - St. Louis, 1995). This site was investigated during the MI RI and no unexploded ordnance was discovered.

3.10 Adjacent Hazardous Conditions

Hazardous conditions adjacent to the property proposed for transfer are discussed in the MI Remedial Design (RD) report. The presence of these hazardous conditions does not present an unacceptable risk to human health and the environment because the deed will contain the Environmental Protection Provisions (Enclosure 1) prohibiting the use of groundwater for any purpose.

4.0 Remediation

The following environmental orders/agreements are applicable to the property proposed for transfer: Federal Facilities Agreement (FFA), MI ROD, and MI LUCIP, which will be included in the MI RD. The Institutional Controls (ICs) required by the MI ROD are in place via lease restrictions included in the Master Interim Lease and subsequent Findings of Suitability to Lease for MI property (EPA Letter dated February 4, 2003, Re: Proposed Category Changes for Environmental Condition of Property at the Memphis Depot). The deed/easement will include the Institutional Controls required by the MI ROD as well as a provision reserving the Army's right to conduct remediation activities (see Enclosures 1 and 4).

5.0 Regulatory/Public Coordination

The EPA Region 4, the Tennessee Department of Environment and Conservation (TDEC), and the public were notified of the initiation of the FOST. Regulatory/public comments received during the FOST development were reviewed and incorporated, as appropriate. All regulatory comments were resolved. The public review period for this FOST extended from March 26 through April 26. No comments were received from the public during this period. A copy of all comments is included (Enclosure 8).

6.0 National Environmental Policy Act (NEPA) Compliance and Consistency with Local Reuse Plan

The environmental impacts associated with the proposed transfer of the property have been analyzed in accordance with the NEPA. The results of this analysis have been documented in the Final Environmental Assessment for BRAC 95 Disposal and Reuse of Defense Depot Memphis, Tennessee. Any encumbrances or conditions identified in such analysis as necessary to protect human health or the environmental have been incorporated into the FOST. In addition, the proposed transfer is consistent with the intended reuse of the property as set forth in the Depot Redevelopment Corporation's Memphis Depot Redevelopment Plan.

7.0 Environmental Protection Provisions

On the basis of the above results from the EBS and other environmental studies and in consideration of the intended use of the property, certain terms and conditions are required for the proposed transfer. These terms and conditions are set forth in Enclosure 1 and will be included in the deed/easement.

8.0 Finding of Suitability to Transfer

Based on the above information, I conclude that DOD requirements to reach a finding of suitability to transfer the property have been met, subject to the terms and conditions set forth in Enclosure 1. All removal or remedial actions necessary to protect human health and the environment have been taken and the property is transferable under CERCLA section 120(h)(3). In addition to the Environmental Protection Provisions, the deed/easement for this transaction will also contain:

- The covenant under CERCLA §120(h)(3)(A)(ii)(I) warranting that all remedial action under CERCLA necessary to protect human health and the environment with respect to hazardous substances remaining on the property has been taken before the date of transfer.
- The covenant under CERCLA §120(h)(3)(A)(ii)(II) warranting that any remedial action under CERCLA found to be necessary after the date of transfer with respect to such hazardous substances remaining on the Property shall be conducted by the United States.
- The clause as required by CERCLA §120(h)(3)(A)(iii) granting the United States access to the Property in any case in which remedial action or corrective action is found to be necessary after the date of transfer.

As required under the CERCLA Section 120(h) and DOD FOST Guidance, notification of hazardous substance activities and petroleum product activities shall be provided in the deed/easement (see Enclosures 6 and 7).

Thomas E. Lederle
Director, Base Realignment and Closure
Hampton Field Office

8.1 Enclosures

Enclosure 1 - Environmental Protection Provisions
Enclosure 2 – Environmental Condition of Property Map
Enclosure 3 – Environmental Documentation
Enclosure 4 – Summary of Land Use Controls and Monitoring Requirements
Enclosure 5 – Description of Property
Enclosure 6 - Notification of Hazardous Substance Storage, Release, or Disposal
Enclosure 6A – Hazardous Materials Stored at the Depot
Enclosure 7 - Petroleum Product Storage, Release, or Disposal
Enclosure 8 - Regulatory Comments

AR 825

Finding of Suitability to Transfer 4 (FOST)

Defense Distribution Center (Memphis)

Dunn Field

March 2005

Subparcels 36.12, 36.13, 36.14, 36.24, 36.25, 36.26, 36.27, 36.30, 36.31 and 36.32

PREPARED FOR

Air Force Center for Environmental Excellence
3300 Sidney Brooks
Brooks City-Base, TX 78235-5112

PREPARED BY

MACTEC, Inc.
3200 Town Point Drive, Suite 100
Kennesaw, GA 30144

DEPARTMENT OF THE ARMY
HAMPTON FIELD OFFICE, ARMY BASE REALIGNMENT AND CLOSURE
102 MCNAIR DRIVE
FORT MONROE VIRGINIA 23651

REPLY TO
ATTENTION OF
DAIM-BD-H

MAR 0 4 2005

MEMORANDUM FOR Assistant Chief of Staff for Installation Management, 600 Army Pentagon, Washington, D.C. 20310-0600

SUBJECT: Finding of Suitability to Transfer at Former Memphis Depot – Dunn Field

1. Enclosed for your records: Finding of Suitability to Transfer 41.17 acres at the Former Memphis Depot. The document received Installation, Regulatory, Public, and Hampton Field Office (HFO) legal and environmental review. It is signed by the Director of the BRAC - Hampton Field Office.

2. Hampton – BRAC field office point of contact is Ms. Robin Mills, DSN 680 – 3846 or commercial (757) 788 – 3846.

THOMAS E. LEDERLE
Director, Base Realignment and Closure
Hampton Field Office

CF: (w/encls)
HQDA (DAIM-BD/ Larry Beach)
DLA BRAC Office, (DSS-DB/Jeanne Master)
CESAM-RE-MD (Harold G. Duck)

Contents

FINDING OF SUITABILITY TO TRANSFER
(FOST)
Memphis Depot – Dunn Field
Subparcels 36.12, 36.13, 36.14, 36.24, 36.25, 36.26, 36.27, 36.30, 36.31 and 36.32

March 2005

1. PURPOSE

The purpose of this Finding of Suitability to Transfer (FOST) is to document the environmental suitability of certain property (Subparcels 36.12, 36.13, 36.14, 36.24, 36.25, 36.26, 36.27, 36.30, 36.31 and 36.32) at Former Defense Distribution Depot Memphis, Tennessee (Depot), currently known as the Defense Distribution Center (Memphis), for transfer as a public benefit conveyance (PBC) through the Department of Interior to the Memphis Depot Redevelopment Cooperation for recreational use and through the Department of Transportation to the Memphis Depot Redevelopment Cooperation for light industrial and commercial use consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 120(h), Department of Defense policy and the Depot Redevelopment Corporation's Memphis Depot Redevelopment Plan. In addition, the FOST includes the CERCLA Notice, Covenant, and Access Provisions and other Deed Provisions and the Environmental Protection Provisions (EPPs) necessary to protect human health or the environment after such transfer (Enclosure 1)

2. PROPERTY DESCRIPTION

The proposed property proposed for transfer consists of approximately 41.17 acres, which includes open grassed areas, paved and gravel roads, and railroad tracks.

Low level residual contamination of herbicides, pesticides, and pentachlorophenol remains in surface and subsurface soils at the property proposed for transfer. Residual soil contamination levels do not present unacceptable risk to human health or the environment for the proposed light industrial, commercial and recreation uses. The Dunn Field ROD (April 2004) designated the property as available for unrestricted use with no further action required. Overall human health risks and non-carcinogenic hazards to potential residents, recreational users and industrial or commercial workers are within acceptable limits for carcinogenic and non-carcinogenic end points.

The natural habitat at Dunn Field is very limited to non-existent. Occasional terrestrial animals visiting the facility or living nearby are not subject to a significant threat from the site media. A screening level Ecological Risk Assessment conducted across Dunn Field indicated little potential for significant ecological impacts or adverse effects to wildlife. No ecological contaminants of concern were identified at the facility. The land uses on Dunn Field are expected to remain unchanged in the future; therefore, the potential for wildlife exposure is low. The property is intended to be transferred as a Public Benefit Conveyance through the Department of

Interior, National Park Service and the Department of Transportation, and is consistent with the intended reuse of the property as set forth in the Memphis Depot Redevelopment Corporation's Reuse Plan. A site map of the property is attached (Enclosure 2).

3. ENVIRONMENTAL DOCUMENTATION

A determination of the environmental condition of the facilities has been made based on the following:

- Dunn Field Record of Decision (CH2M Hill, April 2004)
- Dunn Field Remedial Investigation Report (CH2M Hill, July 2002)
- Rev. 2 BRAC Cleanup Plan Version 7 (Labat-Anderson, Inc., December 2003)
- Remediation Report Former Pistol Range Site 60 Dunn Field (Jacobs Federal Programs, April 2003)
- Final Report Chemical Warfare Materiel Investigation and Removal Action at Defense Depot Dunn Field (UXB International, 2001)
- Final Environmental Assessment for BRAC 95 Disposal and Reuse of Defense Depot Memphis, Tennessee (Tetra Tech, September 1998)
- Ordnance and Explosive Waste Chemical Warfare Materiels Archives Search Report for Memphis Defense Depot - Findings (U. S. Army Corps of Engineers - St. Louis, 1995)
-

The information provided herein is a result of a complete search of agency files during the development of these environmental surveys.

A complete list of documents providing information on environmental conditions of the property is attached (Enclosure 3).

4. Environmental Condition of Property Categories

The DOD Environmental Condition of Property (ECP) Categories for the property are as follows:

ECP Category 3:
- 36.12 – Site 62 (Bauxite Storage removed in 1998)
- 36.13 - Site 62 (Bauxite Storage removed in 1998)
- 36.24 - Site 19 (Former Tear Gas Canister Burn Site)
- 36.25 - Site 20 (Asphalt Burial Site)
- 36.26 - Site 21 (XXCC-3 Burial Site)
- 36.27 - Site 50 (Concrete-lined Drainage Ditch)
- 36.30 - Site 63 (Fluorspar Storage removed in 1999) and the open land area east of the main railroad spur through Dunn Field and excluding existing subparcels

36.31 - 75-foot strip along Hays Rd. from Person Ave. to Dunn Ave for road widening project
36.32 - Open land area in northeast corner excluding existing subparcels

ECP Category 4: 36.14 - Site 60 (Pistol Range removed in 2003) and Site 85 (Building 1184 removed in 2003)

A summary of the ECP categories for specific buildings, parcels, or operable units and the ECP category definitions is provided in Table 1 – Description of Property (Enclosure 4).

4.1 Environmental Remediation Sites

Solid Waste Management Units (SWMUs

There are 8 Solid Waste Management Units (SWMUs) located within the boundaries of the property included in this FOST. The SWMUs are also designated IRP sites as described in Section 3.1 above and are identified as subparcels on Enclosure 2, Environmental Condition of Property Map: 36.12 and 36.13 – Site/SWMU 62 , Bauxite Storage; 36.14 – Site/SWMU 60, Pistol Range and Site/SWMU 85, Building 1184 ; 36.24 – Site/SWMU 19, Former Tear Gas Canister Burn Site; 36.25 – Site/SWMU 20, Asphalt Burial Site; 36.26 – Site/SWMU 21, XXCC-3 Burial Site; 36.27 – Site/SWMU 50, Concrete-lined Drainage Ditch; 36.30 – Site/SWMU 63, Fluorspar Storage. The SWMUs have been addressed under CERCLA, as required by the Federal Facilities Agreement. A non-time critical removal action of lead in soil at SWMU 60 (Pistol Range) was completed in March 2003. This action also included removal of Building 1184 (SWMU 85). The Dunn Field ROD (April 2004) specifies no further action for SWMUs 60 and 85.

Enclosure 4 provides a summary of the remedial actions at each of the SWMUs, as well as a description of the activities conducted to date at each site. The Dunn Field ROD (April 2004) specifies no remedial actions are necessary at the SWMUs included in the property proposed for transfer.

Ground Water Contamination

None of the property proposed for transfer is situated above areas of groundwater contamination.

4.2. Storage; Release or Disposal of Hazardous Substances

No hazardous substances were stored at the property proposed for transfer. A summary of the areas in which hazardous substances were released or disposed is provided in Enclosures 4 and 5. In the past:

- All grassed areas within subparcels 36.14, 36.24, 36.25, 36.26, 36.30, 36.31 and 36.32 were sprayed with pesticides and herbicides and were investigated as part of the Dunn Field RI.

- Railroad tracks within Subparcel 36.30 were sprayed with pesticides, herbicides and waste oil containing pentachlorophenol (PCP) and were investigated as part of the Dunn Field RI.

Existing records do not support a conclusion that releases in these areas exceeded the 40 CFR Part 373 reportable quantities unless otherwise noted in the Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 5). The release of hazardous substances was either remediated at the time of release or evaluated as part of the Installation Restoration Program (IRP). The Dunn Field ROD (April 2004) states remedial action is not necessary at the property proposed for transfer.

4.3. Petroleum and Petroleum Products

4.3.1. Storage, Release and Disposal of Petroleum Products (not in underground or above-ground storage tanks)

Based on a review of records there is not evidence that any petroleum or petroleum products in excess of 55 gallons were stored, released, or disposed at one time on the property. Accordingly, there is no need for any notification of petroleum product storage, release, or disposal.

4.3.2. USTs and ASTs

Based on a review of records there is not evidence that petroleum or petroleum products were stored in underground or above-ground storage tanks on the property.

4.4 Polychlorinated Biphenyls (PCB)

Based on a review of records and visual inspection, there are no PCB containing transformers, fluorescent light ballasts or other PCB containing equipment located on the property and no evidence of unremediated releases from PCB equipment.

4.5 Asbestos

There are no buildings or structures with asbestos-containing material located on the property.

4.6 Lead Based Paint (LBP)

There are no buildings or structures with LBP located on the property

4.7 Radiological Materials

Based on a review of records, there is no indication that radioactive material or sources were ever used or stored on the property.

4.8 Radon

There are no buildings or structures on this property; therefore, a radon survey is unnecessary.

4.9 Munitions and Explosives of Concern (MEC)

Based on a review of existing records and available information, none of the land proposed for transfer are known to contain Munitions and Explosives of Concern (MEC). Two sites on the land proposed for transfer (Subparcels 36.14 - Former Pistol Range and 36.24 - Former Tear Gas Canister Burn Site) were identified as possibly containing MEC in the Ordnance and Explosive Waste Chemical Warfare Materials Archives Search Report for Memphis Defense Depot. These sites were investigated during the Dunn Field Engineering Evaluation and Cost Analysis (EE/CA) for Removal of Chemical Warfare Materiel and the Dunn Field RI. No MEC was discovered.

5. ADJACENT PROPERTY CONDITIONS

The following are ongoing environmental investigations/remediations or other hazardous conditions adjacent to the property proposed for transfer: Disposal Sites remedial design and remedial action; Permeable Reactive Barrier (PRB) remedial design and remedial action; and Source Area (Soil Vapor Extraction [SVE]/Zero-Valent Iron [ZVI]) remedial design and remedial action. Tennessee Department of Environment and Conservation (TDEC) has initiated a pre-CERCLA screening of the suspected groundwater contamination source upgradient of Dunn Field, which affects the area along the northern fence line, named the Wabash Avenue Investigation. In 2004, the BCT concurred to change the subparcel boundaries to omit the area situated above groundwater contamination along the northern fence line. Boundaries of the northern subparcels now end about 225 feet south of the northern fence line. The presence of these hazardous conditions and the expected remedial activities adjacent to the property for transfer do not present an unacceptable risk to human health and the environment.

6. ENVIRONMENTAL REMEDIATION AGREEMENTS

The following environmental orders/agreements are applicable to the property: Federal Facilities Agreement between United States Environmental Protection Agency Region IV, Tennessee Department of Environment and Conservation, and United States Defense Logistics Agency at the Defense Distribution Depot Memphis (March 6, 1995) and Dunn Field ROD (April 2004). Environmental conditions of the property described in this FOST do not present a hazard for light industrial, commercial and recreational reuse. The Dunn Field ROD (April 2004) designated the property as available for unrestricted use with no further action required. Nevertheless, the property will be subject to zoning requirements and the uses identified in the terms of the transfer. The Transferee must also adhere to the Environmental Protection Provisions (Enclosure 1). Environmental conditions on adjacent federal government property do not present a hazard to the transfer of the property. The Description of Property (Enclosure 4) and Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 5) provide

details regarding environmental conditions for each individual subparcel contained within this FOST.

7. REGULATORY/ PUBLIC COORDINATION

The U.S. Environmental Protection Agency Region IV, the Tennessee Department of Environment and Conservation (TDEC) and the Restoration Advisory Board (RAB) were notified of the initiation of this FOST at the October 16, 2003 RAB meeting. The public review period was from January 24, 2005 through February 23, 2005. No public comments were received during this period. Regulatory comments received during the FOST development have been reviewed and incorporated, as appropriate. A copy of regulatory comments and responses are included at Enclosure 7.

8. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE

The environmental impacts associated with proposed transfer of the property have been analyzed in accordance with the National Environmental Policy Act (NEPA). The results of this analysis have been documented in the Final Environmental Assessment for BRAC 95 Disposal and Reuse of Defense Depot Memphis, Tennessee (Tetra Tech, September 1998). Any encumbrances or conditions identified in such analysis as necessary to protect human health or the environmental have been incorporated into the FOST. In addition, the proposed transfer is consistent with the intended reuse of the property as set forth in the Depot Redevelopment Corporation's Memphis Depot Redevelopment Plan.

9. FINDING OF SUITABILITY TO TRANSFER

Based on the above information, I conclude that Department of Defense requirements to reach a finding of suitability to transfer the property have been met, subject to the terms and conditions set forth in the attached Environmental Protection Provisions (Enclosure 1). All removal or remedial actions necessary to protect human health and the environment have been taken and the property is transferable under CERCLA Section 120(h) (3). In addition to the Environmental Protection Provisions, the deed for this transaction will also contain:

- The covenant under CERCLA §120(h)(3)(A)(ii)(I) warranting that all remedial action under CERCLA necessary to protect human health and the environment with respect to hazardous substances remaining on the Property has been taken before the date of transfer.

- The covenant under CERCLA §120(h)(3)(A)(ii)(II) warranting that any remedial action under CERCLA found to be necessary after the date of transfer with respect to such hazardous substances remaining on the Property shall be conducted by the United States.

- The clause as required by CERCLA §120(h)(3)(A)(iii) granting the United States access to the Property in any case in which remedial action or corrective action is found to be

necessary after the date of transfer. As required under the CERCLA Section 120(h) and DOD FOST Guidance, notification of hazardous substance activities and petroleum product activities shall be provided in the deed. See the Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure 5) and Notification of Petroleum Product Storage, Release, or Disposal (Enclosure 6)

MAR 0 4 2005

Thomas E. Lederle
Director, Base Realignment and Closure,
Hampton Field Office

4 MARCH 2005
Date of Signature

7 Enclosures

Enclosure 1 – Environmental Protection Provisions
Enclosure 2 – Environmental Condition of Property Map
Enclosure 3 – Environmental Documentation
Enclosure 4 – Table 1 - Description of Property
Enclosure 5 – Table 2 - Notification of Hazardous Substance Storage, Release, or Disposal
Enclosure 6 – Table 3 - Notification of Petroleum Product Storage, Release, or Disposal
Enclosure 7 – Regulatory/Public Comments

Appendix E

Contains summaries of the following documents. Complete copies located at Memphis Depot information repositories:

Table E-1

Administrative Record Site File Index

Conceptual Model

DLA Compliance with Executive Order 12898 on Environmental Justice

1997 CERFA Concurrence Letter

1998 CERFA Concurrence Letter

Radiological Release Letter

Summaries of Radiological Surveys

Radon Survey

Transformer Record

Wetlands Determination

Section 106 Notification

Subparcel Designation Letters

Termination of NPDES permit

Termination of Permitted Container Storage Permit

Denial to Reissue Hazardous Waste Corrective Action Permit

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

TABLE E-1
ASBESTOS IDENTIFICATION SURVEY RESULTS

SUBPARCEL	BUILDING	FACILITY USE	YEAR CONSTRUCTED	RESULTS
15.2	308	Warehouse/Storage	1944	A
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	DEMOLISHED	1943	NA
15.6	T417	DEMOLISHED	1943	NA
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

TABLE E-1
ASBESTOS IDENTIFICATION SURVEY RESULTS

SUBPARCEL	BUILDING	FACILITY USE	YEAR CONSTRUCTED	RESULTS
33.10	753	DEMOLISHED	1956	A
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	DEMOLISHED	1942	NA
23.3	787	DEMOLISHED	1988	NA
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	DEMOLISHED	1944	NA
33.8	863	DEMOLISHED	1943	NA
32.3	865	Hazardous Recoup Facility	1988	N
25.1	873	DEMOLISHED	1942	NA
25.2	875	DEMOLISHED	1942	NA
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

TABLE E-1
ASBESTOS IDENTIFICATION SURVEY RESULTS

SUBPARCEL	BUILDING	FACILITY USE	YEAR CONSTRUCTED	RESULTS
Buildings not included in the Asbestos Identification Survey				
1.3	129	Waiting Shelter	1980	A(P)
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 (moved to 30.5)	459	Portable Building	1990	NA
19.1	467	DEMOLISHED	1987	NA
25.2	874	Sewage Pump Station	1949	A(P)
30.4	949	Portable Storage Structure	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 Site File Index

DATE	SUBJECT or TITLE	AUTHOR	AR #
14 Jul 46	Newspaper Article, "Nazi War Gas Seeps into Amory District"	The Commercial Appeal	426
15 Jul 46	Newspaper Article, "Nazi Gas Bomb Leaks, Burns Eight at Amory"	The Press-Scimitar	427
15 Jul 46	Newspaper Article, "German Gas Escapes Here"	The Press-Scimitar	428
16 Jul 46	Newspaper Article, "Bomb Squads at Work on Gas Leaks: Nine Casualties"	The Press-Scimitar	429
16 Jul 46	Newspaper Article, "German Gas Claims Two More Casualties"	The Commercial Appeal	431
17 Jul 46	Newspaper Article, "Gas Crew Still Busy"	The Press-Scimitar	430
Jul 82	Installation Assessment Report	Chemical Systems Laboratory	02
20 Jan 83	Geologic Study	US Army Environmental Hygiene Agency	03
26 Sep 85	TDHE Letter to Depot Concerning RA and Dioxin Contamination	Patterson, Paul Tennessee Department of Health and Environment	04
25 Nov 85	Environmental Audit Report	US Army Environmental Hygiene Agency	05
24 Feb 86	Summary Report, On-Site Remedial Activities	O H Materials Co.	06
30 Jul 86	Water Quality Biological Study	US Army Environmental Hygiene Agency	07
07 Aug 87	Groundwater Consultation Report, Collection and Analysis of Groundwater Samples	US Army Environmental Hygiene Agency	08
89	Newspaper Article, "Neighbors of Depot Push for Answers"	The Commercial Appeal	432
Jan 89	RI/FS, Final Work Plan	Law Environmental, Inc.	09
05 Feb 89	Newspaper Article, "Defense Depot Will be Tested for Toxic Waste"	The Commercial Appeal	10
25 Feb 89	Newspaper Article, "Depot Wells"	The Commercial Appeal	434
05 Mar 89	Newspaper Article, "Profile of Toxic Wastes Arising From New Data"	The Commercial Appeal	11
06 Mar 89	Newspaper Article, "Testing Continues at Defense Depot"	The Daily News	12
14 Mar 89	Newspaper Article, "Hazardous Material Moved"	The Commercial Appeal	437
18 Jun 89	EPA Letter to Depot Concerning RI/FS Revised Final Work Plans	Scarbrough, James H EPA Region IV	13
30 Oct 89	Newspaper Article, "Depot to Get New Water, Soil Tests"	UNK	14
Jan 90	RFA, Report	A T Kearney, Inc.	15
19 Jul 90	EPA Letter to Depot Concerning RFA Report Findings	Scarbrough, James H Tiesler, Tom EPA Region IV	16
Aug 90	RI, Final Report, Vol I of II	Law Environmental, Inc.	17
Aug 90	RI, Final Report, Vol II of II, Appendices	Law Environmental, Inc.	18
Sep 90	FS, Final Report	Law Environmental, Inc.	19
08 Apr 91	Newspaper Article, "Toxic Seep Heightens Risk Level to City Water"	The Commercial Appeal	20
May 91	RI/FS, Report, Annex B for Follow On Investigation and Interim Remedial Measure for Contaminated Groundwater	Defense Distribution Depot Memphis TN	21
27 Nov 91	EPA Letter to Depot Concerning Draft Interim Remedial Measures Work Plan	Kutzman, James S EPA Region IV	22
01 Mar 92	Newspaper Article, "Soil Toxins at Depot Could Taint	The Commercial Appeal	23

Administrative Record Site File Index

	City Water"		
06 Mar 92	Newspaper Article, "Corps to Treat Depot's Polluted Groundwater"	The Commercial Appeal	24
Apr 92	Fact Sheet, ATSDR Public Health Assessments	Agency for Toxic Substances and Disease Registry	25
Jul 92	Final Work Plan, Pump Test	Engineering-Science, Inc.	26
22 Jul 92	TDEC Letter to EPA Concerning Draft Final Interim Remedial Measures Work Plan	English, Jordan Tennessee Department of Environment and Conservation	27
15 Oct 92	Newspaper Article, "Depot, Landfill Added to Waste Cleanup List"	The Commercial Appeal	28
03 Mar 93	HQ DLA Letter to TDEC Concerning FFA for DDRC	Carr, James M HQ DLA-G	29
23 Mar 93	Depot Letter to EPA Concerning NOTI of Draft RFI Work Plan	Murphy, W F, COL Defense Distribution Depot Memphis TN	30
01 Apr 93	Depot Letter to EPA Concerning NOTI of Draft RFI Work Plan	Murphy, W F, COL Defense Distribution Depot Memphis TN	31
15 Apr 93	Depot Letter to EPA Concerning FFA Negotiations	Krueger, Margaret J Defense Distribution Depot Memphis TN	32
20 Apr 93	TDEC Letter to HQ DLA Concerning Proposed Clause in FFA	Sanders, E Joseph Tennessee Department of Environment and Conservation	33
May 93	Draft Final Community Relations Plan (CRP), RI Follow-On Study	Engineering-Science, Inc.	34
May 93	Meeting Minutes, Questions and Answers From Mayor's Town Meeting, 24 May 93	Defense Distribution Depot Memphis TN	35
03 Jun 93	Newspaper Article, "Burial Grounds, Anxiety Rises Over Toxic Contamination at the Defense Depot"	The Memphis Flyer	441
11 Jun 93	Depot Letter to EPA Concerning FFA and Deestablishment of DDRC	Rust, C Michael, COL Defense Distribution Depot Memphis TN	36
12 Jul 93	Depot Letter to Resident Concerning Notification of Public Exhibition and Discussion	Rust, C Michael, COL Defense Distribution Depot Memphis TN	444
23 Jul 93	Press Release, Public Exhibition and Discussion, 10 Aug 93	Defense Distribution Depot Memphis TN	445
28 Jul 93	Fact Sheet, ATSDR Toxilogical Profile Information Sheet	Agency for Toxic Substances and Disease Registry	37
Aug 93	Focused FS, Report, Dunn Field	Engineering-Science, Inc.	38
Aug 93	Depot Letter to MSPJC Concerning Public Exhibition and Discussion of Site Restoration	Rust, C Michael, COL Defense Distribution Depot Memphis TN	449
10 Aug 93	Press Release, Public Exhibition and Discussion of Installation Environmental Restoration Activities	Defense Distribution Depot Memphis TN	442
17 Aug 93	USACE Letter to Depot Concerning Role of Government Agencies in Site Restoration Program	Matthews, John D US Army Corps of Engineers - Huntsville District	39
Sep 93	EPA Superfund Technical Assistance Grants	HQ USEPA	40
01 Oct 93	EPA Letter to Depot Concerning Draft Site Management Plan	Drew, Allison W EPA Region IV	41
12 Oct 93	DDRC Letter to TDEC Concerning Community	Waters, Douglas S, Jr	447

Administrative Record Site File Index

	Interviews, Ditch Flow Problems	Defense Distribution Region Central	
27 Oct 93	TDEC Letter to DDRC Concerning Unknown Discharge Investigation	Hoffman, Lew E Tennessee Department of Environment and Conservation	448
08 Nov 93	Depot Letter to Resident Concerning Monitoring Well Sampling	Rust, C Michael, COL Defense Distribution Depot Memphis TN	446
Dec 93	RI/FS, Executive Summary for Generic Work Plan	US Army Corps of Engineers - Huntsville District	42
02 Dec 93	Depot Letter to Resident Concerning First Study Conducted at Depot	Rust, C Michael, COL Defense Distribution Depot Memphis TN	450
02 Dec 93	Depot Letter to Resident Concerning Cancer Study Conducted at Depot Area	Rust, C Michael, COL Defense Distribution Depot Memphis TN	451
06 Dec 93	EPA Letter to Depot Concerning Approval of Extension Request for Revised Draft RFI Work Plans	Franzmathes, Joseph R EPA Region IV	43
Jan 94	Groundwater Monitoring Results Report, Vol I of IX	Environmental Science and Engineering, Inc.	44
Jan 94	Groundwater Monitoring Results Report, Vol II of IX	Environmental Science and Engineering, Inc.	45
Jan 94	Groundwater Monitoring Results Report, Vol III of IX	Environmental Science and Engineering, Inc.	46
Jan 94	Groundwater Monitoring Results Report, Vol IV of IX	Environmental Science and Engineering, Inc.	47
Jan 94	Groundwater Monitoring Results Report, Vol V of IX	Environmental Science and Engineering, Inc.	48
Jan 94	Groundwater Monitoring Results Report, Vol VI of IX	Environmental Science and Engineering, Inc.	49
Jan 94	Groundwater Monitoring Results Report, Vol VII of IX	Environmental Science and Engineering, Inc.	50
Jan 94	Groundwater Monitoring Results Report, Vol VIII of IX	Environmental Science and Engineering, Inc.	51
Jan 94	Groundwater Monitoring Results Report, Vol IX of IX	Environmental Science and Engineering, Inc.	52
26 Jan 94	EPA Letter to Depot Concerning Federal Facilities Environmental Compliance Profiles	Linton, Arthur G EPA Region IV	53
09 Feb 94	EPA Letter to Depot Concerning Draft Final CRP	Drew, Allison W EPA Region IV	54
17 Feb 94	TRC Meeting Minutes, 17 Feb 94	Kartman, Christine E Defense Distribution Depot Memphis TN	55
Mar 94	Final Electromagnetic and Magnetic Survey Report, Dunn Field	US Army Corps of Engineers - Huntsville District	56
28 Mar 94	EPA Letter to Depot Concerning NOTI and Technical Review Comments for RI/FS Work Plan, QAPP, HSP, and FSP	Franzmathes, Joseph R EPA Region IV	57
31 Mar 94	EPA Letter to Depot Concerning NOTI for Interim Measures for Contaminated Groundwater, Dunn Field	Franzmathes, Joseph R EPA Region IV	58
06 Apr 94	Newspaper Article, "You Can Make a Difference; Become a Citizen Reviewer for The Memphis Depot"	The Commercial Appeal	59
08 Apr 94	MSPJC Letter to Depot Concerning Applications for Citizen Review Committee	Smith, Larry J Mid-South Peace and Justice Center	452
21 Apr 94	TRC Meeting Handout, 21 Apr 94	Defense Distribution Depot Memphis	60

Administrative Record Site File Index

		TN	
21 Apr 94	TRC Meeting Minutes, 21 Apr 94	Kartman, Christine E Defense Distribution Depot Memphis TN	61
Jun 94	Fact Sheet, Defense Depot Memphis	Defense Distribution Depot Memphis TN	62
06 Jun 94	MSPJC Letter to Depot Concerning Review of Draft HSP, Technical Report, Generic QAPP, Generic RI/FS Work Plan, FSP, and Site Management Plan	Smith, Larry J Mid-South Peace and Justice Center	63
20 Jun 94	Newspaper Article, "Officials Unearth Answers to Base Waste"	The Commercial Appeal	453
23 Jun 94	TRC Meeting Minutes, 23 Jun 94	Kartman, Christine E Defense Distribution Depot Memphis TN	64
Jul 94	Fact Sheet, Defense Distribution Depot Memphis Tennessee	Defense Distribution Depot Memphis TN	65
Jul 94	Focused FS, Final Report, Dunn Field	Engineering-Science, Inc.	66
Jul 94	EA, Removal Action for Groundwater	Engineering-Science, Inc.	67
08 Jul 94	TDEC Letter to Depot Concerning Draft Final EA, Site Management Plan, and CRP	English, Jordan Tennessee Department of Environment and Conservation	68
12 Jul 94	TDEC Letter to Depot Concerning Draft Final Engineering Report, Removal Action for Groundwater	English, Jordan Tennessee Department of Environment and Conservation	69
21 Jul 94	RAB Meeting Minutes, 21 Jul 94	Kartman, Christine E Defense Distribution Depot Memphis TN	70
18 Aug 94	RAB Meeting Minutes, 18 Aug 94	Kartman, Christine E Defense Distribution Depot Memphis TN	71
24 Aug 94	EPA Letter to Depot Concerning Generic RI/FS Work Plan, QAPP, HSP, and FSP	Berry, Martha EPA Region IV	72
24 Aug 94	EPA Letter to Depot Concerning NOTI for Draft RFI Work Plan	Franzmathes, Joseph R EPA Region IV	73
Sep 94	NFA, Draft Report	CH2M Hill, Inc.	74
Sep 94	Site Management Plan	Defense Distribution Depot Memphis TN	75
Sep 94	Fact Sheet, The Restoration Newsletter, Fall 94	Defense Distribution Depot Memphis TN	76
09 Sep 94	TDEC Letter to Depot Concerning Draft Proposed Groundwater Action Plan	English, Jordan Tennessee Department of Environment and Conservation	77
15 Sep 94	RAB Meeting Minutes, 15 Sep 94	Kartman, Christine E Defense Distribution Depot Memphis TN	78
20 Sep 94	EPA Letter to Depot Concerning Draft Proposed Groundwater Action Plan	Berry, Martha EPA Region IV	79
18 Oct 94	Depot Letter to EPA Concerning Proposed Groundwater Action Plan	Novitzki, Frank Defense Distribution Depot Memphis TN	80
27 Oct 94	TDEC Letter to Depot Concerning Draft Final Proposed Groundwater Action Plan	English, Jordan Tennessee Department of Environment and Conservation	81
27 Oct 94	ATSDR Letter to Depot Concerning RAB Presentation	Agency for Toxic Substances and	82

Administrative Record Site File Index

	and Site Visit	Disease Registry	
27 Oct 94	TDEC Letter to Depot Concerning Revisions to Site Management Plan	English, Jordan Tennessee Department of Environment and Conservation	83
07 Nov 94	EPA Letter to Depot Concerning Draft Proposed Groundwater Action Plan	Berry, Martha EPA Region IV	84
10 Nov 94	RAB Meeting Minutes, 10 Nov 94	Kartman, Christine E Defense Distribution Depot Memphis TN	85
20 Nov 94	RAB Meeting Minutes, 20 Nov 94	Kartman, Christine E Defense Distribution Depot Memphis TN	86
Dec 94	Proposed Groundwater Action Plan	CH2M Hill, Inc.	87
Dec 94	Fact Sheet, IRA	Defense Distribution Depot Memphis TN	88
Dec 94	Fact Sheet, FFA	Defense Distribution Depot Memphis TN	89
11 Dec 94	Newspaper Article, "Public Meeting and Comment Period, Depot"	The Commercial Appeal	90
13 Dec 94	Depot Memorandum Concerning Public Hearing for the Discussion of FFA	Rust, C Michael, COL Defense Distribution Depot Memphis TN	91
19 Dec 94	Newspaper Article, "Cleanup Plans Target Underground Chemical Seepage"	The Commercial Appeal	92
22 Dec 94	Depot Letter to EPA Concerning Public Comment on Proposed Groundwater Action Plan	Novitzki, Frank Defense Distribution Depot Memphis TN	93
95	Fact Sheet, The Restoration Newsletter, Vol 1, No 2, Spring 95	The Memphis Depot	520
Jan 95	Fact Sheet, DLA Memphis	Defense Distribution Depot Memphis TN	94
Jan 95	Archives Search Report, Conclusions and Recommendations	US Army Corps of Engineers - St Louis District	95
Jan 95	Archives Search Report, Findings	US Army Corps of Engineers - St Louis District	96
11 Jan 95	RAB Letter to Depot Concerning Comments on IRA	Garrison, John L, Jr RAB Member	97
19 Jan 95	RAB Meeting Minutes, 19 Jan 95	Kartman, Christine E Defense Distribution Depot Memphis TN	98
25 Jan 95	Fact Sheet, RAB Information Packet	Defense Distribution Depot Memphis TN	99
01 Feb 95	Chemical Warfare Management Plan Meeting Minutes, 18 Jan 95	Sartain, Hunter S CH2M Hill, Inc.	100
16 Feb 95	RAB Meeting Minutes, 16 Feb 95	Defense Distribution Depot Memphis TN	101
10 Mar 95	Technical Memorandum Report, Selection of Early Removal Sites	Underwood, Edward R CH2M Hill, Inc.	102
13 Mar 95	Federal Facilities Agreement	Johnston, Jon D EPA Region IV	103
17 Mar 95	Technical Memorandum Report, Early Removal Sites	CH2M Hill, Inc.	521
12 Apr 95	TDEC Letter to Depot Concerning Draft Final Generic HSP	Morrison, James W, PG Tennessee Department of Environment and Conservation	104

Administrative Record Site File Index

13 Apr 95	ATSDR Letter to Depot Concerning Draft Final Screening Sites FSP	Kellam, Jeff Agency for Toxic Substances and Disease Registry	105
19 Apr 95	TDEC Letter to Depot Concerning Draft Final FSP and Generic RI/FS Work Plan, OU-4	English, Jordan Tennessee Department of Environment and Conservation	106
20 Apr 95	RAB Meeting Minutes, 20 Apr 95	Kartman, Christine E Defense Distribution Depot Memphis TN	107
28 Apr 95	TDEC Letter to Depot Concerning Draft Final Generic QAPP	Morrison, James W, PG Tennessee Department of Environment and Conservation	108
May 95	SOW, Draft, EBS at BRAC 95 Installations	Environmental Science and Engineering, Inc.	109
05 May 95	EPA Letter to Depot Concerning Review of Generic RI/FS Work Plan, QAPP, and FSPs	Berry, Martha EPA Region IV	110
08 May 95	TDEC Letter to Depot Concerning Draft Final Generic RI/FS Work Plan and Screening Sites FSP	Morrison, James W, PG Tennessee Department of Environment and Conservation	111
18 May 95	RAB Meeting Minutes, 18 May 95	Kartman, Christine E Defense Distribution Depot Memphis TN	112
31 May 95	Depot Letter to EPA and TDEC Concerning Revisions to Site Management Plan	Novitzki, Frank Defense Distribution Depot Memphis TN	113
06 Jun 95	MSPJC Letter to Depot Concerning Chemical Warfare Constituents, Dunn Field	Smith, Larry J Mid-South Peace and Justice Center	114
13 Jun 95	TDEC Letter to Depot Concerning FSP, OU-1, OU-2, OU-3, OU-4	Morrison, James W, PG Tennessee Department of Environment and Conservation	115
20 Jun 95	RAB Meeting Minutes, 20 Jun 95	Defense Distribution Depot Memphis TN	116
18 Jul 95	Depot Letter to EPA Concerning Comments on Draft Final FSP	Novitzki, Frank Defense Distribution Depot Memphis TN	117
Aug 95	Hazardous and Toxic Waste HSP	CH2M Hill, Inc.	118
Aug 95	Depot Letter to EPA Concerning Responses to Comments on Draft ROD for IRA of Groundwater	Defense Distribution Depot Memphis TN	119
17 Aug 95	RAB Meeting Minutes, 17 Aug 95	Kartman, Christine E Defense Distribution Depot Memphis TN	120
Sep 95	FSP, Screening Sites	CH2M Hill, Inc.	121
Sep 95	Draft Final FSP, OU-2	CH2M Hill, Inc.	122
Sep 95	FSP, OU-1	CH2M Hill, Inc.	123
Sep 95	FSP, OU-4	CH2M Hill, Inc.	124
Sep 95	FSP, OU-3	CH2M Hill, Inc.	125
Sep 95	RI/FS, Draft Final Generic Work Plan	CH2M Hill, Inc.	126
Sep 95	Generic QAPP	CH2M Hill, Inc.	127
06 Sep 95	AMCPM-NSM Letter to Distribution Concerning Draft Interim Holding Facility Plan	AMCPM-NSM	128
08 Sep 95	TDEC Letter to Depot Concerning Comments on Draft Final ROD for IRA of Groundwater, OU-1	English, Jordan Tennessee Department of Environment and Conservation	380
19 Sep 95	Chemical Warfare Meeting Minutes Summary, 13 Sep	Sartain, Hunter S	129

Administrative Record Site File Index

	95	Corey, Mark CH2M Hill, Inc.	
21 Sep 95	RAB Meeting Minutes, 21 Sep 95	Kartman, Christine E Defense Distribution Depot Memphis TN	130
06 Oct 95	Public Health Assessment Report	Agency for Toxic Substances and Disease Registry	131
19 Oct 95	RAB Meeting Minutes, 19 Oct 95	Kartman, Christine E Defense Distribution Depot Memphis TN	132
19 Oct 95	EPA Letter to Depot Concerning Comments on Draft ROD for IRA of Groundwater, OU-1	Berry, Martha EPA Region IV	383
16 Nov 95	Summary of Inventory Report	Underwood, Edward R CH2M Hill, Inc.	133
30 Nov 95	Depot Letter to TDEC Concerning Comments on Final FSPs, OU-1, OU-2, OU-3, OU-4	Roach, Harold Defense Distribution Depot Memphis TN	134
Dec 95	Fact Sheet, The Restoration Newsletter, Winter 95	Defense Distribution Depot Memphis TN	135
28 Dec 95	Depot Letter to Resident Concerning Groundwater Testing Project	Kennedy, Michael J, COL Defense Distribution Depot Memphis TN	136
28 Dec 95	Depot Letter to Resident Concerning Installation of Monitoring Wells in Neighborhoods	Kennedy, Michael J, COL Defense Distribution Depot Memphis TN	424
28 Dec 95	Depot Letter to Resident Concerning Testing Project for Groundwater Contamination	Kennedy, Michael J, COL Defense Distribution Depot Memphis TN	457
28 Dec 95	Depot Letter to Resident Concerning Installation of Wells Off-Base	Kennedy, Michael J, Col Defense Distribution Depot Memphis TN	519
Jan 96	SOW, Appendix Annex for Chemical Warfare Materiel, Sampling Associated with RI/FS	US Army Corps of Engineers - Huntsville District	137
Jan 96	Press Release, Public Notice, Installation of Off-Base Monitoring Wells	Defense Distribution Depot Memphis TN	138
02 Jan 96	Press Release, Installation of Monitoring Wells	Defense Distribution Depot Memphis TN	139
04 Jan 96	Depot Letter to Dunn Elementary School Concerning Installation of Groundwater Wells	Kartman, Christine E Defense Distribution Depot Memphis TN	522
08 Jan 96	Depot Letter to BCT Members Concerning BCT Ratification	Kartman, Christine E Defense Distribution Depot Memphis TN	523
09 Jan 96	Newspaper Article, "Depot's Soil Tested Again for Pollution"	The Commercial Appeal	140
12 Jan 96	TDEC Letter to Depot Concerning Removal of Depot from Tennessee List of Inactive Hazardous Substance Sites	Willer, Clinton W Tennessee Department of Environment and Conservation	141
18 Jan 96	RAB Meeting Minutes, 18 Jan 96	Kartman, Christine E Defense Distribution Depot Memphis TN	142
18 Jan 96	Press Release, Environmental Testing of Ray Deaton Lake	Memphis and Shelby County Health Department	143
18 Jan 96	SFIM Letter to SFAE Concerning Draft Final Interim	Wojciechowski, Paul E, LTC	144

Administrative Record Site File Index

	Holding Facility Plan	SFIM-AEC-BCD	
22 Jan 96	MSPJC Letter to CH2M Hill Concerning Background Study Summary Sheets	Smith, Larry J Mid-South Peace and Justice Center	145
23 Jan 96	Depot Letter to Survival Politics Unlimited Concerning Public Disclosure of Documents	Kartman, Christine E Defense Distribution Depot Memphis TN	524
24 Jan 96	BCT Meeting Summary, 19 Jan 96	CH2M Hill, Inc.	146
25 Jan 96	Depot Letter to USAEC Concerning Draft Final Interim Holding Plan	Kartman, Christine E Defense Distribution Depot Memphis TN	147
30 Jan 96	Sediment Sampling Analysis Report	EDAW, Inc.	148
07 Feb 96	Depot Letter to EPA Concerning Comments on ROD for Groundwater IRA	Roach, Harold Defense Distribution Depot Memphis TN	149
15 Feb 96	RAB Meeting Minutes, 15 Feb 96	Kartman, Christine E Defense Distribution Depot Memphis TN	150
16 Feb 96	BCT Meeting Minutes, 16 Feb 96	Defense Distribution Depot Memphis TN	151
22 Feb 96	SFIM Letter to Depot Concerning Draft ROD for Groundwater IRA, OU-1	Wojciechowski, Paul E, LTC SFIM-AEC-BCD	152
Mar 96	Depot Letter to USAEC Concerning Response to Comments on Draft ROD for Groundwater IRA, OU-1	Defense Distribution Depot Memphis TN	153
18 Mar 96	SFAE Letter to Depot Concerning Interim Holding Facility Support Requirements	Hilliard, Robert E SFAE-CD-NM	154
20 Mar 96	CH2M Hill Letter to USACE Concerning Response to TDEC Comments on Generic RI/FS Work Plan, QAPP, HSP, and Screening Sites FSP	Corey, Mark CH2M Hill, Inc.	155
21 Mar 96	RAB Meeting Minutes, 21 Mar 96	Kartman, Christine E Defense Distribution Depot Memphis TN	156
28 Mar 96	Depot Letter to BCT Member Concerning IRA Design for Pump and Treat	Kartman, Christine E Defense Distribution Depot Memphis TN	525
Apr 96	ROD, IRA, Groundwater, Dunn Field, OU-1	Defense Distribution Depot Memphis TN	157
18 Apr 96	RAB Meeting Minutes, 18 Apr 96	Kartman, Christine E Defense Distribution Depot Memphis TN	158
24 Apr 96	TDEC Letter to Depot Concerning ROD for IRA of Groundwater, Dunn Field, OU-1	Willer, Clinton W Tennessee Department of Environment and Conservation	159
01 May 96	EPA Letter to Depot Concerning ROD for IRA of Groundwater, OU-1	Green, Richard D EPA Region IV	160
16 May 96	RAB Meeting Minutes, 16 May 96	Kartman, Christine E Defense Distribution Depot Memphis TN	161
06 Jun 96	TDEC Letter to Depot Concerning Groundwater IRA	Templeton, Terry R Tennessee Department of Environment and Conservation	162
07 Jun 96	Attorney Letter to USACE Concerning Right of Entry for Survey and Exploration	Pruitt, Ira Drayton, Jr Pruitt, Pruitt and Watkins, P.A.	163
12 Jun 96	Depot Letter to USACE Concerning Comments on Concept Design Submittal, Groundwater IRA	Kartman, Christine E Defense Distribution Depot Memphis	164

Administrative Record Site File Index

		TN	
20 Jun 96	RAB Meeting Minutes, 20 Jun 96	Kartman, Christine E Defense Distribution Depot Memphis TN	165
20 Jun 96	Depot Letter to USACE Concerning 60% Concept Design for Groundwater IRA	Roach, Harold Defense Distribution Depot Memphis TN	166
01 Jul 96	EPA Letter to Depot Concerning 30% Completion for RD, OU-1	Spariosu, Dann J EPA Region IV	167
15 Jul 96	TDEC Letter to Depot Concerning Interim Holding Facility Support Requirements	English, Jordan Tennessee Department of Environment and Conservation	168
18 Jul 96	RAB Meeting Minutes, 18 Jul 96	Kartman, Christine E Defense Distribution Depot Memphis TN	169
18 Jul 96	Depot-CCC Letter to Representative Concerning Environmental Injustices at Depot	Bradshaw, Kenneth Bradshaw, Doris Defense Depot Memphis TN -	170
18 Jul 96	Depot-CCC Letter to Depot Concerning Request for Poison Signs	Bradshaw, Kenneth Bradshaw, Doris Defense Depot Memphis TN -	171
18 Jul 96	Depot-CCC Letter to Depot Concerning Request for Poison Signs	Bradshaw, Kenneth Bradshaw, Doris Defense Depot Memphis TN -	172
20 Jul 96	Depot-CCC Letter to Depot Concerning Request for Files Relating to Pollution, Hazardous Waste, and Environmental Violations	Bradshaw, Kenneth Bradshaw, Doris Defense Depot Memphis TN -	173
31 Jul 96	USACE Letter to Depot Concerning IRP Fact Sheets	Matthews, John D US Army Corps of Engineers - Huntsville District	174
Aug 96	Environmental Baseline Survey (EBS), Radiological Survey	Defense Distribution Depot Memphis TN	175
15 Aug 96	RAB Meeting Minutes, 15 Aug 96	Kartman, Christine E Defense Distribution Depot Memphis TN	176
20 Aug 96	Depot Letter to Depot-CCC Concerning Request for Files Relating to Pollution, Hazardous Waste, and Environmental Violations	Amido, Dorian P Defense Distribution Depot Memphis TN	177
29 Aug 96	Depot Letter to Depot-CCC Concerning Request to Place Poison Signs Along Depot and Drainage Ditches	Kennedy, Michael J, COL Defense Distribution Depot Memphis TN	178
04 Sep 96	Woodward-Clyde Letter to Depot Concerning Comment Response Package for Draft EBS	Compeau, Geoffrey, C Woodward-Clyde Federal Services	179
10 Sep 96	Depot-CCC Memorandum Concerning Request for Files Relating to Pollution, Hazardous Waste, and Environmental Violations	Bradshaw, Kenneth Defense Depot Memphis TN - Concerned Citizens Committee	180
12 Sep 96	Depot Letter to Depot-CCC Concerning Request for Files Relating to Pollution, Hazardous Waste, and Environmental Violations	Amido, Dorian P Defense Distribution Depot Memphis TN	181
16 Sep 96	Depot Letter to ATSDR Concerning Perceived Health Threats	Holladay, Eric W Defense Distribution Depot Memphis TN	182
18 Sep 96	Meeting Minutes, Public Comment Period, 18 Sep 96	PRC Environmental Management, Inc.	183
19 Sep 96	RAB Meeting Minutes, 19 Sep 96	Kartman, Christine E	184

Administrative Record Site File Index

		Defense Distribution Depot Memphis TN	
Oct 96	Fact Sheet, ATSDR	Agency for Toxic Substances and Disease Registry	185
Oct 96	EPA BRAC Report, Sep-Oct 96	Spariosu, Dann J EPA Region IV	186
01 Oct 96	EPA Letter to ME3 Concerning RAB Regulations	Whitfield, Tiki L EPA Region IV	187
10 Oct 96	Depot Letter to Resident Concerning Removal of Stockpiles, Site 62, Site 63, Site 64	Kennedy, Michael J, COL Defense Distribution Depot Memphis TN	423
17 Oct 96	RAB Meeting Minutes, 17 Oct 96	Defense Distribution Depot Memphis TN	188
18 Oct 96	RAB Letter to EPA Concerning Federal Register Publication of RAB Proposed Rule	Garrison, John L, Jr RAB Member	189
22 Oct 96	Depot-CCC Letter to HQ USEPA Concerning Chemical Warfare Hazards at Depot	Bradshaw, Kenneth Defense Depot Memphis TN - Concerned Citizens Committee	190
22 Oct 96	Depot-CCC Letter to Representative Concerning Freedom of Information Act and Request for Information	Bradshaw, Kenneth Defense Depot Memphis TN - Concerned Citizens Committee	191
22 Oct 96	Depot-CCC Letter to Depot Concerning Request for Files Relating to Chemical Warfare Service	Bradshaw, Kenneth Defense Depot Memphis TN - Concerned Citizens Committee	192
Nov 96	BRAC Cleanup Plan (BCP)	Woodward-Clyde Federal Services	193
Nov 96	Fact Sheet, The Restoration Newsletter, Fall 96	The Memphis Depot	526
05 Nov 96	USACE Letter to Depot Concerning IRP Fact Sheets	Matthews, John D US Army Corps of Engineers - Huntsville District	194
06 Nov 96	Environmental Baseline Survey (EBS), Final Report	Woodward-Clyde Federal Services	195
22 Nov 96	TDEC Letter to Resident Concerning Environmental Cleanup Concerns	English, Jordan Tennessee Department of Environment and Conservation	196
26 Nov 96	Depot Letter to Depot-CCC Concerning Request for Files Relating to Chemical Warfare Service	Amido, Dorian P Defense Distribution Depot Memphis TN	197
16 Dec 96	DERTF Transcript, Sep 96	PRC Environmental Management, Inc.	198
30 Dec 96	Depot-CCC Letter to Depot Concerning Administrative Record and Public Participation	Bradshaw, Kenneth Defense Depot Memphis TN - Concerned Citizens Committee	199
30 Dec 96	Depot-CCC Letter to Depot Concerning RAB Membership Diversity	Bradshaw, Kenneth Defense Depot Memphis TN - Concerned Citizens Committee	200
30 Dec 96	Depot-CCC Letter to Depot Concerning Request for Laws that Govern Toxic and Hazardous Waste	Bradshaw, Kenneth Defense Depot Memphis TN - Concerned Citizens Committee	201
Jan 97	Fact Sheet, The Restoration Newsletter, Jan 97	Defense Distribution Depot Memphis TN	202
Jan 97	Fact Sheet, Installation Restoration Newsletter, Defense Department Unveils TAPP Program	Defense Distribution Depot Memphis TN	203
02 Jan 97	Technical Memorandum Report, Filter Pack and Well Screen Specifications	CH2M Hill, Inc.	527
16 Jan 97	RAB Meeting Minutes, 16 Jan 97	Kaden, Glenn L Defense Distribution Depot Memphis	204

Administrative Record Site File Index

		TN	
22 Jan 97	Depot Letter to Depot-CCC Concerning Requests for Information and RAB Membership	Kennedy, Michael J, COL Defense Distribution Depot Memphis TN	205
07 Feb 97	TDEC Letter to Depot Concerning Draft Baseline Risk Assessment for Golf Course Impoundments	Templeton, Terry R Tennessee Department of Environment and Conservation	206
12 Feb 97	Depot Letter to TDEC Transmitting Revised Concept Design Submittal for Groundwater IRA	Kaden, Glenn L Defense Distribution Depot Memphis TN	207
12 Feb 97	Depot Letter to EPA Transmitting Revised Concept Design Submittal for Groundwater IRA	Kaden, Glenn L Defense Distribution Depot Memphis TN	208
12 Feb 97	Depot Letter to EPA Transmitting Draft BRAC Sampling Program Report	Kaden, Glenn L Defense Distribution Depot Memphis TN	209
20 Feb 97	RAB Meeting Minutes, 20 Feb 97	Kaden, Glenn L Defense Distribution Depot Memphis TN	210
21 Feb 97	TDEC Letter to Depot Concerning Comments on Pre-Draft CRP	English, Jordan Tennessee Department of Environment and Conservation	211
21 Feb 97	TDEC Letter to Depot Concerning Draft BRAC Sampling Program	Templeton, Terry R Tennessee Department of Environment and Conservation	212
24 Feb 97	TDEC Letter to Depot Concerning 50% Design Analysis Report and Drawings for Groundwater IRA	Templeton, Terry R Tennessee Department of Environment and Conservation	213
24 Feb 97	TDEC Letter to Depot Concerning Revised Concept Design Submittal for Groundwater IRA	Templeton, Terry R Tennessee Department of Environment and Conservation	214
04 Mar 97	Groundwater Sampling Data, Feb 96	Kaden, Glenn L Defense Distribution Depot Memphis TN	215
04 Mar 97	Groundwater Sampling Data, Feb 96	Kaden, Glenn L Defense Distribution Depot Memphis TN	216
04 Mar 97	Depot Letter to Memphis Public Works Concerning Groundwater Contamination Concentrations	Kaden, Glenn L Defense Distribution Depot Memphis TN	217
10 Mar 97	Depot Letter to TDEC Transmitting Draft Groundwater Characterization Technical Memorandum	Kaden, Glenn L Defense Distribution Depot Memphis TN	218
10 Mar 97	Depot Letter to EPA Transmitting Draft Groundwater Characterization Technical Memorandum	Kaden, Glenn L Defense Distribution Depot Memphis TN	219
10 Mar 97	Depot Letter to Resident Concerning RAB and Comments on Letter to Newspaper	Kaden, Glenn L Defense Distribution Depot Memphis TN	220
12 Mar 97	TDEC Letter to Depot Concerning Letter and Summary Table for Groundwater Quality Data, Dunn Field	Templeton, Terry R Tennessee Department of Environment and Conservation	221
12 Mar 97	EPA Letter to Depot Concerning Comments on Risk Assessment for Golf Course Pond and Lake Danielson	Spariosu, Dann J EPA Region IV	222

Administrative Record Site File Index

17 Mar 97	Depot Letter to TDEC Transmitting Waterways Experiment Station Draft Groundwater Modeling Report	Kaden, Glenn L The Memphis Depot	223
19 Mar 97	Depot Letter to TDEC Transmitting Sampling and Analysis Recommendations	Kaden, Glenn L Defense Distribution Depot Memphis TN	224
19 Mar 97	Depot Letter to EPA Transmitting Sampling and Analysis Recommendations	Kaden, Glenn L Defense Distribution Depot Memphis TN	225
20 Mar 97	RAB Meeting Minutes, 20 Mar 97	Kaden, Glenn L Defense Distribution Depot Memphis TN	226
21 Mar 97	BCT Meeting Minutes, 21 Mar 97	CH2M Hill, Inc.	371
25 Mar 97	Depot Letter to USGS Transmitting Groundwater Characterization Technical Memorandum	Kaden, Glenn L Defense Distribution Depot Memphis TN	227
01 Apr 97	Depot Letter to TDEC Transmitting Draft Background Sampling Program Technical Memorandum	Kaden, Glenn L Defense Distribution Depot Memphis TN	228
01 Apr 97	Depot Letter to EPA Transmitting Draft Background Sampling Technical Memorandum	Kaden, Glenn L Defense Distribution Depot Memphis TN	229
07 Apr 97	USACE Letter to Depot Concerning Draft Baseline Risk Assessment for Golf Course Pond Impoundments	Thompson, Michael H US Army Corps of Engineers - Mobile District	230
08 Apr 97	EPA Letter to Depot Concerning Review of Groundwater Modeling Report, Dunn Field	Spariosu, Dann J EPA Region IV	231
15 Apr 97	TDEC Letter to Depot Concerning Draft Groundwater Characterization Technical Memorandum and Groundwater Modeling Approach for Remediation Design	Templeton, Terry R Tennessee Department of Environment and Conservation	232
16 Apr 97	Depot Letter to TDEC Concerning Response to Comments on Baseline Risk Assessment, Golf Course Impoundments	Kaden, Glenn L Defense Distribution Depot Memphis TN	233
16 Apr 97	Depot Letter to EPA Concerning Response to Comments on Baseline Risk Assessment, Golf Course Impoundments	Kaden, Glenn L Defense Distribution Depot Memphis TN	328
17 Apr 97	RAB Meeting Minutes, 17 Apr 97	Kaden, Glenn L Defense Distribution Depot Memphis TN	234
18 Apr 97	MHC and Depot-CCC Letter to ATSDR Concerning Health Assessment for Community Surrounding Depot	Ball, Alan Bradshaw, Doris Memphis Health Center, Inc.	235
30 Apr 97	TDEC Letter to Depot Concerning Response to Comments on Draft Baseline Risk Assessment, Golf Course Impoundments	Templeton, Terry R Tennessee Department of Environment and Conservation	236
30 Apr 97	ATSDR Letter to Depot-CCC Concerning Health Assessment and Future Health Concerns	Warren, Rueben C Agency for Toxic Substances and Disease Registry	237
30 Apr 97	ATSDR Letter to Church Concerning Health Assessment and Future Health Concerns	Warren, Rueben C Agency for Toxic Substances and Disease Registry	238
30 Apr 97	ATSDR Letter to Senator Concerning Health Assessment and Future Health Concerns	Warren, Rueben C Agency for Toxic Substances and	239

Administrative Record Site File Index

		Disease Registry	
30 Apr 97	ATSDR Letter to MHC Concerning Health Assessment and Future Health Concerns	Warren, Rueben C Agency for Toxic Substances and Disease Registry	240
30 Apr 97	ATSDR Letter to Representative Concerning Health Assessment and Future Health Concerns	Warren, Rueben C Agency for Toxic Substances and Disease Registry	241
30 Apr 97	ATSDR Letter to TDH Concerning Health Assessment and Future Health Concerns	Warren, Rueben C Agency for Toxic Substances and Disease Registry	242
30 Apr 97	TDEC Letter to Depot Concerning Groundwater IRA 50% Drawings and Specifications and Part III Design Calculations	Templeton, Terry R Tennessee Department of Environment and Conservation	243
May 97	BRAC Sampling Program Report	CH2M Hill, Inc.	244
May 97	Draft Executive Summary Report, Screening Sites Sampling Program	CH2M Hill, Inc.	245
May 97	Fact Sheet, The Restoration Newsletter, Mar-May 97	Defense Distribution Depot Memphis TN	246
02 May 97	USACE Letter to TDEC Concerning Preliminary Investigation for Groundwater, OU-2	Matthews, John D US Army Corps of Engineers - Huntsville District	528
12 May 97	ATSDR Letter to Depot-CCC and MHC Concerning Adverse Health Effects Associated with Hazardous Waste	Johnson, Barry L Agency for Toxic Substances and Disease Registry	247
22 May 97	TDEC Letter to Depot Concerning Draft Background Sampling Program Technical Memorandum	Templeton, Terry R Tennessee Department of Environment and Conservation	248
23 May 97	HQ DLA Memorandum for Record Concerning Meeting with Concerned Citizens Community	Reitman, Jan B HQ DLA-CAAE	249
Jun 97	Draft Community Relations Plan (CRP)	Defense Distribution Depot Memphis TN	250
13 Jun 97	TDEC Letter to Depot Transmitting Results of TDSF Split Samples	Templeton, Terry R Tennessee Department of Environment and Conservation	251
19 Jun 97	RAB Meeting Minutes, 19 Jun 97	Kaden, Glenn L Defense Distribution Depot Memphis TN	252
02 Jul 97	BCT/RPM Meeting Minutes, 02 Jul 97	Kaden, Glenn L Defense Distribution Depot Memphis TN	253
17 Jul 97	RAB Meeting Minutes, 17 Jul 97	Kaden, Glenn L Defense Distribution Depot Memphis TN	254
20 Jul 97	Technical Memorandum Report, Criteria and Background Data for Screening and Site Evaluation	CH2M Hill, Inc.	529
21 Jul 97	EPA Letter to Depot Concerning Draft Background Sampling Program Technical Memorandum	Spariosu, Dann J EPA Region IV	255
Aug 97	Final Groundwater Characterization Data Report	CH2M Hill, Inc.	256
21 Aug 97	RAB Meeting Minutes, 21 Aug 97	Kaden, Glenn L Defense Distribution Depot Memphis TN	257
Sep 97	Quarterly Groundwater Monitoring Report, Jun 97	CH2M Hill, Inc.	258
09 Sep 97	CH2M Hill Letter to USACE Concerning Response to Comments on Background Characterization Technical	Underberg, Greg CH2M Hill, Inc.	259

Administrative Record Site File Index

	Memorandum		
18 Sep 97	RAB Meeting Minutes, 18 Sep 97	Kaden, Glenn L Defense Distribution Depot Memphis TN	260
24 Sep 97	TDEC Letter to Depot Concerning Draft SAP for Fish and Sediment Sampling	Templeton, Terry R Tennessee Department of Environment and Conservation	261
Oct 97	Fact Sheet, Public Health Assessment	Agency for Toxic Substances and Disease Registry	262
07 Oct 97	RAB Letter to Depot Concerning ATSDR Public Health Assessment	Garrison, John L, Jr RAB Member	263
16 Oct 97	BCT Meeting Minutes, 15-16 Oct 97	Defense Distribution Depot Memphis TN	264
16 Oct 97	RAB Meeting Minutes, 16 Oct 97	Kaden, Glenn L Defense Distribution Depot Memphis TN	265
Nov 97	Quarterly Groundwater Monitoring Report, Sep 97	CH2M Hill, Inc.	266
19 Nov 97	USACE Letter to Depot Concerning Groundwater Interim RD	Nore, Robert V US Army Corps of Engineers - Huntsville District	267
Dec 97	Baseline Risk Assessment HSP and SAP, Golf Course Impoundments	Radian Corp.	268
Dec 97	Fact Sheet, EnviroNews	The Memphis Depot	269
02 Dec 97	TDEC Letter to Depot Transmitting Results of Split Samples	Templeton, Terry R Tennessee Department of Environment and Conservation	270
03 Dec 97	Frontline Communications Focus Group Report, 25 Nov 97	Trust Marketing and Communications, Inc.	271
08 Dec 97	TDEC Letter to Depot Concerning Comments on Draft Background Sampling Program Technical Memorandum	Templeton, Terry R Tennessee Department of Environment and Conservation	272
08 Dec 97	Depot Letter to Residents Concerning Removal Activities, OU-1, Site 62, 63, 64	Kaden, Glenn L The Memphis Depot	530
08 Dec 97	Depot Letter to Residents Concerning Notification of Groundwater Sampling	Kaden, Glenn L The Memphis Depot	531
10 Dec 97	BCT Meeting Minutes, 04-06 Aug 97	Defense Distribution Depot Memphis TN	273
10 Dec 97	BCT Meeting Minutes, 17-18 Sep 97	Defense Distribution Depot Memphis TN	274
10 Dec 97	BCT Meeting Minutes, 10 Dec 97	The Memphis Depot	532
11 Dec 97	Depot Memorandum for Record Concerning Depot-CCC Meeting, 08 Dec 97	Cooper, Denise K The Memphis Depot	275
Jan 98	Fact Sheet, The Depot	The Memphis Depot	276
Jan 98	EE/CA, Work Plan to Conduct Site Characterization, OU-1	Parsons Engineering Science, Inc.	277
15 Jan 98	Technical Memorandum Report, Groundwater Monitoring Sampling Strategy	CH2M Hill, Inc.	533
20 Jan 98	EPA Letter to Depot Concerning Comments on EE/CA Site Characterization Draft Work Plan, OU-1	Torres, Ramon EPA Region IV	278
22 Jan 98	RAB Agenda and Presentation Materials, 22 Jan 98	The Memphis Depot	279
26 Jan 98	BCT Meeting Minutes, 26 Jan 98	The Memphis Depot	280
Feb 98	Geophysical Survey Work Report, Jan-Feb 98, Dunn Field	OHM Remediation Services Corp.	281
Feb 98	Fact Sheet, EnviroNews	The Memphis Depot	282

Administrative Record Site File Index

Feb 98	Fact Sheet, Environmental, Depot	US Army Corps of Engineers - Huntsville District	283
Feb 98	Press Release, Public Invited to Depot Community Information Session	The Memphis Depot	284
17 Feb 98	TDEC Letter to Depot Concerning Baseline Risk Assessment, HSP, SAP, and Draft Preliminary Risk Evaluation	Templeton, Terry R Tennessee Department of Environment and Conservation	285
19 Feb 98	BCT Meeting Minutes, 19 Feb 98	The Memphis Depot	286
19 Feb 98	RAB Meeting Minutes, 19 Feb 98	Kaden, Glenn L The Memphis Depot	287
25 Feb 98	TDEC Letter to Depot Concerning Comments on Background Characterization Technical Memorandum	Templeton, Terry R Tennessee Department of Environment and Conservation	288
Mar 98	Interim Community Relations Plan (CRP)	US Army Center for Health Promotion and Preventive Medicine Frontline Corporate	289
Mar 98	EA, Disposal and Reuse of Depot	US Army Corps of Engineers - Mobile District Tetra Tech, Inc.	290
Mar 98	Groundwater Monitoring Report, Mar 98	CH2M Hill, Inc.	291
Mar 98	Screening Sites Letter Report	CH2M Hill, Inc.	292
09 Mar 98	TDEC Letter to Depot Concerning Baseline Risk Assessment, HSP, and SAP, Golf Course Impoundments	Templeton, Terry R Tennessee Department of Environment and Conservation	293
11 Mar 98	Newspaper Article, "Notice of RAB Meeting, 19 Mar 98"	The Commercial Appeal	294
12 Mar 98	Newspaper Article, "Notice of RAB Meeting, 19 Mar 98"	The Memphis Flyer	459
18 Mar 98	Newspaper Article, "Notice of RAB Meeting, 19 Mar 98"	The Memphis Flyer	295
18 Mar 98	BCT Strategy Session Minutes, 18 Mar 98	Kaden, Glenn L The Memphis Depot	296
19 Mar 98	BCT Meeting Minutes, 19 Mar 98	The Memphis Depot	297
19 Mar 98	RAB Meeting Minutes, 19 Mar 98	Kaden, Glenn L The Memphis Depot	298
19 Mar 98	IRA, Groundwater Report, Dunn Field	OHM Remediation Services Corp.	299
19 Mar 98	Newspaper Article, "Survey Targets Concerns of Depot Neighbors"	The Commercial Appeal	300
Apr 98	BRAC Parcel Summary Report	CH2M Hill, Inc.	301
Apr 98	Journal Article, "NACCHO Seeks to Facilitate Community Collaboration"	NACCO News	302
Apr 98	Final Preliminary Risk Evaluation Report	CH2M Hill, Inc.	303
12 Apr 98	Newspaper Article, "Military Residue From Past is Concern for Today"	The Commercial Appeal	304
16 Apr 98	Depot Letter to TDEC Concerning Response to Comments on Draft Baseline Risk Assessment, Golf Course Impoundments	The Memphis Depot	305
16 Apr 98	Newspaper Article, "The RAB Meeting for 16 Apr 98 Has Been Rescheduled"	The Memphis Flyer	306
23 Apr 98	BCT Meeting Minutes, 23 Apr 98	The Memphis Depot	307
May 98	Final Background Sampling Program Report	CH2M Hill, Inc.	308
May 98	RI Sites Letter Report	CH2M Hill, Inc.	309
May 98	Fact Sheet, EnviroNews	Frontline Corporate Communications, Inc.	310

Administrative Record Site File Index

		The Memphis Depot	
May 98	Newspaper Article, "Public Notice of RAB Meeting, 21 May 98"	The Memphis Flyer	311
08 May 98	Technical Memorandum, FSP for Additional Groundwater Investigations	Underberg, Greg CH2M Hill, Inc.	312
13 May 98	Focus Group Letter to USACE and Frontline Concerning Survey Results Report	Santos, Susan L McCallum, David B Focus Group	313
18 May 98	Draft Technical Memorandum Report, Results of Pesticide Vertical Profile Sampling	Underberg, Greg Treadwell, Justin CH2M Hill, Inc.	314
21 May 98	RAB Meeting Minutes, 21 May 98	Phillips, Shawn, PE The Memphis Depot	315
22 May 98	BCT Meeting Minutes, 21-22 May 98	The Memphis Depot	316
29 May 98	Addenda to Specifications from Contaminated Surface Soil Remediation	CH2M Hill, Inc.	317
10 Jun 98	TDEC Letter to Depot Concerning Comments and Approval of SAP for Contaminated Soil Remediation, Family Housing Area	English, Jordan Tennessee Department of Environment and Conservation	534
12 Jun 98	Depot Memorandum for Record Concerning Canisters Found During Groundwater IRA Construction,Dunn Field	Phillips, Shawn, PE The Memphis Depot	318
16 Jun 98	Fact Sheet, The Depot, Identification of Test Kit Canisters, Dunn Field	Richards, Dorothy The Memphis Depot	319
18 Jun 98	ATSDR Letter to Depot Concerning Draft Community Health Concerns Memorandum	Agency for Toxic Substances and Disease Registry	320
18 Jun 98	RAB Meeting Minutes, 18 Jun 98	Phillips, Shawn, PE The Memphis Depot	321
19 Jun 98	BCT Meeting Minutes, 18-19 Jun 98	The Memphis Depot	322
23 Jun 98	ATSDR Letter to Depot Concerning Environmental Justice Work Group Meeting	Coulberson, Sandee L Agency for Toxic Substances and Disease Registry	323
24 Jun 98	Depot-CCC Letter to SFAE Concerning Request for Representative to Educate Community on Non-Stockpile Chemical Weapons	Bradshaw, Doris Defense Depot Memphis TN - Concerned Citizens Committee	324
26 Jun 98	Memphis Health Education and Promotions Subgroup Conference Call Minutes, 26 Jun 98	Agency for Toxic Substances and Disease Registry	367
Jul 98	Press Release, Public Notice of RAB Meeting, 16 Jul 98	The Memphis Depot	325
Jul 98	Draft SAP for Fish Sampling	Radian Corp.	326
Jul 98	EE/CA, Final Work Plan to Conduct Site Characterization, OU-1	Parsons Engineering Science, Inc.	327
Jul 98	Fact Sheet, EnviroNews	Frontline Corporate Communications, Inc. The Memphis Depot	329
Jul 98	Selection Criteria Report, Passive Soil Gas Technology	W L Gore and Associates, Inc.	330
Jul 98	ROD, Draft, OU-3	CH2M Hill, Inc.	331
Jul 98	Fact Sheet, Spotlighting on the Defense Depot Memphis RAB	The Neighbor News	463
02 Jul 98	ATSDR Letter to Depot Concerning Relationship with Other Government Organizations and Community Involvement	Grayson, Michael J Agency for Toxic Substances and Disease Registry	332
08 Jul 98	Newspaper Article, "Notice of RAB Meeting, 16 Jul 98"	The Commercial Appeal	333

Administrative Record Site File Index

11 Jul 98	Newspaper Article, "Notice of RAB Meeting, 16 Jul 98"	The Tri-State Defender	334
15 Jul 98	Technical Memorandum Report, Passive Soil Gas Survey, Dunn Field	Beisel, Tom CH2M Hill, Inc.	335
16 Jul 98	RAB Charter	The Memphis Depot	336
16 Jul 98	RAB Meeting Minutes, 16 Jul 98	Phillips, Shawn, PE The Memphis Depot	337
17 Jul 98	BCT Meeting Minutes, 16-17 Jul 98	The Memphis Depot	338
21 Jul 98	USACE MOA, UT Medical Group, Shelby County	Matthews, John D US Army Corps of Engineers - Huntsville District	339
01 Aug 98	Fact Sheet, Installation of Test Wells	Frontline Corporate Communications, Inc. The Memphis Depot	391
12 Aug 98	Newspaper Article, "Notice of RAB Meeting, 20 Aug 98"	The Silver Star News	340
12 Aug 98	Newspaper Article, "Notice of RAB Meeting, 20 Aug 98"	The Commercial Appeal	341
15 Aug 98	Newspaper Article, "Notice of RAB Meeting, 20 Aug 98"	The Tri-State Defender	342
18 Aug 98	Technical Memorandum, Draft FSP Addendum, Screening Sites	CH2M Hill, Inc.	343
18 Aug 98	Technical Memorandum, Draft FSP Addendum, OU-4	CH2M Hill, Inc.	344
18 Aug 98	Technical Memorandum, Draft FSP Addendum, OU-3	CH2M Hill, Inc.	345
18 Aug 98	Technical Memorandum, Draft FSP Addendum, OU-2	CH2M Hill, Inc.	346
20 Aug 98	RAB Meeting Minutes, 20 Aug 98	Phillips, Shawn, PE The Memphis Depot	347
21 Aug 98	BCT Meeting Minutes, 20-21 Aug 98	The Memphis Depot	348
Sep 98	Press Release, Public Invited to Depot Community Information Session	The Memphis Depot	349
Sep 98	Press Release, Public Notice of RAB Meeting, 17 Sep 98	The Memphis Depot	350
Sep 98	Draft Final Community Relations Plan (CRP)	Frontline Corporate Communications, Inc.	351
Sep 98	Fact Sheet, Working Toward a Safer Tomorrow, Cleanup of Recovered Chemical Warfare Materiel	US Army Corps of Engineers - Huntsville District	352
Sep 98	Fact Sheet, Environmental Restoration	US Army Corps of Engineers - Huntsville District	353
Sep 98	Fact Sheet, Environmental Engineering	US Army Corps of Engineers - Huntsville District	354
Sep 98	Fact Sheet, EnviroNews	Frontline Corporate Communications, Inc. The Memphis Depot	355
Sep 98	Historical Environmental Aerial Photographic Analysis, Final Report, Dunn Field	US Army Corps of Engineers - Huntsville District	464
Sep 98	Historical Environmental Aerial Photographic Analysis, Final Report, Main Depot Area	US Army Corps of Engineers - Huntsville District	465
09 Sep 98	Newspaper Article, "RAB Meeting and Community Information Session"	The Commercial Appeal	356
10 Sep 98	Fact Sheet, Groundwater Remediation System, Dunn Field	The Memphis Depot	357
10 Sep 98	EPA Letter to Depot Concerning Review of Draft FSP Addenda for OU-2, OU-3, OU-4, and Screening Sites	Ballard, Turpin EPA Region IV	466
16 Sep 98	Draft Technical Memorandum Report, Passive Soil Gas	Beisel, Tom	358

Administrative Record Site File Index

	Survey, Dunn Field	CH2M Hill, Inc.	
17 Sep 98	RAB Meeting Minutes, 17 Sep 98	Phillips, Shawn, PE The Memphis Depot	359
17 Sep 98	Press Release, Public Notice of RAB Meeting, 17 Sep 98	The Memphis Depot	360
19 Sep 98	Depot Letter to Community Member Concerning Community Information Session	Phillips, Shawn, PE The Memphis Depot	361
24 Sep 98	Fact Sheet, Soil Removal, Family Housing Area	The Memphis Depot	362
25 Sep 98	Technical Memorandum, Final FSP Addendum, OU-2	CH2M Hill, Inc.	363
25 Sep 98	Technical Memorandum, Final FSP Addendum, OU-3	CH2M Hill, Inc.	364
25 Sep 98	Technical Memorandum, Final FSP Addendum, OU-4	CH2M Hill, Inc.	365
25 Sep 98	Technical Memorandum, Final FSP Addendum, Screening Sites	CH2M Hill, Inc.	366
25 Sep 98	Depot Letter to Residents Concerning Soil Removal at Depot's Family Housing Area	Moore, Alma Black The Memphis Depot	468
29 Sep 98	Depot Letter to EPA Concerning Response to Comments on Draft FSP Addenda and Screening Sites, OU-2, OU-3, OU-4	Phillips, Shawn, PE Defense Distribution Depot Memphis TN	467
Oct 98	Final BRAC Cleanup Plan (BCP), Version 2	The Memphis Depot Caretaker	376
05 Oct 98	Press Release, Public Notice of RAB Meeting, 15 Oct 98	The Memphis Depot	368
15 Oct 98	RAB Meeting Minutes, 15 Oct 98	The Memphis Depot	535
Nov 98	Fact Sheet, EnviroNews	Frontline Corporate Communications, Inc. The Memphis Depot	386
05 Nov 98	BCT Meeting Minutes, 17 Sep 98	The Memphis Depot	536
09 Nov 98	Fact Sheet, Groundwater Sampling Off-Site Near Depot	Frontline Corporate Communications, Inc. The Memphis Depot	392
17 Nov 98	Meeting Minutes, Main Installation Risk Assessment Approach Meeting, 16 Nov 98	CH2M Hill, Inc.	537
Dec 98	Fact Sheet, Groundwater Program	Frontline Corporate Communications, Inc. The Memphis Depot	393
Dec 98	Fact Sheet, Asphalt Road Construction Begins, Dunn Field	Frontline Corporate Communications, Inc. The Memphis Depot	394
01 Dec 98	Technical Memorandum Report, Passive Soil Gas Survey	CH2M Hill, Inc.	538
02 Dec 98	Newspaper Article, "The Agitators"	The Memphis Flyer	470
10 Dec 98	Newspaper Article, "Depot Clarification"	The Memphis Flyer	469
17 Dec 98	Newspaper Article, "Army Wants to Monitor TCE"	The Memphis Flyer	411
Jan 99	Technical Memorandum Report, Final Streamlined Risk Assessment, Parcel 3	CH2M Hill, Inc.	370
Jan 99	Fact Sheet, EnviroNews	The Memphis Depot Frontline Corporate Communications, Inc.	372
13 Jan 99	Technical Memorandum Report, Additional Sampling Data Results	CH2M Hill, Inc.	539
14 Jan 99	Newspaper Article, "Notice of RAB Meeting, 21 Jan 99"	The Commercial Appeal	401
21 Jan 99	BCT Meeting Minutes, 15 Oct 98	The Memphis Depot	540
21 Jan 99	BCT Meeting Minutes, 02 Dec 98	The Memphis Depot	541
21 Jan 99	RAB Meeting Minutes, 21 Jan 99	The Memphis Depot	542

Administrative Record Site File Index

27 Jan 99	Fact Sheet, Neighborhood Notice of Groundwater Sampling	Frontline Corporate Communications, Inc. The Memphis Depot	390
Feb 99	Fact Sheet, Working Toward a Safer Tomorrow	US Army Corps of Engineers - Huntsville District	471
13 Feb 99	Newspaper Article, "Notice of RAB Meeting, 18 Feb 99"	The Tri-State Defender	402
15 Feb 99	Newspaper Article, "WWII Mustard Gas Pit to be Dug Up"	The Commercial Appeal	472
18 Feb 99	RAB Meeting Minutes, 18 Feb 99	The Memphis Depot	543
18 Feb 99	RAB Meeting Groundwater Update Presentation, 18 Feb 99	The Memphis Depot	544
21 Feb 99	Newspaper Article, "Memphis Takes on Military Depot"	The Philadelphia Inquirer	473
24 Feb 99	BCT Meeting Minutes, 21 Jan 99	The Memphis Depot	545
Mar 99	Fact Sheet, EnviroNews	The Memphis Depot Frontline Corporate Communications, Inc.	373
Mar 99	Post Removal Report, Contaminated Soil Remediation, Cafeteria Bldg	OHM Remediation Services Corp.	377
Mar 99	Post Removal Report, Contaminated Soil Remediation, Family Housing Area, Vol I of II	OHM Remediation Services Corp.	378 Part 1
Mar 99	Post Removal Report, Contaminated Soil Remediation, Family Housing Area, Vol I of II	OHM Remediation Services Corp.	378 Part 2
Mar 99	Post Removal Report, Contaminated Soil Remediation, Family Housing Area, Vol I of II	OHM Remediation Services Corp.	378 Part 3
Mar 99	Post Removal Report, Contaminated Soil Remediation, Family Housing Area, Vol II of II	OHM Remediation Services Corp.	379 Part 1
Mar 99	Post Removal Report, Contaminated Soil Remediation, Family Housing Area, Vol II of II	OHM Remediation Services Corp.	379 Part 2
02 Mar 99	Technical Memorandum, Final FSP Addendum, OU-1	CH2M Hill, Inc.	474
05 Mar 99	Fact Sheet, Neighborhood Notice Concerning Sampling, Dunn Field	Frontline Corporate Communications, Inc. The Memphis Depot	388
05 Mar 99	Fact Sheet, Update Concerning Chemical Warfare Materiel, Dunn Field	Frontline Corporate Communications, Inc. The Memphis Depot	389
11 Mar 99	Newspaper Article, "Notice of RAB Meeting, 18 Mar 99"	The Commercial Appeal	403
18 Mar 99	BCT Meeting Minutes, 19 Feb 99	The Memphis Depot	546
18 Mar 99	Update Pages, RAB Meeting Minutes, 21 Jan 99	The Memphis Depot	547
18 Mar 99	RAB Meeting Minutes, 18 Mar 99	The Memphis Depot	548
24 Mar 99	Newspaper Article, "Memphis Depot Environmental Cleanup Contract"	The Silver Star News	476
25 Mar 99	Newspaper Article, "Local Groups Intend to Apply for EPA Grant"	The Commercial Appeal	421
25 Mar 99	Newspaper Article, "Memphis Depot Environmental Cleanup Contract"	The Commercial Appeal	475
Apr 99	Draft Final EE/CA, Old Paint Shop and Maintenance Area, Parcel 35, Parcel 28	CH2M Hill, Inc.	381
10 Apr 99	Newspaper Article, "Notice of RAB Meeting, 15 Apr 99"	The Tri-State Defender	404
12 Apr 99	Depot Letter to Public Concerning Weekly Briefing for Removal Action of Chemical Warfare Materiel	Hunt, Clyde The Memphis Depot	477

Administrative Record Site File Index

15 Apr 99	RAB Meeting Minutes, 15 Apr 99	The Memphis Depot	549
May 99	Fact Sheet, EnviroNews	The Memphis Depot Frontline Corporate Communications, Inc.	374
May 99	IRA, Groundwater Extraction System Report, Vol I of II, Dunn Field	OHM Remediation Services Corp.	478
May 99	IRA, Groundwater Extraction System Report, Vol II of II, Dunn Field	OHM Remediation Services Corp.	479
13 May 99	Newspaper Article, "Notice of Public Comment Period and Public Meeting for EE/CA, 20 May 99"	The Commercial Appeal	405
13 May 99	ATSDR Letter to Depot Concerning Rescheduling of Meeting And Meeting Purpose, 19 May 99	Crellin, John R Williamson, Dhelia Agency for Toxic Substances and	552
20 May 99	BCT Meeting Minutes, 18 Mar 99	The Memphis Depot	553
20 May 99	Public Comment Period Meeting Minutes, EE/CA	The Memphis Depot	554
20 May 99	Soil Removal Action Presentation	CH2M Hill, Inc.	555
Jun 99	EE/CA, Removal of Chemical Warfare Materiel, Site 01, Site 19, Site 64	Parsons Engineering Science, Inc.	382
Jun 99	Final Transportation Plan, Site 01, Site 09, Site 64	AMCPM-NSM	384
Jun 99	Press Release, Notice of Public Comment Period and Public Meeting Concerning Chemical Warfare Materiel Removal at Dunn Field, 17 Jun 99	Frontline Corporate Communications, Inc. The Memphis Depot	387
Jun 99	Community Relations Plan (CRP)	Frontline Corporate Communications, Inc. US Army Center for Health	425
01 Jun 99	Depot Letter to TDEC Concerning Final FS Addenda, Dunn Field, Main Installation (atch found at AR #363, 364, 365, 366, 474)	Phillips, Shawn, PE The Memphis Depot	512
12 Jun 99	Newspaper Article, "Notice of Public Comment Period and Public Meeting, 17 Jun 99"	The Tri-State Defender	406
14 Jun 99	Depot Letter to EPA Concerning Proposed Change to RI Schedule, Dunn Field	Phillips, Shawn, PE The Memphis Depot	771
16 Jun 99	Press Release, Notice of Public Comment Period and Public Meeting at Memphis Depot	Frontline Corporate Communications, Inc. The Memphis Depot	395
17 Jun 99	Newspaper Article, "Residents to be Told of Depot Work"	The Commercial Appeal	422
17 Jun 99	BCT Meeting Minutes, 20 May 99	The Memphis Depot	556
17 Jun 99	Public Comments Period Meeting Minutes, EE/CA	The Memphis Depot	557
17 Jun 99	RAB Meeting Minutes, 17 Jun 99	The Memphis Depot	558
18 Jun 99	Newspaper Article, "WWII Chemical Agents Will be Removed from Depot"	The Commercial Appeal	420
18 Jun 99	Newspaper Article, "Depot Building to be Demolished"	The Commercial Appeal	516
21 Jun 99	TDEC Letter to Depot Concerning Comments on Soil Remediation Post Removal Report, Cafeteria Bldg, Site 73	English, Jordan Tennessee Department of Environment and Conservation	559
21 Jun 99	TDEC Letter to Depot Concerning Comments on Soil Remediation Post Removal Report, Family Housing Area, Site 73	English, Jordan Tennessee Department of Environment and Conservation	560
22 Jun 99	Newspaper Article, "Demolition at Defense Depot Paves the Way for Road Construction"	The Commercial Appeal	517
23 Jun 99	Newspaper Article, "Notice of Extension of Public Comment Period for EE/CA"	The Commercial Appeal	515
26 Jun 99	Newspaper Article, "Notice of Extension of Public	The Tri-State Defender	396

Administrative Record Site File Index

	Comment Period"		
Jul 99	Fact Sheet, EnviroNews	The Memphis Depot Frontline Corporate Communications, Inc.	375
Jul 99	Fact Sheet, Memphis Depot Golf Course and Recreation Parcel	Frontline Corporate Communications, Inc. The Memphis Depot	518
08 Jul 99	Newspaper Article, "Notice of RAB Meeting, 15 Jul 99"	The Commercial Appeal	397
10 Jul 99	Newspaper Article, "Notice of RAB Meeting, 15 Jul 99"	The Tri-State Defender	514
15 Jul 99	RAB Meeting Minutes, 15 Jul 99	The Memphis Depot	561
23 Jul 99	Technical Memorandum Report, Human Health and Ecological Risk Assessment	CH2M Hill, Inc.	562
24 Jul 99	Newspaper Article, "Notice of Extension of Public Comment Period for EE/CA"	The Tri-State Defender	398
27 Jul 99	Newspaper Article, "Notice of RAB Meeting, 19 Aug 99"	The Commercial Appeal	513
28 Jul 99	Depot Letter to EPA and TDEC Concerning Updated Schedule for RI Interim Milestones	Phillips, Shawn, PE The Memphis Depot	772
Aug 99	Final EE/CA, Old Paint Shop and Maintenance Area, Parcel 35, Parcel 28	CH2M Hill, Inc.	773
10 Aug 99	BCT Meeting Minutes, 17 Jun 99	The Memphis Depot	563
12 Aug 99	Depot Letter to RAB Members Concerning Reponse to Meeting Questions, 15 Jul 99	Phillips, Shawn, PE The Memphis Depot	564
19 Aug 99	BCT Meeting Minutes, 15 Jul 99	The Memphis Depot	565
19 Aug 99	RAB Meeting Minutes, 19 Aug 99	The Memphis Depot	566
19 Aug 99	RAB Presentation for Reuse, 19 Aug 99	The Memphis Depot	567
Sep 99	Fact Sheet, EnviroNews	Frontline Corporate Communications, Inc. The Memphis Depot	480
Sep 99	Action Memorandum, Old Paint Shop and Maintenance Area, Parcel 35, Parcel 28	CH2M Hill, Inc.	481
Sep 99	RAB Member Letter to Depot Concerning RAB Meeting Agenda, 16 Sep 99	Brayon, Eugene H RAB Member	568
Sep 99	Draft Final Technical Memorandum Report, Basis for NFA Recommendations	CH2M Hill, Inc.	774
16 Sep 99	BCT Meeting Minutes, 19 Aug 99	The Memphis Depot	569
Oct 99	Final BRAC Cleanup Plan (BCP), Version 3	The Memphis Depot Caretaker	482
05 Oct 99	Depot Letter to RAB Members Concerning Risk Assessment Guidance Training	Moore, Alma Black The Memphis Depot	570
25 Oct 99	BCT Meeting Minutes, 16 Sep 99	The Memphis Depot	571
Nov 99	Fact Sheet, EnviroNews, Nov/Dec 99	The Memphis Depot	573
15 Dec 99	BCT Meeting Minutes, 25 Oct 99	The Memphis Depot	572
Jan 00	Fact Sheet, EnviroNews	Frontline Corporate Communications, Inc. The Memphis Depot	483
Jan 00	RI, Final Report, Vol I of VI, Sections 1-15, OU-2, OU-3, OU-4	CH2M Hill, Inc.	486
Jan 00	RI, Final Report, Vol II of VI, Sections 16-36, OU-2, OU-3, OU-4	CH2M Hill, Inc.	487
Jan 00	RI, Final Report, Vol III of VI, Appendices A-M, OU-2, OU-3, OU-4	CH2M Hill, Inc.	488
Jan 00	RI, Final Report, Vol IV of VI, Appendices N-BB, OU-	CH2M Hill, Inc.	489

Administrative Record Site File Index

	2, OU-3, OU-4		
Jan 00	RI, Final Report, Vol V of VI, Appendix E, OU-2, OU-3, OU-4	CH2M Hill, Inc.	490
Jan 00	RI, Final Report, Vol VI of VI, Appendices V-X and AA, OU-2, OU-3, OU-4	CH2M Hill, Inc.	491 Part 1
Jan 00	RI, Final Report, Vol VI of VI, Appendices V-X and AA, OU-2, OU-3, OU-4	CH2M Hill, Inc.	491 Part 2
Jan 00	RA, Final Safety Submission Report, Chemical Warfare Materiel Investigation, Book 1, Vol I and II of III, OU-1	UXB International Inc.	574
Jan 00	RA, Final Safety Submission Report, Chemical Warfare Materiel Investigation, Book 2, Vol III of III, OU-1	UXB International Inc.	575
09 Jan 00	Newspaper Article, "Neighbors Worry Over Depot Drain-Off"	The Commercial Appeal	419
10 Jan 00	TDEC Letter to Depot Concerning Comments on Draft RI Report	English, Jordan Tennessee Department of Environment and Conservation	576
12 Jan 00	TDEC Letter to Depot Concerning Comments on Draft RA Safety Submission	English, Jordan Tennessee Department of Environment and Conservation	577
13 Jan 00	Newspaper Article, "Notice of RAB Meeting, 20 Jan 00"	The Commercial Appeal	407
15 Jan 00	Newspaper Article, "Notice of RAB Meeting, 20 Jan 00"	The Tri-State Defender	484
18 Jan 00	RAB Meeting Minutes, 21 Sep 00	The Memphis Depot	612
20 Jan 00	RAB Meeting Minutes, 20 Jan 00	The Memphis Depot	485
20 Jan 00	BCT Meeting Minutes, 15 Dec 99	The Memphis Depot	578
05 Feb 00	Newspaper Article, "Notice of RAB Meeting, 17 Feb 00"	The Tri-State Defender	408
10 Feb 00	Newspaper Article, "Notice of RAB Meeting, 17 Feb 00"	The Commercial Appeal	435
17 Feb 00	Newspaper Article, "Notice of RAB Meetings, Multiple Days"	The Commercial Appeal	417
17 Feb 00	RAB Meeting Minutes, 17 Feb 00	The Memphis Depot	492
17 Feb 00	BCT Meeting Minutes, 20 Jan 00	The Memphis Depot	580
24 Feb 00	Newspaper Article, "Defense Depot Pollution is Topic"	The Commercial Appeal	418
24 Feb 00	Press Release, Chemical Warfare Materiel Removal Project Set to Begin, Dunn Field	Defense Distribution Region Central	455
Mar 00	Fact Sheet, Maximum Credible Event	US Army Corps of Engineers - Huntsville District	385
Mar 00	Fact Sheet, EnviroNews	Frontline Corporate Communications, Inc. The Memphis Depot	456
Mar 00	Fact Sheet, Vapor Containment Structure	US Army Corps of Engineers - Huntsville District	458
Mar 00	Fact Sheet, Working Toward a Safer Tomorrow, Cleanup of Chemical Warfare Materiel	US Army Corps of Engineers - Huntsville District	460
11 Mar 00	Newspaper Article, "Notice of RAB Meeting, 16 Mar 00, and Community Information Session, 18 Mar 00"	The Tri-State Defender	409
13 Mar 00	Technical Memorandum, SAP for Evaluation of Biodegradation of VOCs in Groundwater	CH2M Hill, Inc.	493
15 Mar 00	Newspaper Article, "Depot Tent to Contain Toxic Cleanup"	The Commercial Appeal	416
15 Mar 00	Technical Memorandum, Amended SAP	CH2M Hill, Inc.	581

Administrative Record Site File Index

16 Mar 00	RAB Meeting Minutes, 16 Mar 00	The Memphis Depot	494
16 Mar 00	Technical Memorandum Report, Evaluation of Recreational Land Use Scenarios, OU-3	CH2M Hill, Inc.	582
17 Mar 00	BCT Meeting Minutes, 17 Mar 00	The Memphis Depot	495
17 Mar 00	BCT Meeting Minutes, 17 Feb 00	The Memphis Depot	583
22 Mar 00	Newspaper Article, "Chemical Warfare Removal Project to Begin at Dunn Field"	The Silver Star News	415
Apr 00	Action Memorandum, Removal of Chemical Warfare Materiel, Parcel 36	Parsons Engineering Science, Inc.	496
01 Apr 00	Newspaper Article, "Notice of RAB Meeting, 20 Apr 00, and Weekly Chemical Warfare Materiel Briefings"	The Tri-State Defender	410
01 Apr 00	Newspaper Article, "Why is Everyone Ignoring Depot Cancer Victims?"	The Tri-State Defender	414
04 Apr 00	Newspaper Article, "National Group Ends Race Protests"	The Commercial Appeal	413
06 Apr 00	Newspaper Article, "Chemical Warfare Materiel Weekly Briefings, 12, 19, and 26 Apr 00"	The Commercial Appeal	439
07 Apr 00	Press Release, Chemical Warfare Materiel Removal Set to Begin, Dunn Field	Defense Distribution Region Central	497
12 Apr 00	Newspaper Article, "Notice of RAB Meeting, 20 Apr 00"	The Commercial Appeal	440
12 Apr 00	Newspaper Article, "Notice of RAB Meeting, 20 Apr 00"	The Silver Star News	454
15 Apr 00	Newspaper Article, "Ford Continues HMO Fight; Plans Depot Meeting"	The Tri-State Defender	412
15 Apr 00	Newspaper Article, "Notice of RAB Meeting, 20 Apr 00"	The Tri-State Defender	443
16 Apr 00	Newspaper Article, "RAB Meeting, 16 Apr 98 Has Been Rescheduled for 21 May 98"	The Memphis Flyer	400
19 Apr 00	Newspaper Article, "Delay Urged in Depot Cleanup"	The Commercial Appeal	399
19 Apr 00	BCT Meeting Minutes, 19 Apr 00	The Memphis Depot	498
20 Apr 00	RAB Meeting Minutes, 20 Apr 00	The Memphis Depot	499
25 Apr 00	Depot Letter to Resident Concerning Emergency Notification Sheet	Phillips, Shawn, PE The Memphis Depot	461
26 Apr 00	Press Release, Public Notice of Upcoming Chemical Warfare Materiel Informational Meetings and RAB Meeting, 18 May 00	The Memphis Depot	500
May 00	Fact Sheet, EnviroNews, May/Jun 00	The Memphis Depot	501
May 00	RAB Members Letter to RAB Concerning RAB Meeting, 20 Apr 00	Truitt, Ulysses RAB Member	584
May 00	IRA, Quarterly Groundwater Report, Year Two, First Quarter	IT Corp.	775
16 May 00	BCT Meeting Minutes, 16 May 00	Richards, Dorothy The Memphis Depot	585
17 May 00	RAB Meeting Minutes, 17 May 00	The Memphis Depot	502
18 May 00	Press Release, Public Notice of RAB Meeting, 18 May 00	The Memphis Depot	462
18 May 00	BCT Meeting Minutes, 17-18 May 00	The Memphis Depot	503
23 May 00	Newspaper Article, "No Elevated Cancer Rate Found at Defense Depot"	The Commercial Appeal	504
Jun 00	EPA and TDEC Letter to Depot Concerning Comments on FS, Draft Soil Report, Main Installation	Morrison, James W, PG Ballard, Turpin Tennessee Department of	508
Jun 00	EPA and TDEC Letter to Depot Concerning Comments	Morrison, James W, PG	509

Administrative Record Site File Index

	on FS, Draft Groundwater Report, Main Installation	Ballard, Turpin Tennessee Department of	
07 Jun 00	Disposal Support Package for Land Transfer	Morris, P S The Memphis Depot	586
09 Jun 00	Press Release, Main Installation RI Results, Depot Reaches Milestone in Environmental Cleanup Program	Defense Distribution Region Central	436
15 Jun 00	RAB Meeting Minutes, 15 Jun 00	The Memphis Depot	505
30 Jun 00	Depot Letter to TDEC Concerning Soil and Groundwater FS, Main Installation (atch found at AR #510, 511)	Phillips, Shawn, PE The Memphis Depot	506
30 Jun 00	Depot Letter to EPA Concerning Soil and Groundwater FS, Main Installation (atch found at AR #510, 511)	Phillips, Shawn, PE The Memphis Depot	507
Jul 00	Fact Sheet, EnviroNews	Frontline Corporate Communications, Inc. The Memphis Depot	433
Jul 00	FS, Soils Report, Main Installation	CH2M Hill, Inc.	510
Jul 00	FS, Groundwater Report, Main Installation	CH2M Hill, Inc.	511
Jul 00	IRA, Quarterly Groundwater Report, Year Two, Second Quarter	IT Corp.	776
12 Jul 00	RAB Member Comments on RAB Meeting, 15 Jun 00	Garrison, John L, Jr RAB Member	587
12 Jul 00	RAB Member Resignation Letter	Garrison, John L, Jr RAB Member	588
20 Jul 00	RAB Meeting Presentation, RI, Baseline Risk Assessment, 20 Jul 00	The Memphis Depot	589
31 Jul 00	Press Release, Public Invited to Comment on Proposed Cleanup Alternatives, No 11-00	Noble, Jackie The Memphis Depot	590
Aug 00	Proposed Plan, Preferred Alternative for Cleanup of Soil and Groundwater Contamination, Main Installation	The Memphis Depot Caretaker	438
16 Aug 00	Health Consultation Report, Assessment of Cancer Incidence	Agency for Toxic Substances and Disease Registry	803
23 Aug 00	BCT Meeting Minutes, 23 Aug 00	The Memphis Depot	592
24 Aug 00	Public Comment Period Meeting Minutes, Proposed Plan, 24 Aug 00	The Memphis Depot	593
28 Aug 00	BCT Meeting Minutes, 19 Jul 00	The Memphis Depot	595
Sep 00	Fact Sheet, EnviroNews, Sep/Oct 00	The Memphis Depot	594
08 Sep 00	EPA Letter to Depot Concerning Approval of RI/FS and Proposed Plan	Ballard, Turpin EPA Region IV	596
12 Sep 00	TDEC Letter to Depot Concerning Proposed Plan	Morrison, James W, PG Tennessee Department of Environment and Conservation	597
13 Sep 00	TDEC Letter to Depot Concerning Comments on FS for Groundwater, FS for Soil	Morrison, James W, PG Tennessee Department of Environment and Conservation	598
15 Sep 00	Remediation Report, Removal Action	Jacobs-Sverdrup, Inc.	599
21 Sep 00	RAB Meeting Minutes, 20 Jul 00	The Memphis Depot	591
22 Sep 00	Press Release, Chemical Warfare Materiel Removal Action Continues at Dunn Field, No 16-00	Noble, Jackie The Memphis Depot	601
26 Sep 00	RAB Members Letter to Depot Concerning Request for Information for RAB Member Conflict of Interest Issue	Clay, Kevin E RAB Member	602
Oct 00	Final BRAC Cleanup Plan (BCP), Version 4	The Memphis Depot Caretaker	603
06 Oct 00	BCT Meeting Minutes, 24 Aug 00	The Memphis Depot	600
15 Oct 00	IRA, Quarterly Groundwater Quality Report, Year Two, Third Quarter	Jacobs-Sverdrup, Inc.	604

Administrative Record Site File Index

19 Oct 00	BCT Meeting Minutes, 21 Sep 00	The Memphis Depot	605
19 Oct 00	RAB Meeting Minutes, 19 Oct 00	The Memphis Depot	606
Nov 00	Fact Sheet, EnviroNews, Nov/Dec 00	The Memphis Depot	607
14 Nov 00	Public Health Assessment Report	Agency for Toxic Substances and Disease Registry	608
Dec 00	Field Sampling Investigation Report	EPA Region IV	804
22 Dec 00	BCT Meeting Minutes, 19 Oct 00	The Memphis Depot	609
Jan 01	Fact Sheet, EnviroNews, Jan/Feb 01	The Memphis Depot	610
18 Jan 01	BCT Meeting Minutes, 19 Dec 00	The Memphis Depot	611
29 Jan 01	IRA, Quarterly Groundwater Quality Report, Year Two, Fourth Quarter	Jacobs Engineering Group	613
29 Jan 01	IRA, Groundwater Annual O&M Summary Report, FY00	Jacobs Engineering Group	614
Feb 01	ROD, Main Installation	CH2M Hill, Inc.	615
Feb 01	Newspaper Article, "Record of Decision Approved for the Main Installation"	The Commercial Appeal	682
27 Feb 01	BCT Meeting Minutes, 18 Jan 01	The Memphis Depot	617
Mar 01	Fact Sheet, EnviroNews, Mar/Apr 01	The Memphis Depot	616
09 Mar 01	Transportation and Disposal Plan, Contaminated Waste, OU-1	UXB International, Inc.	618
11 Apr 01	SOW, RA, Lead Contamination Soil Removal	CH2M Hill, Inc.	619
16 Apr 01	BCT Meeting Minutes, 14 Mar 01	The Memphis Depot	620
May 01	Fact Sheet, EnviroNews, May/Jun 01	The Memphis Depot	621
05 May 01	USACE Letter to Depot Concerning Transportation and Disposal Plan Revisions	Spear, Harry L, Col US Army Corps of Engineers - Huntsville District	623
11 May 01	City Letter to CH2M Hill Concerning Approval of Request for Groundwater Disposal	Al Chokhachi, Akil City of Memphis	624
16 May 01	USACE Letter to Depot Concerning SI and Removal Action Notice of Completion for Chemical Warfare Materiel	Potter, John C US Army Corps of Engineers - Huntsville District	625
17 May 01	Press Release, Chemical Warfare Materiel Removal Action Completed, No 3-01	Noble, Jackie The Memphis Depot	622
Jun 01	IRA, Semi-Annual Groundwater Quality Report, OU-1	Jacobs Engineering Group	626
05 Jun 01	Technical Memorandum, Data Collection Plan for Long-Term Operational Areas	CH2M Hill, Inc.	627
08 Jun 01	Depot Letter to RAB Member Concerning Information Repository	Dobbs, Michael A The Memphis Depot	649
12 Jun 01	EPA Letter to Depot Concerning Approval of Pre-Design Data Collection	Ballard, Turpin EPA Region IV	651
13 Jun 01	EPA Letter to Depot Concerning FOST 2	Ballard, Turpin EPA Region IV	650
15 Jun 01	Technical Memorandum Report, Data Collection Plan for LTO Areas, Table 4	CH2M Hill, Inc.	628
10 Jul 01	EPA Letter to Depot Concerning Approval of Pre-Design Data Collection	Ballard, Turpin EPA Region IV	653
19 Jul 01	RAB Meeting Presentation, Groundwater Update, 19 Jul 01	CH2M Hill, Inc.	629
19 Jul 01	BCT Meeting Minutes, 17 May 01	The Memphis Depot	630
16 Aug 01	BCT Meeting Minutes, 19 Jul 01	The Memphis Depot	631
16 Aug 01	BCT Meeting Minutes, 16 Aug 01	The Memphis Depot	632
23 Aug 01	EPA Letter to Depot Concerning Main Installation ROD for AR Incorporation	Ballard, Turpin EPA Region IV	652
06 Sep 01	EPA Letter to Depot Concerning Signing of ROD	Johnston, Jon D	633

Administrative Record Site File Index

		EPA Region IV	
06 Sep 01	EPA Letter to Depot Concerning EPA Signing of ROD	Green, Richard D EPA Region IV	634
27 Sep 01	Disposal Support Package for Land Transfer	Young, Christopher J The Memphis Depot	635
Oct 01	Soil Vapor Extraction Treatability Study Work Plan	CH2M Hill, Inc.	636
Nov 01	Decontamination Report and Certification for Closure, Site 35	Jacobs Engineering Group	637
15 Nov 01	RAB Meeting Presentation, Groundwater Update, 15 Nov 01	CH2M Hill, Inc.	638
15 Nov 01	RAB Meeting Minutes, 19 Jul 01	CH2M Hill, Inc.	639
15 Nov 01	RAB Meeting Minutes, 16 Aug 01	CH2M Hill, Inc.	640
15 Nov 01	Memphis Depot, Dunn Field RI Overview	CH2M Hill, Inc.	683
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol I of XXVIII, Text, Appendices A-D	UBX International, Inc.	654 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol I of XXVIII, Text, Appendices A-D	UBX International, Inc.	654 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol II of XXVIII, Appendices E-L	UBX International, Inc.	655
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol III of XXVIII, Appendix M, Analytical Quality Control	UBX International, Inc.	656 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol III of XXVIII, Appendix M, Analytical Quality Control	UBX International, Inc.	656 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol III of XXVIII, Appendix M, Analytical Quality Control	UBX International, Inc.	656 Part 3
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol IV of XXVIII, Appendix M, Analytical Reports, COE130194, COE190257	UBX International, Inc.	657 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol IV of XXVIII, Appendix M, Analytical Reports, COE130194, COE190257	UBX International, Inc.	657 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol V of XXVIII, Appendix M, Analytical Reports, COE230195, COE240180	UBX International, Inc.	658 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol V of XXVIII, Appendix M, Analytical Reports, COE230195, COE240180	UBX International, Inc.	658 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol VI of XXVIII, Appendix M, Analytical Reports, COE260147, COE310132	UBX International, Inc.	659 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol VI of XXVIII, Appendix M, Analytical Reports, COE260147, COE310132	UBX International, Inc.	659 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol VII of XXVIII, Appendix M, Analytical Reports, COF020191, COF080328	UBX International, Inc.	660 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol VII of XXVIII, Appendix M, Analytical Reports, COF020191, COF080328	UBX International, Inc.	660 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol VIII of XXVIII, Appendix M,	UBX International, Inc.	661 Part 1

Administrative Record Site File Index

	Analytical Reports, COF140185, COF230254		
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol VIII of XXVIII, Appendix M, Analytical Reports, COF140185, COF230254	UBX International, Inc.	661 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol IX of XXVIII, Appendix M, Analytical Reports, COF260151, COF290193	UBX International, Inc.	662 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol IX of XXVIII, Appendix M, Analytical Reports, COF260151, COF290193	UBX International, Inc.	662 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol X of XXVIII, Appendix M, Analytical Report, COF300207	UBX International, Inc.	663 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol X of XXVIII, Appendix M, Analytical Report, COF300207	UBX International, Inc.	663 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XI of XXVIII, Appendix M, Analytical Reports, COG130203R1, COG200210	UBX International, Inc.	664 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XI of XXVIII, Appendix M, Analytical Reports, COG130203R1, COG200210	UBX International, Inc.	664 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XII of XXVIII, Appendix M, Analytical Report, COG220122	UBX International, Inc.	665
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XIII of XXVIII, Appendix M, Analytical Report, COG270302	UBX International, Inc.	666 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XIII of XXVIII, Appendix M, Analytical Report, COG270302	UBX International, Inc.	666 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XIV of XXVIII, Appendix M, Analytical Report, COH120157	UBX International, Inc.	667 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XIV of XXVIII, Appendix M, Analytical Report, COH120157	UBX International, Inc.	667 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XV of XXVIII, Appendix M, Analytical Report, COH150146	UBX International, Inc.	668 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XV of XXVIII, Appendix M, Analytical Report, COH150146	UBX International, Inc.	668 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XVI of XXVIII, Appendix M, Analytical Report, COH160154	UBX International, Inc.	669 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XVI of XXVIII, Appendix M, Analytical Report, COH160154	UBX International, Inc.	669 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XVII of XXVIII, Appendix M, Analytical Report, COH170113	UBX International, Inc.	670 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XVII of XXVIII, Appendix M, Analytical Report, COH170113	UBX International, Inc.	670 Part 2

Administrative Record Site File Index

Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XVIII of XXVIII, Appendix M, Analytical Reports, COH220139, COH260118	UBX International, Inc.	671 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XVIII of XXVIII, Appendix M, Analytical Reports, COH220139, COH260118	UBX International, Inc.	671 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XIX of XXVIII, Appendix M, Analytical Reports, COH310206, COI220208	UBX International, Inc.	672 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XIX of XXVIII, Appendix M, Analytical Reports, COH310206, COI220208	UBX International, Inc.	672 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XX of XXVIII, Appendix M, Analytical Reports, COI280138, COJ140161	UBX International, Inc.	673 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XX of XXVIII, Appendix M, Analytical Reports, COI280138, COJ140161	UBX International, Inc.	673 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XXI of XXVIII, Appendix M, Analytical Reports, COJ310200, COK150188	UBX International, Inc.	674 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XXI of XXVIII, Appendix M, Analytical Reports, COJ310200, COK150188	UBX International, Inc.	674 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XXII of XXVIII, Appendix M, Analytical Reports, COK220253, C1B090228	UBX International, Inc.	675 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XXII of XXVIII, Appendix M, Analytical Reports, COK220253, C1B090228	UBX International, Inc.	675 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XXIII of XXVIII, Appendix M, Analytical Report, C1B220250	UBX International, Inc.	676
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XXIV of XXVIII, Appendix M, Analytical Report, C1B230148	UBX International, Inc.	677 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XXIV of XXVIII, Appendix M, Analytical Report, C1B230148	UBX International, Inc.	677 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XXV of XXVIII, Appendix M, Analytical Report, C1C150304	UBX International, Inc.	678 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XXV of XXVIII, Appendix M, Analytical Report, C1C150304	UBX International, Inc.	678 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XXVI of XXVIII, Appendix M, Analytical Report, C1C210184	UBX International, Inc.	679 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XXVI of XXVIII, Appendix M, Analytical Report, C1C210184	UBX International, Inc.	679 Part 2
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XXVII of XXVIII, Appendix M, Analytical Report, C1C220173	UBX International, Inc.	680 Part 1
Dec 01	RA, Final Report Chemical Warfare Materiel	UBX International, Inc.	680 Part 2

Administrative Record Site File Index

	Investigation, Vol XXVII of XXVIII, Appendix M, Analytical Report, C1C220173		
Dec 01	RA, Final Report Chemical Warfare Materiel Investigation, Vol XXVIII of XXVIII, Appendices N-Q	UBX International, Inc.	681
20 Dec 01	BCT Meeting Minutes, 15 Nov 01	The Memphis Depot	641
Feb 02	IRA, Groundwater Annual O&M Summary Report, FY01	Jacobs Federal Programs	642
Feb 02	Final BRAC Cleanup Plan (BCP), Version 5	US Army Corps of Engineers - Huntsville District	648
Feb 02	IRA, Semi-Annual Groundwater Quality Report, Year Three, Second Half	IT Corp.	777
04 Feb 02	EPA Letter to Depot Concerning Schedule Update for Remedial Activities	Ballard, Turpin EPA Region IV	643
13 Feb 02	Newspaper Article, "Notice of RAB Meeting, 21 Feb 02"	The Commercial Appeal	685
15 Feb 02	Remediation Report, Site 83	Jacobs Federal Programs	644
21 Feb 02	BCT Meeting Minutes, 20 Dec 01	The Memphis Depot	645
21 Feb 02	RAB Meeting Minutes, 15 Nov 01	CH2M Hill, Inc.	646
21 Feb 02	BCT Meeting Minutes, 21 Feb 02	The Memphis Depot	647
21 Feb 02	RAB Meeting Minutes, 21 Feb 02	The Memphis Depot	686
21 Feb 02	Memphis Depot Environmental Program Update	The Memphis Depot	687
21 Feb 02	Memphis Depot, Dunn Field RI Summary of Findings	CH2M Hill, Inc.	688
Apr 02	Fact Sheet, EnviroNews	The Memphis Depot	684
Apr 02	RD, Work Plan, Rev 1	CH2M Hill, Inc.	742
10 Apr 02	Newspaper Article, "Notice of RAB Meeting, 18 Apr 02"	The Commercial Appeal	689
17 Apr 02	BCT Meeting Minutes, 17-18 Apr 02	The Memphis Depot	690
18 Apr 02	RAB Meeting Minutes, 18 Apr 02	The Memphis Depot	691
29 Apr 02	Depot Letter to SCHD Concerning Information on Injection Wells Main Installation	DeBack, John The Memphis Depot	692
31 May 02	Depot Letter to MDPW Concerning Dunn Field Recovery Well System	Hunt, Clyde The Memphis Depot	694
Jun 02	IRA, Semi-Annual Groundwater Quality Report, Year Four, First Half	Jacobs Federal Programs	695 Part 1
Jun 02	IRA, Semi-Annual Groundwater Report, Year Four, First Half	Jacobs Federal Programs	695 Part 2
04 Jun 02	City of Memphis Letter to Depot Concerning Revised Industrial Wastewater Discharge Agreement Permit	Al-Chokhachi, Akil City of Memphis	696
15 Jun 02	Newspaper Article, "Notice of RAB Meeting, 20 Jun 02"	Tri-State Defender	697
20 Jun 02	BCT Meeting Minutes, 20 Jun 02	The Memphis Depot	698
20 Jun 02	RAB Meeting Minutes, 20 Jun 02	The Memphis Depot	699
20 Jun 02	Memphis Depot, Dunn Field Pump and Discharge System 5-Year Review	CH2M Hill, Inc.	700
Jul 02	Fact Sheet, EnviroNews	The Memphis Depot	693
Jul 02	EE/CA, Rev 1, Dunn Field, Site 60	CH2M Hill, Inc.	701
Jul 02	RI, Report, Vol I of III, Rev 2	CH2M Hill, Inc.	702
Jul 02	RI, Report, Vol II of III, Appendices A-1-B, Rev 2	CH2M Hill, Inc.	703 Part 1
Jul 02	RI, Report, Vol II of III, Appendices A-1-B, Rev 2	CH2M Hill, Inc.	703 Part 2
Jul 02	RI, Report, Vol III of III, Appendices C-1-K, Rev 2	CH2M Hill, Inc.	704 Part 1
Jul 02	RI, Report, Vol III of III, Appendices C-1-K, Rev 2	CH2M Hill, Inc.	704 Part 2
Jul 02	RD, Work Plan, Rev 2	CH2M Hill, Inc.	705
27 Jul 02	Newspaper Article, "Notice of Public Comment Period,	Tri-State Defender	706

Administrative Record Site File Index

	25 Jul-23 Aug 02 and Public Meeting, 15 Aug 02"		
13 Aug 02	EPA Letter to Depot Concerning Submittal of Revised Site Schedule and Overdue FS	Ballard, Turpin EPA Region IV	707
15 Aug 02	BCT Meeting Minutes, 15 Aug 02	The Memphis Depot	708
23 Aug 02	Depot Letter to EPA Concerning Revised Schedule	DeBack, John The Memphis Depot	709
Sep 02	BRAC Cleanup Plan (BCP), Version 6, Rev 1	CH2M Hill, Inc.	710
03 Sep 02	EPA Letter to Depot Concerning DLA Revised Schedule	Ballard, Turpin EPA Region IV	711
24 Sep 02	BCT Meeting Minutes, 24 Sep 02	The Memphis Depot	712
Oct 02	Action Memorandum, Rev 1, Site 60	CH2M Hill, Inc.	713
12 Oct 02	Newspaper Article, "RAB Meeting, 17 Oct 02"	Tri-State Defender	714
17 Oct 02	RAB Meeting Minutes, 17 Oct 02	The Memphis Depot	715
17 Oct 02	Memphis Depot Environmental Program Progress Report, 02	The Memphis Depot	716
14 Nov 02	Technical Memorandum Report, Analysis of Groundwater Data Collected During Main Installation Wide Baseline Groundwater Sampling Event	CH2M Hill, Inc.	744
21 Nov 02	BCT Meeting Minutes, 21 Nov 02	The Memphis Depot	717
25 Nov 02	Pistol Range Site Remediation Work Plan Addendum, Site 60	Smith, Kraig Jacobs Engineering	718
Dec 02	IRA, Semi-Annual Groundwater Quality Report, Year Four, Second Half	Jacobs Federal Programs	719 Part 1
Dec 02	IRA, Semi-Annual Groundwater Quality Report, Year Four, Second Half	Jacobs Federal Programs	719 Part 2
Jan 03	Five-Year Review Report	CH2M Hill, Inc.	720
Jan 03	IRA, Annual Groundwater O&M Summary Report	Jacobs Federal Programs	721
Jan 03	Fact Sheet, The Depot, Soil Removal Begins at Former Pistol Range on Dunn Field	The Memphis Depot	722
13 Jan 03	Fact Sheet, News Release, Soil Removal Begins at Former Pistol Range on Dunn Field	Defense Logistics Agency	723
16 Jan 03	BCT Meeting Minutes, 16 Jan 03	The Memphis Depot	724
22 Jan 03	EPA Letter to Depot Concerning EPA Concurrence on Five-Year Review Report for IRA, Dunn Field	Smith, Winston A EPA Region IV	725
Feb 03	FS, Report, Rev 1, Dunn Field	CH2M Hill, Inc.	579
04 Feb 03	EPA Letter to Depot Concerning Proposed Category Changes for Environmental Condition Property	Ballard, Turpin EPA Region IV	745
12 Feb 03	Newspaper Article, "Notice of RAB Meeting, 20 Feb 03"	The Commercial Appeal	726
15 Feb 03	Newspaper Article, "Notice of RAB Meeting, 20 Feb 03"	Tri-State Defender	727
20 Feb 03	RAB Meeting Minutes, 20 Feb 03	The Memphis Depot	805
Mar 03	Fact Sheet, EnviroNews	The Memphis Depot	728
25 Mar 03	BCT Meeting Minutes, 25-26 Mar 03	The Memphis Depot	746
Apr 03	Remediation Report, Removal Action, Site 60	Jacobs Federal Programs	729
May 03	Proposed Plan, Dunn Field	The Memphis Depot	730
07 May 03	Newspaper Article, "Notice of Public Comment Period and Public Meeting, The Memphis Depot Proposed Cleanup Plan for Dunn Field"	The Commercial Appeal	731
08 May 03	RAB Member Letter to Depot Concerning Kids and Chemical-Facts of Law	Brayon, Eugene H RAB Member	732
12 May 03	DHHS Letter to Depot Concerning Health Consultation	Howie, Max M Department of Health and Human Services	733

Administrative Record Site File Index

14 May 03	BCT Meeting Minutes, 14-15 May 03	The Memphis Depot	734
15 May 03	RAB Meeting Minutes, 15 May 03	The Memphis Depot	735
20 May 03	Depot Letter to EPA Concerning Former Pistol Range Verification of Demobilization, Site 60, Site 85	DeBack, John The Memphis Depot	736
Jun 03	Fact Sheet, The Depot, Groundwater Sampling Scheduled for the Depot Community this Summer	The Memphis Depot	737
Jun 03	IRA, Semi-Annual Groundwater Quality Report, Year Five, First Half	Jacobs Federal Programs	747
Jun 03	Fact Sheet, The Depot, Pre-Design Investigation of Disposal Sites Begins at Dunn Field	The Memphis Depot	748
11 Jun 03	DHHS Letter to Depot Concerning Childhood Leukemia	Crellin, John R Department of Health and Human Services	738
13 Jun 03	EPA Letter to Depot Concerning Kids and Chemical-Facts of Law	Ballard, Turpin EPA Region IV	739
18 Jun 03	Newspaper Article, "Notice of Extension of Public Comment Period, The Memphis Depot Proposed Cleanup Plan for Dunn Field"	The Commercial Appeal	740
19 Jun 03	Newspaper Article, "Notice of RAB Meeting, 19 Jun 03"	Tri-State Defender	741
19 Jun 03	RAB Meeting Minutes, 19 Jun 03	The Memphis Depot	749
19 Jun 03	BCT Meeting Minutes, 19 Jun 03	The Memphis Depot	750
11 Jul 03	Memphis and Shelby County Health Department Letter to Depot Concerning Public Comment on Dunn Field Proposed Clean-up Plan	Madlock, Yvonne Memphis and Shelby County Health Department	751
17 Jul 03	TDEC Letter to Depot Concerning Hazardous Waste Inspection	Nicholson, Herb Tennessee Department of Environment and Conservation	752
Aug 03	PCP Dip Vat Soil Investigation Work Plan, Rev 1	CH2M Hill, Inc.	753
Aug 03	Disposal Sites Pre-Design Investigation Data Collection Plan, Rev 2, Dunn Field	CH2M Hill, Inc.	754
11 Aug 03	TDEC Letter to Depot Concerning Status of NOV	Bullington, Clayton A, PG Tennessee Department of Environment and Conservation	755
12 Aug 03	Technical Memorandum Report, Installation of Up-Gradient Monitoring Wells, Dunn Field	Jacobs Federal Programs	743
20 Aug 03	BCT Meeting Minutes, 20 Aug 03	The Memphis Depot	756
25 Aug 03	USACE Letter to Depot Concerning Statement of Clearance for Dunn Field	Rivenburgh, John D US Army Corps of Engineers - Huntsville District	757
18 Sep 03	BCT Meeting Minutes, 18 Sep 03	The Memphis Depot	758
Oct 03	Fact Sheet, EnviroNews	The Memphis Depot	759
06 Oct 03	TDEC Letter to Depot Concerning Requirement to Submit Corrective Action Permit Application	Bullington, Clayton A, PG Tennessee Department of Environment and Conservation	760
08 Oct 03	Newspaper Article, "Notice of RAB Meeting, 16 Oct 03"	The Commercial Appeal	761
16 Oct 03	RAB Meeting Minutes, 16 Oct 03	The Memphis Depot	550
16 Oct 03	BCT Meeting Minutes, 16 Oct 03	The Memphis Depot	762
22 Oct 03	EPA E-mail to Depot Concerning Request for Extension	Ballard, Turpin EPA Region IV	763
Dec 03	BRAC Cleanup Plan (BCP), Version 7, Rev 2	CH2M Hill, Inc.	764
02 Dec 03	BCT Meeting Minutes, 02 Dec 03	The Memphis Depot	765

08 Dec 03	EPA Letter to Depot Concerning Extension of EPA Review Period for the Intermediate RD Submittal	Ballard, Turpin EPA Region IV	766
Jan 04	IRA, Annual Groundwater O&M Summary Report, 03	Jacobs Federal Programs	767
Jan 04	IRA, Semi-Annual Groundwater Quality Report, Year Five, Second Half	Jacobs Federal Programs	768
06 Jan 04	Depot Letter to EPA Concerning Notification of Field Activities	DeBack, John The Memphis Depot	769
15 Jan 04	BCT Meeting Minutes, 15 Jan 04	The Memphis Depot	778
21 Jan 04	Technical Memorandum Report, Results of Soil Investigation at Former PCP Dip Vat and Underground PCP Storage Tank Sites, Main Installation	CH2M Hill, Inc.	551
27 Jan 04	Depot Letter to EPA Concerning Adjustment of Delivery Dates for ROD and MI RD of FFA	DeBack, John The Memphis Depot	770
Mar 04	ROD, Final, Dunn Field	CH2M Hill, Inc.	779
09 Mar 04	TDEC Letter to Depot Concerning ARARs Requirements for Groundwater Contamination	Haynes, Jim, PE Tennessee Department of Environment and Conservation	780
12 Mar 04	Depot Letter to EPA Concerning Notification of Change of BRAC Project Manager	Dobbs, Michael A The Memphis Depot	781
18 Mar 04	BCT Meeting Minutes, 18 Mar 04	The Memphis Depot	782
29 Mar 04	Depot Letter to TDEC Concerning Corrective Action Permit Application	Dobbs, Michael A The Memphis Depot	783
Apr 04	RD, Final Report, Disposal Sites at Dunn Field, Rev 1	CH2M Hill, Inc.	784
01 Apr 04	Depot Letter to EPA and TDEC Concerning Request for Schedule Extension for PRB Intermediate Design, Dunn Field	Dobbs, Michael A The Memphis Depot	785
20 Apr 04	TDEC Letter to Depot Concerning Soil Investigation Report, PCP DipVat and UST PCP Sites	Morrison, James W, PG Tennessee Department of Environment and Conservation	786
21 Apr 04	Depot Letter to EPA and TDEC Concerning Request for Schedule Extension for RD, Final Report, Main Installation	Dobbs, Michael A The Memphis Depot	787
26 Apr 04	Depot Letter to EPA and TDEC Concerning Draft Revised Master Schedule, Main Installation	Dobbs, Michael A The Memphis Depot	788
03 May 04	EPA Letter to Depot Concerning Approval of Schedule Extension for RD, Final Report, Main Installation	Ballard, Turpin EPA Region IV	789
11 May 04	EPA Letter to Depot Concerning Comments on Proposed Schedule Revision	Ballard, Turpin EPA Region IV	790
20 May 04	BCT Meeting Minutes, 20 May 04	The Memphis Depot	791
15 Jun 04	BCT Teleconference Minutes, 15 Jun 04	The Memphis Depot	792
24 Jun 04	TDEC Letter to Depot Concerning Corrective Action Permit Application	Bullington, Clayton A, PG Tennessee Department of Environment and Conservation	793
Jul 04	RD, Final Report, Main Installation, Rev 1	CH2M Hill, Inc.	794 Part 1
Jul 04	RD, Final Report, Main Installation, Rev 1	CH2M Hill, Inc.	794 Part 2
07 Jul 04	EPA Letter to Depot Concerning Concurrence of Draft FOST No. 3	Ballard, Turpin EPA Region IV	795
12 Jul 04	Depot Letter to EPA and TDEC Concerning Draft Revised Master Schedule, Main Installation and Dunn Field	Dobbs, Michael A The Memphis Depot	796
12 Jul 04	Depot Letter to TDEC Concerning Requested Additional Information for Corrective Action Permit Application	Dobbs, Michael A The Memphis Depot	797
20 Jul 04	BCT Meeting Minutes, 20 Jul 04	The Memphis Depot	798

Administrative Record Site File Index

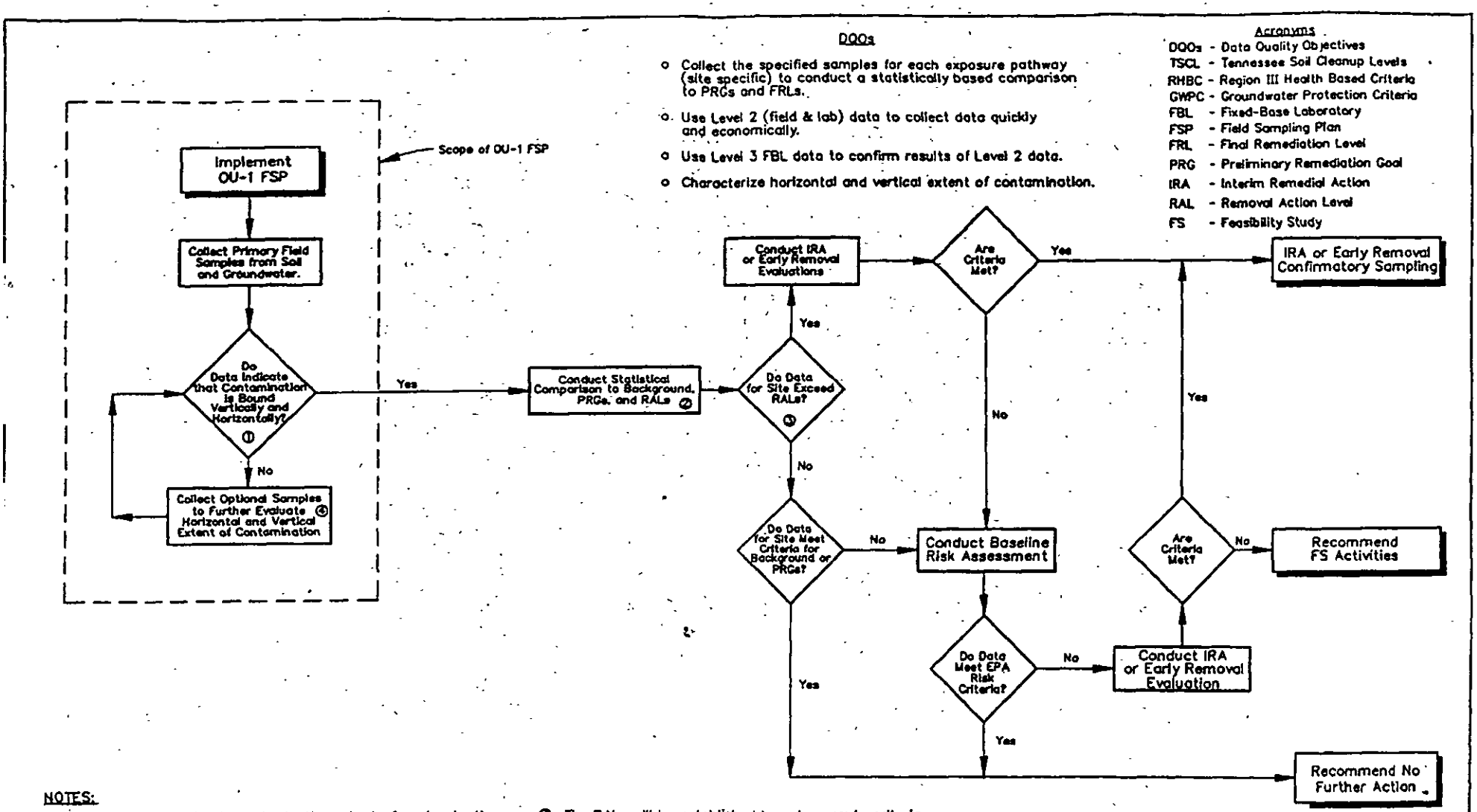
08 Aug 04	EPA Letter to Depot Concerning Approval of Revised Schedule for Primary Documents for DDMT	Ballard, Turpin EPA Region IV	799
09 Aug 04	TDEC Letter to Depot Concerning Completeness Determination for Corrective Action Permit Application	Apple, Mike Tennessee Department of Environment and Conservation	806
10 Aug 04	EPA Letter to Depot Concerning Approval of RD Final Report, Main Installation	Ballard, Turpin EPA Region IV	800
26 Aug 04	BCT Meeting Minutes, 25-26 Aug 04	The Memphis Depot	801
21 Sep 04	BCT Meeting Minutes, 20-21 Sep 04	The Memphis Depot	807
24 Sep 04	Depot Letter to TDEC Concerning Withdraw of Submitted Corrective Action Permit Application	Dobbs, Michael A The Memphis Depot	802
14 Oct 04	Technical Memorandum Report, Early Implementation of Selected Remedy Component to Address Groundwater Contamination West of Dunn Field, Rev 1	CH2M Hill, Inc.	808
15 Oct 04	RA, Work Plan, Disposal Sites at Dunn Field, Rev 1	MACTEC Engineering and Consulting, Inc.	809
20 Oct 04	BCT Meeting Minutes, 20 Oct 04	The Memphis Depot	810
21 Oct 04	MOA, Technical Memorandum Report, Early Implementation of Selected Remedy Component to Address Groundwater Contamination West of Dunn Field, Rev 1 (atch found at AR #808)	Dobbs, Michael, A Ballard, Turpin Morrison, James W, PG	811
Nov 04	Work Plan, Early Implementation of Selected Remedy, Dunn Field, Rev 1	MACTEC Engineering and Consulting, Inc.	812
12 Nov 04	EPA Letter to Depot Concerning Comments on Work Plan, Early Implementation of Selected Remedy, Dunn Field, Rev 1	Ballard, Turpin EPA Region IV	813
15 Nov 04	EPA Letter to TDEC Concerning Issues for Final RCRA Permit	Johnston, Jon D EPA Region IV	814
16 Nov 04	Depot Letter to EPA and TDEC Concerning Mobilization for Early Implementation of Selected Remedy, Dunn Field	Dobbs, Michael A The Memphis Depot	815
22 Nov 04	Depot Letter to EPA and TDEC Concerning Delay of Notice of Land Use Restrictions Report, Main Installation	Dobbs, Michael A The Memphis Depot	816
22 Nov 04	Depot Letter to EPA and TDEC Concerning Extension Request for BCP, Version 8	Dobbs, Michael A The Memphis Depot	817
Dec 04	Community Involvement Plan	MACTEC Engineering and Consulting, Inc.	818
19 Jan 05	TDEC Letter to Depot Concerning Denial to Reissue Hazardous Waste Corrective Action Permit	Burroughs, Charles Tennessee Department of Environment and Conservation	819
20 Jan 05	BCT Meeting Minutes, 20 Jan 05	The Memphis Depot	820
21 Jan 05	Notice of Land Use Restrictions Report, Main Installation	US Army Corps of Engineers - Mobile District	821
11 Feb 05	EPA Letter to Depot Concerning BCP, Version 8	Ballard, Turpin EPA Region IV	822
24 Feb 05	BCT Meeting Minutes, 24 Feb 05	The Memphis Depot	823
Mar 05	BRAC Cleanup Plan (BCP), Version 8, Rev 1	MACTEC Engineering and Consulting, Inc.	824
Mar 05	Finding of Suitability to Transfer (FOST) 4, Dunn Field	MACTEC Engineering and Consulting, Inc.	825
14 Mar 05	MACTEC Letter to EPA and TDEC Concerning Mobilization for RA at Disposal Sites, Dunn Field	Holmes, Thomas C MACTEC Engineering and Consulting, Inc.	826

Administrative Record Site File Index

24 Mar 05	BCT Meeting Minutes, 24 Mar 05	The Memphis Depot	827
19 Apr 05	EPA Letter to Depot Concerning Concurrence with FOST 4, Dunn Field	Ballard, Turpin EPA Region IV	828
20 Apr 05	BCT Meeting Minutes, 20 Apr 05	The Memphis Depot	829
19 May 05	BCT Meeting Minutes, 19 May 05	The Memphis Depot	830
31 Jul 05	Administrative Record File Index	LABAT-ANDERSON INCORPORATED	01
UNK	SOW, Ordnance, Explosive Waste, and Chemical Warfare Materiel Sub-Surface Clearance	US Army Corps of Engineers - Huntsville District	369
Jun 05	IRA, Annual Operations Report 04, Dunn Field Groundwater, Year Six, Revision 1	MACTEC Engineering and Consulting, Inc.	833
15 Jun 05	BCT Meeting Minutes, 15 June 05	The Memphis Depot	834
24 Jun 05	DDC-DES-EE Letter to EPA and TDEC Concerning Notification of Delay in Dunn Field Source Areas RD	Dobbs, Michael A The Memphis Depot	835
Jul 05	RA, Final Work Plan, Main Installation, Rev. 1	MACTEC Engineering and Consulting, Inc.	836
21 Jul 05	BCT Meeting Minutes, 21 July 05	The Memphis Depot	837
27 Jul 05	DDC-DES-EE Letter to DA BRAC Office, EPA and TDEC Concerning Main Installation Annual Site Inspection	Dobbs, Michael A The Memphis Depot	838
04 Aug 05	TDEC Letter to DDC-DES-E Concerning Early Implementation of Selected Remedy, IRA Completion Report, Site 79-736	Spann, Evan E. Tennessee Department of Environment and Conservation	839
08 Aug 05	TDEC Letter to DES-DDC-E Concerning Notification of Change of TDEC Project Management	Morrison, James W, PG Tennessee Department of Environment and Conservation	840
17 Aug 05	TDEC Letter to DES-DDC-E Concerning Comments on Dunn Field RD Investigation Work Plan	Spann, Evan W. Tennessee Department of Environment and Conservation	841
Sep 05	Early Implementation of Selected Remedy Interim Remedial Action Completion Report, Rev. 1	MACTEC Engineering and Consulting, Inc.	842
Sep 05	Final Dunn Field RD Investigation Work Plan	CH2M Hill, Inc.	843
12 Sep 05	EPA Letter to DES-DDC-E Concerning Approval of RA Work Plan for Main Installation	Ballard, Turpin EPA Region IV	844
15 Sep 05	BCT Meeting Minutes, 15 Sep 05	The Memphis Depot	845
22 Sep 05	EPA Letter to DES-DDC-E Concerning Approval on IRA Completion Report for Phase 1 of the Selected Remedy, Dunn Field	LaPierre, Kenneth R. EPA Region IV	846
20 Oct 05	BCT Meeting Minutes, 20 Oct 05	The Memphis Depot	847
15 Nov 05	BCT Meeting Minutes, 15 Nov 05	The Memphis Depot	848
15 Dec 05	BCT Meeting Minutes, 15 Dec 05	The Memphis Depot	849
19 Jan 06	BCT Meeting Minutes, 19 Jan 06	The Memphis Depot	850
Feb 06	Annual Long-Term Monitoring Report, Main Installation	MACTEC Engineering and Consulting, Inc.	851
16 Feb 06	BRAC Cleanup Team meeting minutes	The Memphis Depot	Unscanned
17 Feb 06	Annual Report – 2005, Dunn Field Groundwater Interim Remedial Action – Year Seven, Rev. 0	MACTEC Engineering and Consulting, Inc.	Unscanned
7 Apr 06	DES-DDC-EE correspondence to EPA/TDEC Concerning Request for Extension for the Zero Valent Iron (ZVI) Permeable Reactive Barrier (PRB) Implementation Study, Dunn Field	Dobbs, Michael A The Memphis Depot	Unscanned
Apr 06	Final Zero Valent Iron Permeable Reactive Barrier Implementation Study Work Plan, Dunn Field	CH2M Hill, Inc.	Unscanned
20 Apr 06	BRAC Cleanup Team meeting minutes	The Memphis Depot	Unscanned

Administrative Record Site File Index

26 Apr 06	TDEC correspondence to DES-DDC-E Concerning BRAC Cleanup Plan, Version 9	Spann, Evan W. Tennessee Department of Environment and Conservation	Unscanned
1 May 06	TDEC correspondence to DES-DDC-E Concerning Annual Operations Report – 2005, Dunn Field Groundwater Interim Remedial Action – Year Seven	Spann, Evan W. Tennessee Department of Environment and Conservation	Unscanned
2 May 06	DES-DDC-EE correspondence to EPA/TDEC Concerning Mobilization for Main Installation Remedial Action	Dobbs, Michael A The Memphis Depot	Unscanned
3 May 06	DES-DDC-EE correspondence to EPA/TDEC Concerning Request for Extension for Submittal of the Remedial Design Investigation (RDI) Technical Memorandum (TM), Dunn Field	Dobbs, Michael A The Memphis Depot	Unscanned
11 May 06	EPA correspondence to DES-DDC-EE Concerning BRAC Cleanup Plan, Version 9/Site Management Plan and Annual Schedule Update for the Defense Depot, Memphis, Tennessee (DDMT)	Ballard, Turpin EPA Region IV	Unscanned
5 Jun 06	MACTEC email correspondence to DDC/EPA/TDEC, Re: Annual Operations Report – 2005, Dunn Field Groundwater Interim Remedial Action – Year Seven	Price, David MACTEC Engineering and Consulting, Inc.	Unscanned
27 Jun 2006	BRAC Cleanup Team meeting minutes	The Memphis Depot	Unscanned
Jul 06	BRAC Cleanup Plan Version 9, Rev. 1	MACTEC Engineering and Consulting, Inc.	Unscanned
25 Jul 06	Main Installation Annual Site Inspection	MACTEC Engineering and Consulting, Inc.	Unscanned
Jul 06	Disposal Sites Remedial Action Completion Report, Rev. 1	MACTEC Engineering and Consulting, Inc.	Unscanned
25 Aug 06	EPA correspondence to DDC-DES-EE, Re: Approval of Remedial Action Completion Report (RACR) for the Disposal Sites Excavation Phase of the Selected Remedy at Dunn Field	LaPierre, Kenneth R. EPA Region IV	Unscanned
27 Aug 06	BRAC Cleanup Team teleconference meeting minutes	The Memphis Depot	Unscanned
28 Sep 06	BRAC Cleanup Team meeting minutes	The Memphis Depot	Unscanned



NOTES:

① The bounds of contamination refer to the extent of contamination equal to or less than background and/or PRGs.

② Background data set will be established by using criteria identified in the RI/FS WP. Comparison criteria are developed using TSCL, RHBC and GWPC, and other applicable regulatory criteria. These criteria are used as PRGs based on a conservative approach from the standpoint of risk (exposure and assessment criteria). Section 3 of this FSP discusses the comparison criteria. Statistical comparison will be limited by the amount of data collected during the field investigation.

③ The RALs will be established based on acute criteria of risks and economic factors.

④ Optional work will not be initiated without prior approval of CEHND. Optional samples will be collected only after a field charge request form is signed by CEHND.

FIGURE 3-1
OU-1 LOGIC DIAGRAM
Defense Depot Memphis, Tennessee

WP

OPR	ACTION	INFO	INITIALS
D		W	
			RF

DEFENSE LOGISTICS AGENCY
HEADQUARTERS
8725 JOHN J. KINGMAN ROAD, SUITE 2533
FORT BELVOIR, VIRGINIA 22060-6221

NOV 17 1997

CAAE

IN REPLY REFER TO

MEMORANDUM FOR COMMANDERS, INVENTORY CONTROL POINTS
COMMANDERS, SERVICE CENTERS
COMMANDER, DEFENSE DISTRIBUTION CENTER
COMMANDERS, DEFENSE CONTRACT MANAGEMENT DISTRICTS
COMMANDER, DLA EUROPE
COMMANDER, DLA PACIFIC
ADMINISTRATOR, DEFENSE AUTOMATED PRINTING AND SUPPORT CENTER
DLA EXECUTIVE TEAM

SUBJECT: DLA Compliance with Executive Order 12898 on Environmental Justice

Presidential Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations, directs Federal agencies to consider "disproportionate impacts on minority and low-income groups." My policy is to act in an open and fair manner when considering an action that may impact human health and the environment. While it does not create any new rights for specific individuals or groups, I expect DLA managers and commanders to review proposed actions to identify disproportionately high adverse impacts on minority and low-income populations. If you determine these will occur, mitigating measures may be necessary to reduce the impacts of those actions.

DLAR 1000.22, Environmental Considerations of DLA Actions in the United States, contains guidance on assessing the impacts of your actions on human health and the environment. Environmental Assessments (EA) and Environmental Impact Statements (EIS) are the documents we generate to identify adverse impacts to human health and the environment and appropriate mitigating measures. Where practical and appropriate, you must gather data to assess impacts on minority and low-income populations. This will allow you to evaluate that information, along with all other considerations, when deciding on a course of action. I expect you to apply your individual judgment, with the assistance of environmental and legal professionals, to reach a case-specific solution.

I also want you to ensure there is sufficient dialog with potentially impacted groups during the scoping process (outlined in DLAR 1000.22) when preparing environmental documents. For actions such as environmental restoration where preparation of an environmental document is not required, other forums may be used such as Restoration Advisory Boards, Technical Review Committees, public notices in local papers, meetings with PTA and church groups, community leaders, etc. This will assure that you have the input you need to make an informed decision.

Please make sure we execute our environmental and public health responsibilities in a manner which is fair, open, unbiased, and fully consistent with the President's direction. Contact Mr. Dennis Lillo, Director, Environmental Quality, CAAE, at DSN 427-6241, or Col Frank Esposito, Associate General Counsel for Environment, GC, at DSN 427-6079 for any additional information regarding the DLA environmental justice policy.

Henry T. Glisson

HENRY T. GLISSON
Lieutenant General, USA
Director

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

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

March 13, 1997

4WD-FFB

Certified Mail
Return Receipt Requested

Colonel Michael J. Kennedy, Commander
Defense Distribution Depot Memphis
2163 Airways Boulevard
Memphis, Tennessee 38114-5210

SUBJ: Concurrence on CERFA Uncontaminated Parcels
Defense Distribution Depot Memphis, Tennessee (DDMT)

Dear Col. Kennedy:

Under CERFA (Public Law 102-426), federal agencies are required to expeditiously identify real property that can be immediately reused and redeveloped. Satisfying this objective requires the identification of real property where no hazardous substances or petroleum products were released or disposed. At National Priorities List sites such as DDMT, the U.S. Environmental Protection Agency (EPA) must concur with such determinations.

EPA Region IV has reviewed the determination of uncontaminated parcels at DDMT as detailed in your letter of December 5, 1996 and the Environmental Baseline Survey (final revisions received by EPA December 20, 1996). EPA concurs that the following (BRAC) parcels are uncontaminated (qualified or unqualified) and ready for immediate reuse: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, 3.3, 3.4, 4.1, 4.2, 4.3, 13.1, 13.2, 13.3, 14.1, 15.1, 17.1, 23.1, 23.2, 23.3, 23.4, 23.5, 29.1, 33.1, 33.2, 33.3, 33.4, 33.5, and 34.1.

EPA does **not** concur with the determination that Parcel 3.2 (Building 195) is uncontaminated because of the evidence, at that location, of groundwater contamination at levels above background and ARARs.

If you have any queations please contact me at 404.562.8552.

Sincerely,

Dann Spariosu

Dann Spariosu, Ph.D
Remedial Project Manager

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

October 20, 1998

4WD-FFB

Mr. Shawn Phillips
BRAC Environmental Coordinator
Defense Distribution Center Memphis
2163 Airways Blvd.
Memphis, TN 38114 - 5210

SUBJECT: Concurrence with CERFA Category 1 Properties.

Dear Mr. Phillips:

The United States Environmental Protection Agency (USEPA), Region 4, has reviewed the CERFA Letter Report from the Defense Depot Memphis Tennessee (DDMT) dated July 28, 1998. Based on the information presented in Table 2a, and at your request, the USEPA hereby concurs with the designations as proposed.

If you have any questions, please call me at 404/562-8553.

Sincerely yours,

Wm. Turpin Ballard, CHMM
Remedial Project Manager

cc: file

File:
D.C. 660.420

883 478

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

April 16, 1999

Docket No. 030-33261
Control No. 125947

License No. 37-30062-01

Phyllis Campbell
Deputy Commander
Defense Logistics Agency
Defense Distribution Center
2001 Mission Drive
New Cumberland, PA 17070-5000

Dear Deputy Commander Campbell:

This refers to your license amendment request. Enclosed with this letter is the amended license. The facility at Defense Distribution Depot Memphis, Tennessee may be released for unrestricted use.

Please review the enclosed document carefully and be sure that you understand and fully implement all the conditions incorporated into the amended license. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I Office, Licensing Assistance Team, (610) 337-5093 or 5239, so that we can provide appropriate corrections and answers.

Thank you for your cooperation.

Sincerely,

Pamela J. Henderson

Pamela J. Henderson
Nuclear Materials Safety Branch 2
Division of Nuclear Materials Safety

Enclosure:
Amendment No. 5

cc:
Allen Hilsmeier, Radiation Safety Officer

883 479 Mike Dobbs DDC-TW

DEFENSE LOGISTICS AGENCY
DEFENSE DISTRIBUTION CENTER
2001 MISSION DRIVE
NEW CUMBERLAND, PA 17070-5000

IN REPLY REFER TO DDC-AH

Ms Pamela J. Henderson
Nuclear Materials Safety Branch 2
Division of Nuclear Materials Safety
Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, PA 19406-1415

Dear Ms Henderson:

Reference our March 6, 1997 memorandum that provided notification of our intent to conduct a termination radiological survey at the Defense Distribution Depot Memphis, TN (DDMT). Forwarded herewith are the radiological survey reports recommending that DDMT be released for unrestricted use.

All radiological activities have ceased and no radioactive material is on the premises at DDMT. We request that DDMT be removed from the Defense Distribution Center (formerly the Defense Distribution Region East) license 37-30062-01.

Point of contact for any additional information is Mr. Allen Hilsmeier, Radiation Safety Officer, (717) 770-4762, e-mail: ahilsmeier@ddc.dla.mil.

Sincerely,

PAUL OKUM
Director of Administration

Enclosures:

cc:
CAAEH
DDMT-D
DDC-T(BRAC)

DEFENSE DISTRIBUTION CENTER

TERMINATION RADIOLOGICAL SURVEY FOR DEFENSE DISTRIBUTION DEPOT MEMPHIS BUILDING 319, BAY 6

RADIOLOGICAL HEALTH GROUP
SAFETY & OCCUPATIONAL HEALTH OFFICE
DIRECTOR OF ADMINISTRATION

SURVEY CONDUCTED
APRIL 7-11, 1997

EXECUTIVE SUMMARY

This document encompasses a historical search, the sampling protocol to conduct a termination radiological survey and the survey results for Building 319, Bay 6, at the Defense Distribution Depot Memphis, Tennessee (DDMT). The historical search involved discussions with key persons who were directly knowledgeable of the past radiological operations at DDMT. The radiological survey protocol was developed utilizing the guidance contained in reference 1, Appendix A. The survey results indicate that Building 319 can be released for unrestricted use.

The historical review of radiological activities at DDMT revealed that lantern mantles that contain naturally occurring radioactive thorium were primarily stored in Bay 6, Building 319. Discussion with current and former radiation protection officers and employees did not indicate any destruction of the mantles or contamination of any facility surfaces or the environment. A radiological environmental baseline study conducted at DDMT in August 1996 (see Appendix A, reference 4), concluded that all facilities could be released for unrestricted use with the exception of Building 319, Bay 6. The baseline data indicated that Building 319 had several wall surfaces with alpha radiation above the alpha background radiation level. The report recommended that additional characterization be performed to determine the cause of the slightly elevated alpha radiation in the facility.

The characterization study was completed on April 11, 1997. This report provides the data analysis of the study which concludes that the higher levels of alpha radiation are a result of naturally occurring radioactivity in pre-cast concrete.

BACKGROUND

This characterization survey report is a continuation of the Environmental Baseline Study referenced in Appendix A. This Environmental Baseline Study identified a slight but elevated amount of alpha radiation on the South wall in Bay 6, Building 319. The study indicated that the alpha radiation level exceeded release criteria specified in Appendix A, reference 2, but was well below the release criteria specified in Appendix A, reference 3.

Reference 2 in the Study, Table B-1, specified a surface concentration limit of 114 dpm/100 cm^2 for Thorium 232 (Th-232) in equilibrium with its daughter products for unrestricted release of a building. This value corresponds to a dose rate for building occupancy of 3 mRem/year. The dose rate value has subsequently been superseded by a value of 25 mRem/year (Appendix A, reference 6). This new value corresponds to a surface concentration release limit of about 950 dpm/100 cm^2, which is essentially the same limit that NRC adopted in their release criteria stated in reference 3, Appendix A, i.e., 1000 dpm/100 cm^2.

The walls for Building 319 were pre-formed and then layered into place. The concrete sections are about 8 inches wide and 8 feet long. Natural background radioactivity in the concrete could vary if the ingredients came from different geographical locations. To test this potentiality, radiation measurements were taken on an exterior wall where no contamination could have occurred. Elevated alpha radiation readings were recorded at isolated spots which were similar to

the readings inside the building. Further, wipe tests on surfaces indicated that the radioactive material (RAM) was not removable. Reference 7, Appendix A, stated that Tennessee has a significantly higher Uranium concentration than most of the United States, i.e., 50-80 parts per million (ppm) to 1-2 ppm, respectively.

No maintenance work took place at DDMT that may have involved the alteration or destruction of RAM from the time of manufacture. Also, no repackaging or unwrapping of RAM occurred. Based upon this background information, DDC determined that Building 319 would be classified as an unaffected area as described in reference 1, Appendix A.

SITE DESCRIPTION

Persons interviewed stated that Building 319, Bay 6 was primarily used to store lantern mantles but watches, electron tubes, smoke detectors and toggle switches were also stored in the facility. They stated that most items were stored in the Southeast corner which prompted biased sampling to take place there. One interviewee stated that lantern mantles at one time were stored throughout the bay. The East wall was believed to be installed sometime after RAM was already being stored. Furthermore, there was evidence that a wall was originally installed on the West side between Bays 6 and 7 but is now removed. Epoxy material was applied over the floor at some time after the RAM was present and probably after the RAM had been removed from the facility for subsequent storage of hazardous chemicals.

HISTORICAL REVIEW

The historical review of Building 319 operations involving RAM indicated that NRC generally licensed and license exempt radioactive sources were stored in the building. Interviews were documented in Appendix A, reference 4. Interviewees stated that radiation surveys had not been conducted in the past.

TRAINING

The persons performing this survey were trained on the use of the instrumentation and the procedures to follow during the survey prior to beginning work. The DDC Health Physicist was responsible overall for the accuracy and adequacy of the data. He was assisted by the DDMT RPO.

SURVEY PROCEDURES

OVERVIEW

Building 319, Bay 6, was treated as an unaffected area as defined in NUREG-5849. It was considered a single survey unit. After the slightly elevated alpha radiation measurements were observed during the environmental baseline study, the bay was reevaluated to determine if it should be reclassified to an affected area. The characterization data supported the position that the radioactive material was within the concrete walls and the bay could be treated as an unaffected area.

Stationary measurements were taken in the facility using a "box and X" pattern, i.e., 5 measurements were taken in each 1 square meter grid "box." Measurements were taken in each grid corner and in the center of the grid. For floor measurements, at least a 100 square centimeter area was sanded before the alpha/beta survey meter was placed on the surface. A gamma radiation scan was also made over the surface of the grid as recommended in reference 1, Appendix A.

883 483

Alpha radiation measurements were conducted using two techniques. Wall surfaces where the alpha radiation exceeded 3 times background as determined by the audio and ratemeter response, were counted for 1 minute using an integrated count. This type of measurement improved the Minimum Detectable Activity (MDA) and accuracy. Surfaces that indicated only background radiation were counted over at least 2 time constants, i.e., 8 seconds, in the ratemeter mode to expedite the survey. The MDA was higher but still below acceptable limits by a factor of 10.

Beta radiation measurements were conducted by using the ratemeter mode of the survey meter. The size of the detector, i.e., 100 cm^2, provided an optimum MDA. Surfaces that indicated only background radiation were counted over at least 2 time constants, i.e., 8 seconds, in the ratemeter mode to expedite the survey.

Gamma radiation measurements were conducted by using the audio response and reading the meter of the survey meter. Readings were taken on contact with the surface and at one meter. A scan was also made of floor and wall surfaces. Particular attention was given to cracks in surfaces.

The guideline values specified in reference 3, Appendix A, could be observed using the instrumentation described below. Each instrument's MDA for various surfaces are provided in the Instrumentation Section.

Wipe tests were taken throughout the facility. Each alpha/beta-gamma wipe test was conducted by taking a 1.75 inch diameter filter paper and wiping about a 10 inch surface in an 'S' pattern. This test resulted in an area wiped of about 100 cm^2. These wipe tests were counted in a scaler capable of measuring both alpha and medium energy beta radiation.

INSTRUMENTATION

Instrumentation used for the surveys included a zinc sulfide scintillator for alpha detection, a plastic scintillator for beta detection and a sodium iodide crystal for gamma detection. Each instrument underwent standard quality assurance checks such as a daily source check, background

and efficiency determinations, establishment of a MDA and a flag value. Instruments were calibrated by a certified U.S. Army calibration facility on a six month basis.

Specific information on the types of instruments used are:

I. Fixed Contamination:

a. Alpha Radiation
Ludlum Survey Meter, Model 2224, Serial Number 125598
Ludlum Detector, Model 43-89, Serial Number 134011
Calibration Date January 22, 1997
Background at site
Floor 11 dpm/ 100 cm^2, (2.0 CPM)
Inner Concrete Block Wall 13 dpm/ 100 cm^2, (2.3 CPM)
Pre-Cast Concrete Wall 35 dpm/ 100 cm^2, (6.25 CPM)
Tile Wall 21 dpm/ 100 cm^2, (3.8 CPM)
Efficiency 18 % for Th-230
Detector surface area 100 cm^2
MDA
Floor 100 dpm/ 100 cm^2
Inner Concrete Block Wall 107 dpm/ 100 cm^2
Pre-Cast Concrete Wall 80 dpm/ 100 cm^2
Tile Wall 138 dpm/ 100 cm^2

b. Beta Radiation
Ludlum Survey Meter, Model 2224, Serial Number 125598
Ludlum Detector, Model 43-89, Serial Number 134011
Calibration Date January 22, 1997
Background at site
Floor 2,071 dpm/ 100 cm^2 (290 CPM)
Inner Wall 1,628 dpm/ 100 cm^2 (228 CPM)
Concrete Wall 1,614 dpm/ 100 cm^2 (226 CPM)
Tile Wall 3,745 dpm/ 100 cm^2 (524 CPM)
Efficiency 14 % for Tc-99
Detector surface area 100 cm^2
MDA
Floor 1,550 dpm/ 100 cm^2
Inner Wall 1375 dpm/ 100 cm^2
Concrete Wall 519 dpm/ 100 cm^2
Tile Wall 2,085 dpm/ 100 cm^2

c. Gamma Radiation
Ludlum Survey Meter, Model 19, Serial Number 104568
Ludlum Detector, Model 19, Internal Mounted
Calibration Date January 22, 1997
Background at site

Floor Surface 6 uRem/hr; 1 Meter 6 uRem/hr
Inner Wall Surface 6 uRem/hr; 1 Meter 6 uRem/hr
Concrete Wall Surface 5 uRem/hr; 1 Meter 6 uRem/hr
Tile Wall Surface 12 uRem/hr; 1 Meter 10 uRem/hr

MDA about 1 uR/hr static measurement*
MDA about 3 uR/hr scanning monitoring*

* Defined in Appendix A, reference 1, Table 5-6.

II. Removable Contamination

Alpha/Beta Radiation Ludlum Dual Scaler Model 2929 Serial Number 39100
Ludlum Detector Model 43-10-1 Serial Number 133993
Calibration Date April 24, 1997
Background
Alpha 1.0 dpm/ 100 cm^2 (0.35 CPM)
Beta 434 dpm/ 100 cm^2 (138 CPM)
Efficiency
Alpha 34 %
Beta 31 %

MDA
Alpha 5.5 DPM/ 100 cm^2
Beta 132 DPM/ 100 cm^2

QUALITY ASSURANCE CHECK

A daily check for portable survey instruments consisted of a source check and comparison of the measurement to a reading determined after calibration. Measurements conducted before and at the end of the day's survey were within ± 20% of the initial value. Additionally, the physical condition of the instrument, to include battery, cables and probes were checked. A daily background check was performed.

The laboratory instrument's efficiency value and MDA were determined using National Institute of Standards and Technology traceable standards. The standards were measured just prior to the wipe tests being counted.

SURVEY TECHNIQUES

This second phase, the characterization study, involved confirming the original slightly elevated alpha readings in the Environmental Baseline Study. Once the readings were confirmed, an area was sanded rigorously with a mechanical sander. Health physics precautions were implemented which included: donning of a full face respirator and protective outer garments; and covering the floor with plastic to collect the concrete dust. Measurements were retaken to determine if the alpha readings had been reduced. These data are presented in Appendix D.

Stationary surveys for alpha radiation were performed by holding the probe in contact with the surface surveyed for at least 2 time constants, i.e., 8 seconds. The time period was reasonable

and ensured that the MDA values were below the guideline value. As stated earlier, wall surfaces where the alpha radiation exceeded 3 times background were counted for 1 minute using an integrated count.

Stationary surveys for beta radiation were performed by holding the probe in contact with the surface surveyed for at least 2 time constants, i.e., 8 seconds. The MDAs for the various surfaces were slightly above the guideline value for Th-232 but below the guideline value for beta-gamma emitting radioisotopes, i.e., 1,000 dpm/100 cm^2 and 5,000 dpm/ 100 cm^2, respectively.

Stationary surveys for gamma radiation were performed by holding the survey meter in contact with the surface and at a distance of 1 meter for about 8 seconds. This amount of time ensured that the meter had stabilized. The MDA, 1 uR/hr, is below the guideline value for gamma emitting radioisotopes, i.e., 5 uR/hr as stated in the Acceptance Criteria section below.

Scanning surveys for gamma radiation was performed by walking slowly through the area obtaining exposure rate readings on surfaces. The highest reading obtained at a survey point was recorded.

BACKGROUND DETERMINATION

Background determinations for gamma dose rate and alpha, beta count rate surveys were made prior to the beginning of the survey. Measurements were made in Building 319 in an adjoining room where RAM had not been stored but of similar construction as the facilities to be surveyed. Further, alpha radiation measurements were taken on the West exterior wall of Bay 6 to determine if any localized, elevated alpha radiation readings might be present. A total of 342 measurements were made using alpha, beta and gamma survey meters. The readings are shown in Appendix C.

The alpha measurements ranged from 0 to 1 counts per 8 seconds for the floor and inner wall. The alpha measurements for the concrete wall ranged from 2 to 5 CPM. The number of measurements required to be statistically accurate was about the same as the actual number of measurements taken. The background was verified each day the survey occurred.

Background readings were made prior to use of laboratory equipment. These measurements were used to determine the MDA for the several isotopes.

WIPE TESTS

Because of the nature of the RAM stored in Building 319, the possibility of finding loose contamination was small. Nevertheless, wipe tests of the facilities were taken to determine if any residual contamination was present. Eighty two wipe tests were taken on the floor and walls. These wipe tests were counted in a scaler capable of measuring both alpha and medium energy beta radiation.

ACCEPTANCE CRITERIA

The current standards for unrestricted use are contained in Appendix A, reference 3. These standards formed the basis for the acceptance criteria used by DDC in the evaluation of Building 319.

The acceptance criteria are detailed in the table below:

Table 1: Acceptance Criteria

Radionuclide	Exposure Rate (mRem/Hr) [3]	Ave. Gross Contamination [1]	Max. Gross Contamination [2]	Removable [1]
U-nat, U-235, u-238, and associated decay products	N/A	5,000 DPM α/100 cm^2	15,000 DPM α/100 cm^2	1,000 DPM α/100 cm^2
Transuranic, Ra-226, Ra-228, Th-230, Pa-231, Ac-227, I-125, I-129	N/A	100 DPM/100 cm^2	300 DPM/100 cm^2	20 DPM/100 cm^2
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	N/A	1,000 DPM/100 cm^2	3000 DPM/100 cm^2	200 DPM/100 cm^2
Beta-gamma emitters except Sr-90 and other noted above	0.005 mrem/hr	5,000 DPM/100 cm^2	15,000 DPM/100 cm^2	1,000 DPM/100 cm^2

[1] As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

[2] The maximum contamination level applies to an area of not more than 100 cm^2.

[3] The exposure rate criteria of 0.005 mrem/hr (5.0 μR/hr) was obtained from a Nuclear Regulatory Commission internal memo dated October 29, 1986, from S. Block, Health Physicist, Region V to Peter Erickson, Special and Standardization Project, NRR, subject: Conversion of Regulatory Guide 1.86 Surface Contamination Limits Into Exposure Rate For Release For Unrestricted Use.

SURVEY DATA ANALYSIS

Data obtained for Building 319, Bay 6 are provided in Appendix D.

Regarding the direct measurement for alpha contamination in Bay 6 of Building 319, all measurements were well below the guideline value, i.e., 1,000 dpm/100 cm^2. All but one reading were at least a factor of 10 below the acceptance criteria. All individual readings were at least a factor of 10 below the maximum allowable limit, i.e., 3,000 dpm/100 cm^2.

The readings obtained during this characterization study patterned the original data obtained for the Environmental Baseline Study. The areas where there were slightly elevated alpha readings continued to show readings at the same level and areas where no elevated alpha readings occurred were reconfirmed as not having readings above background. One area that had a slightly elevated alpha reading was sanded and resurveyed. The results, tabulated in Appendix D, show that the

readings taken before and after sanding were essentially unchanged. Two wall chips were sent to an independent laboratory for alpha/beta measurement and a gamma spectrum analysis. The laboratory confirmed the slightly elevated alpha reading on the South wall chip but no alpha reading on the West wall chip. A similar slightly elevated reading was measured for beta radiation. The gamma spectrum analysis did not reveal any peaks for thorium-230 or thorium-232 by analyzing for bismuth-214 and actinium-228, respectively. The data indicate that no significant, if any, fixed contamination was present from the storage of gas lantern mantles. The alpha readings were a result of natural background radioactivity in the concrete.

Regarding the direct measurement for beta contamination in the facility, only one average reading taken at the North Interior Wall, location NE1, slightly exceeded the guideline value for Th-232. This reading, 5 % over the limit, was attributed to the closeness of the guideline value to the statistical variation of background radiation. All individual readings were well below the maximum guideline value for Th-232, i.e., 3,000 dpm/100 cm^2. The data indicate that no significant, if any, fixed contamination was present from beta emitting radioisotopes or Th-232.

Regarding the direct measurement for gamma contamination in the facility, the highest net value at any location was 4 uRem/hr, which is less than the acceptance criteria, i.e., 5 uRem/hr. The data indicate that no significant, if any, fixed contamination was present that emits gamma radiation.

Regarding the removable net alpha contamination measurements in the facility, all readings were well below the acceptance criteria for natural thorium, i.e., 200 dpm/ 100 cm^2. The removable net beta contamination measurements were also well below the acceptance criteria. The data indicate that no significant removable contamination was present.

CONCLUSION

The data indicate that Building 319, Bay 6, had several wall locations that had slightly elevated alpha radiation readings. These readings are attributed to the natural radioactivity found in building materials and is consistent with soil levels in the area. Regardless, the readings were well below the guideline values for unrestricted release of a facility. There is no internal or external radiation hazard in the facility. The data indicate that Building 319 can be released for unrestricted use.

RECOMMENDATION

It is recommended that Building 319, Bay 6, be released for unrestricted use.

Submitted by:

ALLEN E. HILSMEIER
DDC Health Physicist

Approved:

PAUL OKUM
Director of Administration

DEFENSE LOGISTICS AGENCY
ADMINISTRATIVE SUPPORT CENTER EAST
14 DEDICATION DRIVE, SUITE 3
NEW CUMBERLAND, PENNSYLVANIA 17070-5011

883 490

15 AUG 1996

RTO

ASCE-IW

MEMORANDUM FOR DDMT-D

THROUGH: ASCE-I 8/15/96

SUBJECT: DDMT Radiological Survey

Two copies of the environmental baseline radiological survey report are forwarded for dissemination. Recommend placing one copy of the report in the archives for DDMT and a copy retained by DDMT.

We would like to commend Mr. Paul Blake, Radiation Protection Officer for DDMT for the invaluable assistance he rendered to the survey officer. He made significant contributions in the coordination, preparation and accumulation of data contained in this report.

This report recommends that the DDMT facilities where radioactive material was previously stored, be released for unrestricted use with the exception of Building 319, Bay 6. This building will require decontamination of the South wall and a thorough radiological survey of the entire bay area before we could recommend its release for unrestricted use.

POC for any additional information is Mr. Allen Hilsmeier, DSN 977-4762 or COM (717) 770-4762.

for JOHN STAMATELLOS
Regional Safety & Occupational Health Manager
ASCE-IW

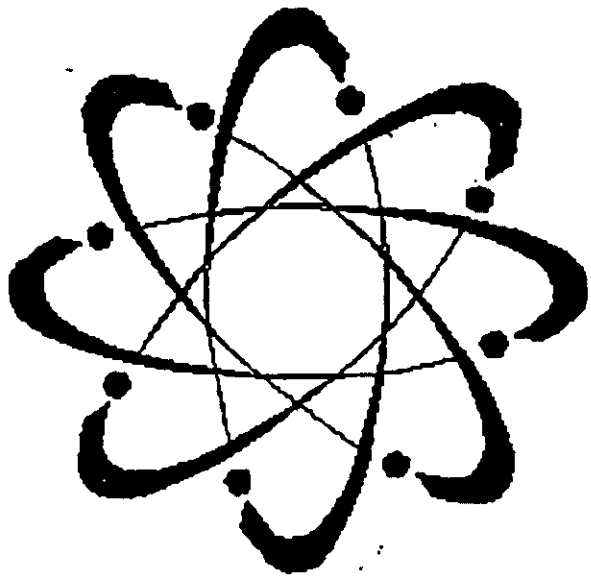
Attachment:

cc:
DDRE-D/DD
CAAEH
ASCE-D
ASCE-WP

DEFENSE DISTRIBUTION REGION EAST

883 491

ENVIRONMENTAL BASELINE STUDY
RADIOLOGICAL SURVEY
FOR
DEFENSE DISTRIBUTION DEPOT MEMPHIS



DDRE RADIOLOGICAL HEALTH GROUP
SAFETY & OCCUPATIONAL HEALTH OFFICE

SURVEY CONDUCTED
AUGUST 5-9, 1996

EXECUTIVE SUMMARY

This document encompasses a historical search, the sampling protocol to conduct an environmental baseline radiological survey and the survey results for the Defense Distribution Depot Memphis, Tennessee (DDMT). The historical search involved discussions with key persons who were directly knowledgeable of the past radiological operations at DDMT. The radiological survey protocol was developed utilizing the guidance contained in various references that are listed in Appendix A. Also utilized were good health physics practices, and protocols developed by the Department of the Army during previous base closures. The survey results indicate that not all facilities that stored radioactive material can be released for unrestricted use at this time. Remediation of low level contamination in Building 319 must be accomplished before that facility can be released for unrestricted use.

The historical review of radiological activities at DDMT revealed that lantern mantles that contain naturally occurring radioactive thorium were the primary items in storage. Discussion with current and former radiation protection officers and employees did not indicate any evidence of breakage or contamination of any facilities surfaces or the environment. However, this survey identified the South interior wall of Building 319 as having alpha contamination present that was slightly above the release criteria for unrestricted use.

The three other buildings identified by previous and current employees at DDMT were found to be free of any residual contamination. The employees collectively stated that the bulk of the radioactive material was stored over the years in a conex container alongside Building 319. An attempt to locate the conex container was unsuccessful.

BACKGROUND

DDMT was targeted for closure during a Base Realignment and Closure (BRAC) action. DDMT must remove all radioactive material currently in storage and ensure that facilities where radioactive material was stored can be released for unrestricted use.

The radioactive material (RAM) at DDMT was transferred to other DDRE depots. Further, action is underway to direct line item managers to no longer ship their radioactive commodities to DDMT. Any RAM forwarded to DDMT in the future will be regarded as a transshipment and immediately redirected to another Defense Logistics Agency (DLA) depot. They will perform no processing or repackaging of the RAM received.

The primary RAM stored at DDMT were lantern mantles that contain naturally occurring Thorium-232 (Th-232). The lantern mantles are exempt from licensing and control by the Nuclear Regulatory Commission (NRC) because of their low level of radioactivity.

Other radioactive commodities identified as having been stored at DDMT are:

1. Smoke detectors containing generally licensed amounts of americium 241(Am-241).
2. Electron tubes containing non-licensed amounts of Th-232, tritium (H-3), and radium-226 (Ra-226).
3. Wrist watches containing generally licensed amounts of H-3 and Ra-226.

4. Indicator and toggle switches containing Ra-226.
5. Compasses containing H-3.

883 493

No maintenance work took place at DDMT that may have involved the removal of radioactive material from the commodities and no repackaging or unwrapping of RAM occurred. Based upon this background information, DDRE determined that all areas identified as having stored radioactive commodities will be classified as unaffected areas as described in reference 1, Appendix A.

SITE DESCRIPTION

DDMT was first activated as the Memphis General Depot in January 1942 under the U.S. Army. It became a DLA depot in January 1964. It was a primary distribution site for clothing and textiles. It is located in the extreme Southwestern corner of Tennessee in the southern part of the city of Memphis. DDMT occupies 630 acres with 6 million square feet of covered storage.

The four buildings located at DDMT that stored RAM consists of a concrete floor and concrete precast or reinforced concrete walls. Two of the buildings, i.e., Buildings 319 and 629, had an epoxy material covering the floors. The epoxy was probably added after the RAM was no longer stored in the buildings to accommodate other hazardous substances such as corrosives. A radiological survey of the floor for these two buildings would not detect any alpha or beta contamination.

HISTORICAL REVIEW

The historical review of DDMT operations involving RAM indicated that NRC generally licensed and license exempt radioactive sources were stored at the Depot. Interviews were conducted on August 6-7, 1996, with Mr. Woodward Thomas, Radiation Protection Officer (RPO), from 1975 to 1983; Mr. Paul Blake, RPO from 1995 to the present; Mr. Harry Hartwig, Physical Scientist, from 1985 to the present; Mr. William Lovejoy, Chief, Recyclable Materials Branch, from 1981 to 1984 and 1986 to 1987; and Mr. Skip Wallace, Chief, Fire Inspection, from 1982 to the present. In addition, interviews were conducted with Mr. John Tibbels, RPO from 1983 to 1989; Mr. David Luscavage, RPO from 1989 to 1993; and Mr. Charles Crouch, Safety & Occupational Health Manager, from 1979 to 1987.

The interviewees stated that the RAM was primarily stored in a conex container near Building 319 and that no disassembly of items occurred to, in, or from the conex container. The conex container was removed long ago and could not be located. The surface below the conex container had been resurfaced with asphalt. Although the interviewees stated that they could not remember any incidents involving RAM, they had not conducted a radiation survey to verify their statement.

Interviewees stated that radiation surveys had not been conducted in the past because they did not have the necessary equipment. Also, the items were all generally licensed and license exempt which did not require any radiation surveys in accordance with NRC regulations.

At the time of this survey, the storage cage in Building 359 housed about 4000 watches that contained tritium. The watches were removed from the cage immediately and shipped to another DLA depot.

TRAINING

The persons performing this survey were trained on the use of the instrumentation and the procedures to follow during the survey prior to beginning work. The DDRE Health Physicist was responsible overall for the accuracy and adequacy of the data. He was assisted by the DDRE alternate Radiation Safety Officer and the current DDMT RPO.

SURVEY PROCEDURES

OVERVIEW

The facilities identified as having stored radioactive commodities were treated as unaffected areas as defined in NUREG-5849. Each location was considered a separate survey unit. Walls were monitored only if they were in contact with the RAM.

Regarding Building 319, Bay 6, it was used to primarily store lantern mantles but watches, electron tubes, smoke detectors and toggle switches were also stored in the facility. The interviewees indicated that the RAM was mainly stored in the Southeast corner. One interviewee stated, however, that lantern mantles at one time was stored throughout the bay area. The East wall was believed to be installed sometime after RAM was already being stored. Furthermore, there was evidence that a wall was originally installed between Bays 6 and 7 but is now removed. Epoxy material was applied over the floor at some time after the RAM was present and probably after the RAM had been removed from the facility. Even though the area was categorized as an "unaffected area," one square meter grids were drawn on the floor and 2 meters up the wall at the Southeast corner to accurately measure any residual contamination. If no contamination was detected, ten square meter grids or less would be used for the remaining area in Bay 6.

Regarding Building 629, Bay 2, it served as an overflow facility when the conex container or Building 319 was full. The RAM was stored on pallets at least 5 meters from the nearest wall. Epoxy material was applied over the floor at some time after the RAM was present and probably after the RAM had been removed from the facility. The interviewee who remembered that RAM was stored in Building 629 also stated that only lantern mantles were stored there. The surface area was sectioned off in 3 meter grids and monitored for beta and gamma contamination even though it is recognized that the beta radiation would probably not penetrate the epoxy material.

Regarding Building 835, Section 6, a small room was used at one time to store small amounts of radioactive commodities. It was not used regularly and only the East side of the room was needed. Nevertheless, the entire room was monitored for residual alpha, beta, and gamma contamination.

Regarding Building 359, Section 3, the security vault and wire cage were used to store pilferable items such as watches and compasses. These radioactive commodities contained tritium. Reference 6 was a special survey of the vault to detect the presence of any tritium contamination.

The survey was performed in May 1988 by the U.S. Army Environmental Hygiene Agency. Survey results indicated tritium contamination exceeding the release limit, i.e., 5000 DPM/ 100 cm^2 on the outside of storage boxes but the floor, pallets and tables were well below the release limits. The items were removed and shipped to another depot. At the time of this survey, watches containing tritium were stored in the wire cage only and these items were removed before the conclusion of the survey.

Several interviewees indicated that watches containing RAM were stored in Building 360 at one time. This building has since been torn down. Sampling of the ground surface below and around the former facility was not considered necessary because of the unlikeliness of finding contamination.

Stationary measurements were taken in the facilities using a "box and X" pattern, i.e., 5 measurements were taken in each grid "box." Measurements were taken in each grid corner and in the center of the grid. A scan was also made over the surface of the grid as recommended in reference 1, Appendix A.

Alpha radiation measurements were conducted by using the audio response of a survey meter and counting the total number of clicks over a 30 second time period. This technique was used to reduce the Minimum Detectable Activity (MDA) to as low as possible and yet provide a reasonable time frame to collect the data. The surface was also scanned at a rate of about one detector width per second, i.e., 4 inches per second.

Beta radiation measurements were conducted by reading the meter of the survey meter. The size of the detector, i.e., 100 cm^2, precluded taking an integrated count because of the relatively high background. The large detector provided, however, the optimum MDA. A scan was also made of the surface at the rate of about 4 inches per second.

Gamma radiation measurements were conducted by reading the meter of the survey meter. Readings were taken on contact with the surface and at one meter. A scan was also made of floor and wall surfaces and on stationary equipment such as shelves, conveyors, etc. Particular attention was given to cracks in surfaces. The audio was used to determine if any elevated contamination levels were present.

The guideline values specified in reference 3, Appendix A, could be observed using the instrumentation described below. The instruments used to measure alpha, beta and gamma radiation had MDAs of 70 DPM/ 100 cm^2, 1,900 DPM/ 100 cm^2, and 1 uR/hr, respectively.

At least one wipe test was taken within each grid. For small rooms, numerous wipe tests were taken to provide statistically meaningful results. Random wipe tests were taken on shelves where RAM was previously stored.

INSTRUMENTATION

Instrumentation used for the surveys included a zinc sulfide scintillator for alpha detection, a plastic scintillator for beta detection and a sodium iodide crystal for gamma detection. Each instrument underwent standard quality assurance checks such as a daily source check, background and efficiency determinations, establishment of a MDA and a flag value. Instruments were calibrated by a certified U.S. Army calibration facility on a six month basis.

Specific information on the types of instruments used are:

883 496

I. Fixed Contamination:

a. Alpha Radiation
Ludlum Survey Meter, Model 2224, Serial Number 125598
Ludlum Detector, Model 43-89, Serial Number 134011
Calibration Date July 29, 1996
Background at site
Floor 6 DPM/ 100 cm^2, (1.0 CPM)
Wall 16 DPM/ 100 cm^2, (2.8 CPM)
Efficiency 18 % for Th-230
Detector surface area 100 cm^2
MDA 70 DPM/ 100 cm^2
Flag Value 75 DPM/ 100 cm^2, (13 CPM)

b. Beta Radiation
Ludlum Survey Meter, Model 2224, Serial Number 125598
Ludlum Detector, Model 43-89, Serial Number 134011
Calibration Date July 29,1996.
Background at site
Floor 3,040 DPM/ 100 cm^2 (350 CPM)
Wall 4,870 DPM/ 100 cm^2 (560 CPM)
Efficiency 11.5 % for Tc-99
Detector surface area 100 cm^2
MDA 1,900 DPM/ 100 cm^2
Flag Value 3,750 DPM/ 100 cm^2, (430 CPM)

c. Gamma Radiation
Ludlum Survey Meter, Model 19, Serial Number 104568
Ludlum Detector, Model 19, Internal Mounted
Calibration Date July 23, 1996
Background 6 uR/hr
MDA about 1 uR/hr static measurement*
MDA about 3 uR/hr scanning monitoring*

* Defined in Appendix A, reference 1, Table 5-6.

II. Removable Contamination

a. Alpha/Beta Radiation
Tennelec Model LB-5100 Serial Number 7040614
Proportional Counter
Calibration Date August 5, 1996
Background
Alpha 3.0 DPM/ 100 cm^2 (0.74 CPM)
Beta 6.1 DPM/ 100 cm^2 (2.73 CPM)
Efficiency
Alpha 24.9%
Beta 44.7%
MDA
Alpha 2.7 DPM/ 100 cm^2

Beta 2.7 DPM/ 100 cm^2

b. Tritium

Beckman Model 6500, Serial Number 7067417
Liquid Scintillation Counter
Calibration Date August 12, 1996
Background 20 DPM/ 100 cm^2
Efficiency 67 %
MDA 10 DPM/ 100 cm^2

QUALITY ASSURANCE CHECK

A daily check for portable survey instruments consisted of a source check and comparison of the measurement to a reading determined after calibration. Measurements conducted before and at the end of the day's survey were within ± 20% of the initial value. Additionally, the physical condition of the instrument, to include battery, cables and probes were checked. A daily background check was performed.

The laboratory instrument's efficiency value and MDA were determined using National Institute of Standards and Technology traceable standards. The standards were measured just prior to the wipe tests being counted.

SURVEY TECHNIQUES

Stationary surveys for alpha radiation were performed by holding the probe in contact with the surface surveyed for at least a 30 second count time. The count time was reasonable and ensured that the MDA value was below the guideline values. For example, the guideline values for Ra-226 for fixed contamination are 100 DPM/ 100 cm^2 and 324 DPM/ 100 cm^2, per references 4 and 2, Appendix A, respectively. The guideline values for Th-232 for fixed contamination are 1,000 DPM/ 100 cm^2 and 114 DPM/ 100 cm^2, per references 4 and 2, Appendix A, respectively. In both cases, the alpha radiation MDA, 70 DPM/ 100 cm^2 is less than the regulatory guideline values.

Stationary surveys for beta radiation were performed by holding the probe in contact with the surface surveyed for at least 8 seconds. This amount of time encompassed two time constants of the instrument and ensured that the reading had stabilized. The MDA, 1,900 DPM/ 100 cm^2, is below the guideline value for beta emitting radioisotopes, i.e., 5,000 DPM/ 100 cm^2, as stated in reference 4, Appendix A.

Stationary surveys for gamma radiation were performed by holding the survey meter in contact with the surface for about 8 seconds. This amount of time ensured that the meter had stabilized. The MDA, 1 uR/hr, is below the guideline value for gamma emitting radioisotopes, i.e., 5 uR/hr as stated in the Acceptance Criteria section below. A stationary survey was also made with a gamma meter on shelves where RAM was stored.

Scanning surveys were made for alpha and beta contamination by moving the probe less than 1 cm from the surface. Scanning surveys for gamma radiation was performed by walking slowly through the area obtaining exposure rate readings on surfaces. Scans were also made on shelves and nearby walls where RAM was stored. The highest reading obtained at a survey point was recorded. If any areas exhibited readings greater than the flag value, they would be subjected to stationary surveys on contact with the surface, and a wipe test conducted.

Survey of the walls was performed if the RAM was in contact with the surface.

BACKGROUND DETERMINATION

Background determinations for gamma dose rate and alpha, beta count rate surveys were made prior to the beginning of the survey. Measurements were made in Building 319 in an adjoining room where RAM had never been stored but of similar construction as the facilities to be surveyed. Twenty measurements were made using alpha, beta and gamma survey meters. The average readings were shown in the Instrumentation section above. The variance of the measurements was such that the beta and gamma readings were within the 95 % confidence level.

The alpha measurements ranged from 0 to 3 CPM in a 30 second time period. This spread, although small in actual size, would nevertheless require over 180 measurements to be taken to establish a statistically accurate average background. This number of background readings is unrealistic to obtain and not considered necessary due to the background reading being a factor of ten below the guideline value for measuring alpha radiation in the storage locations. The background was verified each day the survey occurred.

Background readings were made prior to use of laboratory equipment. These measurements were used to determine the MDA for the several isotopes.

WIPE TESTS

Because of the nature of the RAM stored at DDMT, the possibility of finding loose contamination was small. Nevertheless, wipe tests of the facilities were taken to determine if any residual contamination was present. About 30 wipe tests were taken on the floor and shelves at each storage location. Each alpha/beta-gamma wipe test was conducted by taking a 1.75 inch diameter filter paper and wiping a 10 inch surface in an 'S' pattern. This test resulted in an area wiped of about 100 cm^2. These wipe tests were counted in a scaler capable of measuring both alpha and medium energy beta radiation.

A wet wipe test was also conducted using a 1 inch square filter paper and wiping a 16 inch surface in an 'S' pattern. The filter paper was dissoluble in a liquid scintillation counter medium. These wipe tests were counted in a liquid scintillation counter to measure any low energy beta emitting radioisotope such as tritium.

ACCEPTANCE CRITERIA

Residual contamination is considered a low probability based upon the kinds and types of radioactive commodities previously located at DDMT. Nevertheless, DDRE believes it prudent to perform reasonable surveys to support this premise. The current standards for unrestricted use are contained in Appendix A, references 1 through 4. These standards formed the basis for the acceptance criteria used by DDRE in the evaluation of DDMT.

The primary acceptance criteria are detailed in the table below:

Table 1: Acceptance Criteria

Radionuclide	Exposure Rate (mRem/Hr) [3]	Ave. Gross Contamination [1]	Max. Gross Contamination [2]	Removable [1]
U-nat, U-235, u-238, and associated decay products	N/A	5,000 DPM α/100 cm^2	15,000 DPM α/100 cm^2	1,000 DPM α/100 cm^2
Transuranic, Ra-226, Ra-228, Th-230, Pa-231, Ac-227, I-125, I-129	N/A	100 DPM/100 cm^2	300 DPM/100 cm^2	20 DPM/100 cm^2
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	N/A	1,000 DPM/100 cm^2	3000 DPM/100 cm^2	200 DPM/100 cm^2
Beta-gamma emitters except Sr-90 and other noted above	0.005 mrem/hr	5,000 DPM/100 cm^2	15,000 DPM/100 cm^2	1,000 DPM/100 cm^2

[1] As used in this table, DPM (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

[2] The maximum contamination level applies to an area of not more than 100 cm^2.

[3] The exposure rate criteria of 0.005 mrem/hr (5.0 μR/hr) was obtained from a Nuclear Regulatory Commission internal memo dated October 29, 1986, from S. Block, Health Physicist, Region V to Peter Erickson, Special and Standardization Project, NRR, subject: Conversion of Regulatory Guide 1.86 Surface Contamination Limits Into Exposure Rate For Release For Unrestricted Use.

A secondary acceptance criteria is outlined in reference 2, Appendix A. These values are as follows for a projected Total Effective Dose Equivalent of 3 millirem per year from fixed and removable surface contamination for a building occupancy (Table B-1).

H-3	5.29E6 DPM/ 100 cm^2
Th-232	1.14E2 DPM/ 100 cm^2
Ra-226	1.91E2 DPM/ 100 cm^2
Am-241	3.71E1 DPM/ 100 cm^2

SURVEY DATA ANALYSIS

Data obtained for the four locations are provided in Appendix C. The data were compared to both primary and secondary acceptance criteria.

883 500

Regarding the direct measurement for alpha contamination in Bay 6 of Building 319, three wall grids had an average net value that slightly exceeded the guideline values for all alpha emitting radioisotopes that were previously stored at DDMT. Repeat readings were taken at two of the grids and in general, the readings were in agreement. One of the repeat readings at grid W8, i.e., 328 net DPM/ 100 cm^2, slightly exceeded the maximum allowable contamination level specified in reference 4, Appendix A. If either of these conditions occur during the course of the survey, the area must be reclassified from an "unaffected" to an "affected" area. The testing requirements become more rigorous as defined in reference 1, Appendix A. The direct measurement for alpha contamination in the other facilities were all below the regulatory requirements.

Regarding the direct measurement for beta contamination in the facilities, all the readings were within the statistical fluctuations of background radiation. The data indicate that no significant, if any, fixed contamination was present from beta emitting radioisotopes.

Regarding the direct measurement for gamma contamination in the facilities, the highest net value at any location was 1 uR/hr. The data indicate that no significant, if any, fixed contamination was present that emits gamma radiation.

Regarding the removable alpha/beta-gamma contamination measurements in all the facilities, all readings were below the primary acceptance criteria for Ra-226, i.e., 20 DPM/ 100 cm^2. Radium-226 has the most stringent acceptance criteria. The data indicate that no significant removable contamination was present.

Regarding the removable tritium contamination measurements in the facilities and especially in Building 359 where the bulk of the items containing tritium was stored, all measurements were well below the primary and secondary acceptance criteria for tritium, i.e., 1,000 DPM/ 100 cm^2, and 5.29E6 DPM/ 100 cm^2, respectively.

CONCLUSION

The data indicate that one of the DDMT facilities where RAM was stored in the past, i.e., Building 319, Bay 6, was slightly contaminated above allowable limits for fixed alpha radiation. In its present condition, it could not be released for unrestricted use. The facility does not present a health hazard because of the low level of contamination present which is not readily removable. The other facilities were all well within the limits and could be released for unrestricted use.

RECOMMENDATION

It is recommended that: 1) Building 319, Bay 6, be restricted to limited access and controlled by the DDMT RPO until it can be decontaminated; 2) that the entire area undergo a termination survey as an "affected" area in accordance with reference 1, Appendix A; 3) The epoxied floor in Building 319, Bay 6, be scraped sufficiently to allow alpha measurements to be taken to determine

if residual contamination is on the floor; and 4) The other facilities at DDMT where RAM was previously stored be released for unrestricted use.

Submitted by:

ALLEN E. HILSMEIER
DDRE Health Physicist

Approved by:

J. O. RIMEL, Sr
Director
Public Safety Office

883 502

MAR 18 1996

ASCE-WP

MEMORANDUM FOR COMMANDER, DDMT

SUBJECT: Radon Survey

The radon survey for the DDMT military housing area was completed on February 14, 1996. The Priority I (child care, hospitals, schools, and living quarters) radon assessment was conducted in accordance with AR 200-1, Chapter 11 (attachment).

On November 6, 1995, radon detectors were placed in eight military housing structures for ninety days to measure indoor radon gas levels. The objective of the assessment was to identify structures exceeding the Environmental Protection Agency (EPA) recommended action level of 4 pico Curies of radon per liter of air (pCi/l). Based on this screening, the buildings measured did not exceed the EPA action level (attachment), therefore, no additional sampling is required.

Since Priority I concentrations were not greater than 4 pCi/l, Priority 2 and 3 structures will not need to be measured, IAW AR 200-1.

Two radon detectors were placed in each structure on November 6, 1995 with the anticipation of performing the Long Term Measurement (LTM) (one year), if the radon levels exceeded 4 pCi/l. Since the results of the 90 day monitoring are below the EPA established standards, the remaining detectors are not needed. ASCE-WP requests somebody from your installation retrieve and dispose of the additional detectors in your municipal waste stream.

If you have any questions or need further assistance contact Barbara Johns, ASCE-WP, DSN 977-4621.

SIGNED

LARRY V. NEIDLINGER, P.E.
Director
Office of Engineering and
Equipment Management

Attachments

Barbara Johns/ASCE-WP/4-4621/March 7, 1996/bj/WordPerfect

COORDINATION: ASCE-WP _____ DATE Mar 8, 1996

"Official Reading File"

TCS INDUSTRIES
(717) 657-7032 Radon Detect RADON GAS DETECTION
4326 Crestview Road, Harrisburg, PA 17112

DEFENSE DISTRIBUTION REGION EAST
ATTN: ASCE-WP(BARBARA JOHNS)
BUILDING 1-1 SECOND FLOOR
NEW CUMBERLAND PA 17070

Monitor Number	pCi/l	Test Location	Exposure Start	Exposure End Date	Reprint from
095661	5.0		11/06/95	02/14/96	
095662	5.4		11/06/95	02/14/96	
095666	5.2		11/06/95	02/14/96	
095701	1.7		11/06/95	02/14/96	
095703	2.3		11/06/95	02/14/96	
095705	0.6		11/06/95	02/14/96	
095707	1.3		11/06/95	02/14/96	
095709	0.9		11/06/95	02/14/96	
095711	0.7		11/06/95	02/14/96	
095713	0.3		11/06/95	02/14/96	
095715	1.1		11/07/95	02/14/96	
095717	< 0.1		11/06/95	02/14/96	
095720	0.2		11/09/95	02/14/96	

Monitor Type: Alpha-track

NOTICE TO CLIENTS

The Radon Certification Act requires that anyone who provides any radon-related service to persons in the general public must be certified by the Pennsylvania Department of Environmental Protection. You are entitled to evidence of certification from any person who provides such services or products. You are also entitled to a price list for services or products offered. All radon measurement data will be sent to the Department as required by the Act and will be kept confidential. If you have any questions, comments or complaints, concerning persons who provide radon-related services, please contact the Department at the Bureau of Radiation Protection, Department of Environmental Protection, P.O. Box 8469, Harrisburg, PA 17105-8469, (717)783-3594.

Jacquelyn L. Distenfeld

DDMT RADON SURVEY

(90 DAYS) Nov 1995 - Feb 1996

DETECTOR ID NO	LOCATION	RESULTS (Limits 4 pCi/l)
095701	Quarters 12	1.7 pCi/l
095702	Quarters 12 (HOLD in place)	
095703	Quarters 13	2.3 pCi/l
095704	Quarters 13 (HOLD in place)	
095705	Quarters 10	0.6 pCi/l
095706	Quarters 10 (HOLD in place)	
095707	Quarters 11	1.3 pCi/l
095708	Quarters 11 (HOLD in place)	
095709	Quarters 6	0.9 pCi/l
095710	Quarters 6 (HOLD in place)	
095711	Quarters 7	0.7 pCi/l
095712	Quarters 7 (HOLD in place)	
095713	Quarters 8	0.3 pCi/l
095714	Quarters 8 (HOLD in place)	
095715	Quarters 9	1.1 pCi/l
095716	Quarters 9 (HOLD in place)	

TRANSFORMER RECORD

PCB YES NO

XFMR #	LOCATION	INSTALLED	# INST	KVA	VOLTAGE		PHASE		CONDITION	MOUNTING	MANUFACTURE	SERIAL #	% IMP	WEIGHT	AIR COOLED	
					PRIMARY	SECONDARY	SINGLE	THREE						LBS	OIL(G)	DRY
14	141	4/21/76	1	100.0	7200/12470	2400	X		GOOD	POLE	CENTRAL	7826-1	2.20	1120	31	
168	E. FENCE LINE	4/21/76	1	15.0	7200/12470	120/240	X		GOOD	POLE	LINE MAT	267125	2.00	420	16.5	
227	229	1/1/89	1	37.5	7620	120/240	X		GOOD	POLE	WESTINGHOUSE	643324	2.40	950	33.0	
227	229	4/21/76	1	37.5	7620	120/240	X		GOOD	POLE	WESTINGHOUSE	6030824	2.40	950	33.0	
227	229	4/21/76	1	37.5	7620	120/240	X		GOOD	POLE	WESTINGHOUSE	6077807	2.40	950	33.0	
292	S. FENCE LINE	4/21/76	1	15.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	3138977	2.00	320	27.0	
292	S. FENCE LINE	4/21/71	1	5.0	7200/11270	240	X		GOOD	POLE	WAGNER	5L219.53	2.80	301	20.0	
301	N. FENCE LINE	1/1/89	1	15.0	7200/12470	120/240	X		GOOD	POLE	GE	D994293-60Y	2.60	232	13.0	
391	PICNIC AREA	7/12/77	1	5.0	7200	120/240	X		GOOD	POLE	MALONEY	689160	1.20	320	21.3	
400	SWITCH GEAR	6/7/76	1	10.0	7200/12470	120/240	X		GOOD	POLE	WAGNER	A6F7365	2.80	300	12.0	
402	308/309	6/7/76	1	5.0	7200/12470	120/240	X		GOOD	POLE	MALONEY	NONE	3.20	320	12.0	
461	468/469	1/1/89	1	75.0	7200/12470	120/208	X		GOOD	POLE	WESTINGHOUSE	6150508	3.10	1090	12.0	
461	468/469	1/1/89	1	75.0	7200/12470	120/208	X		GOOD	POLE	WESTINGHOUSE	6150507	3.10	1090	40.0	
461	468/469	1/1/89	1	75.0	7200/12470	120/208	X		GOOD	POLE	WESTINGHOUSE	6113915	3.10	1090	40.0	
472	360	6/8/76	1	5.0	7200/12470	120/240	X		GOOD	POLE	PENN	3363-7	2.60	300	40.0	
475	J & 4TH ST	6/10/76	1	5.0	7200/12470	120/240	X		GOOD	POLE	MALONEY	687541	3.20	280	21.0	
552	550	11/28/89	1	75.0	7200/12470	120/240	X		GOOD	POLE	GE	N495606YGUA	3.10	1100	27.0	
552	550	11/28/89	1	75.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	70A03921	3.10	1090	27.0	
552	550	11/28/89	1	75.0	7200/12470	120/240	X		GOOD	POLE	GE	K229276Y71AA	3.10	1100	30.0	
584	489	6/10/70	1	15.0	7200/12470	120/240	X		GOOD	POLE	GE	D994294-60Y	2.30	330	21.3	
699	690	6/10/76	1	50.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	6070155	2.30	560	34.4	
699	690	6/10/76	1	50.0	7620/13200	120/240	X		GOOD	POLE	WESTINGHOUSE	6070139	2.30	631	30.4	
699	690	4/22/81	1	50.0	720Y/12470Y	120/240	X		GOOD	POLE	MAGNET ELEC	HH01882	2.50	631	30.4	
751	G ST	6/11/76	1	3.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	5569101	2.70	560	34.4	
751	G ST	6/11/76	1	3.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	5569035	2.70	290	15.1	
751	G ST	6/11/76	1	3.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	5569104	2.70	290	15.1	
755	754	11/28/89	1	37.5	7200/12470	120/240	X		GOOD	POLE	MAGNET	HF09615	2.50	290	15.1	
764	860	11/28/89	1	37.5	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	6113325	2.40	511	25.2	
764	860	1/1/89	1	37.5	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	6113322	2.40	950	33.0	
764	860	11/28/89	1	37.5	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	6113311	2.40	950	33.0	
778	670	6/10/76	1	15.0	7200/12470	120/240	X		GOOD	POLE	GE	D994292-60Y	2.30	950	33.0	
865	873	11/28/89	1	25.0	7200/12470	120/240	X		GOOD	POLE	HOWARD IND	63563-3136	2.40	300	12.0	
865	873	11/28/89	1	25.0	7200/12470	120/240	X		GOOD	POLE	HOWARD IND	63564-3136	2.40	396	20.1	
865	873	11/28/89	1	25.0	7200/12470	120/240	X		GOOD	POLE	HOWARD IND	63562-3136	2.40	396	20.1	
874	873	6/10/76	1	25.0	7200/12470	120/240	X		GOOD	POLE	MALONEY	676420	2.50	396	20.1	
906	19TH & B	6/10/76	1	15.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	3176567	2.40	390	20.1	
987	972	11/28/89	1	75.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	HF04236	1.40	843	37.0	
987	972	11/28/89	1	75.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	EG11559	1.40	550	20.0	
987	972	11/28/89	1	75.0	7200/12470	120/240	X		GOOD	POLE	UNITED ELEC	869869DAA	1.80	650	28.0	
991	S. FENCE LINE	4/21/76	1	5.0	7200/12470	120/240	X		GOOD	POLE	PENN	3363-5	2.60	300	12.0	
1031	W. FENCE LINE	4/21/76	1	25.0	7200/12470	120/240	X		GOOD	POLE	ALLIS CHALMERS	2441490	2.30	480	27.0	
1062	G ST	6/10/76	1	15.0	7200/12470	120/240	X		GOOD	POLE	LINE MATERIAL	292872	2.50	420	16.5	
1710	QTS 6,7,178	4/21/76	1	37.5	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	6030816	2.40	950	33.5	
1711	QTRS 8,9	4/21/76	1	37.5	7620	120/240	X		GOOD	POLE	WESTINGHOUSE	6076803	2.40	950	33.0	
1811	B ST	6/11/76	1	15.0	7200/12470	120/240	X		GOOD	POLE	MALONEY	680653	2.45	480	33.0	
4711	470	6/8/76	1	100.0	7200/12470	120/240	X		GOOD	POLE	ESCO	8024356	2.90	1420	27.0	
4711	470	6/8/76	1	100.0	7200/12470	120/240	X		GOOD	POLE	ESCO	8024355	2.90	1420	80.0	
4711	470	6/8/76	1	100.0	7200/12470	120/240	X		GOOD	POLE	GE	K455509K71AA	1.70	1420	80.0	
4714	470	3/12/91	1	75.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	9C1031DAA	1.80	650	28.0	
4714	470	3/12/91	1	75.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	9C1030DAA	1.80	650	28.0	
4715	470	3/12/91	1	50.0	7200/12471	120/241		X	GOOD	POLE	MAGNETIC	HE13938	2.20	631	28.0	
4715	470	3/12/91	1	50.0	7200/12470	120/240		X	GOOD	POLE	MAGNETIC	HE13906	2.20	631	30.4	

883 505

TRANSFORMER RECORD

XFMR #	LOCATION	INSTALLED	# INST	KVA	VOLTAGE		PHASE		CONDITION	MOUNTING	MANUFACTURE	SERIAL #	% IMP	WEIGHT	AIR COOLED	
					PRIMARY	SECONDARY	SINGLE	THREE						LBS	OIL(G)	DRY
4715	470	3/12/91	1	100.0	7200/12470	120/240		X	GOOD	POLE	MAGNETIC	H213007	2.30	931	29.4	
4716	470	3/12/91	1	100.0	7200/12470	120/240	X		GOOD	POLE	KUHLMAN	4670130184	2.00	1000	29.0	
4716	470	3/12/91	1	100.0	7200/12470	120/240		X	GOOD	POLE	KUHLMAN	4670130584	2.00	1000	29.0	
4719	470	11/28/89	1	100.0	7200/12470	120/240		X	GOOD	POLE	KUHLMAN	4675890984	2.00	1000	29.0	
4719	470	11/28/89	1	100.0	7200/12470	120/240	X		GOOD	POLE	KUHLMAN	4008570284	2.00	1000	29.0	
4719	470	11/28/89	1	100.0	7200/12470	120/240	X		GOOD	POLE	KUHLMAN	4659040883	2.00	1000	29.0	
4912	490	3/7/91	1	100.0	7200/1200	470	X		GOOD	POLE	KUHLMAN	4659040483	2.00	1000	29.0	
4912	490	1/1/89	1	100.0	7200/1200	470	X		GOOD	POLE	MAGNETIC	IZ02870	2.30	1021	49.0	
4912	490	1/1/89	1	100.0	7200/1200	470	X		GOOD	POLE	MAGNETIC	IZ02871	2.30	1021	49.0	
6240	685	1/1/89	1	100.0	7200/12470Y	120/240	X		GOOD	POLE	MAGNETIC	IZ02872	2.30	1021	49.0	
6240	685	1/1/89	1	100.0	7200/12470Y	120/240	X		GOOD	POLE	KUHLMAN	4639480282	1.80	990	29.1	
6240	685	1/1/89	1	100.0	7200/12470Y	120/240	X		GOOD	POLE	KUHLMAN	4639480182	1.80	990	29.1	
6715	670	1/1/89	1	100.0	7200/12470	120/240	X		GOOD	POLE	KUHLMAN	4639480682	1.80	990	29.1	
6715	670	4/21/76	1	100.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	68AA2840	1.50	1050	53.5	
6715	670	1/1/89	1	100.0	7200/12470	120/240	X		GOOD	POLE	GE	D428424-59P	2.20	1020	53.0	
6718	670	6/11/76	1	75.0	7200/12470	120/240	X		GOOD	POLE	GE	68AA2842	1.50	1020	53.0	
6718	670	6/11/76	1	75.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	6150500	3.10	1090	40.0	
6718	670	6/11/76	1	75.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	6150505	3.10	1090	40.0	
6719	670	2/8/91	1	100.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	6119919	3.10	1090	40.0	
6719	670	2/8/91	1	100.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	09469543DAA	1.50	1250	40.0	
6810	689	11/28/89	1	100.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	09469446DAA	1.50	1250	40.0	
6810	689	11/28/89	1	100.0	7200/12470	120/240	X		GOOD	POLE	CUHLMAN	4659040783	2.00	100	29.0	
6810	689	11/28/89	1	100.0	7200/12470	120/240	X		GOOD	POLE	CUHLMAN	4659040583	2.00	100	29.0	
6912	690	6/10/76	1	100.0	7200/12470	120/240	X		GOOD	POLE	CUHLMAN	4659040673	2.00	100	29.0	
6912	690	6/10/76	1	100.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	68AA-2839	1.50	1050	52.5	
6912	690	6/10/76	1	100.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	67AJ7913	1.50	1050	52.5	
6916	690	6/10/76	1	15.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	68AA2846	1.50	1050	52.5	
7910	M ST	6/10/76	1	25.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	68AC6612	3.50	350	20.0	
8012	B ST	6/10/76	1	37.5	7200/12470	120/240	X		GOOD	POLE	MALONEY	678801	1.60	843	37.0	
9433	685	1/1/89	1	37.5	7200/12470Y	120/240	X		GOOD	POLE	AC	2195345	2.90	920	27.0	
9433	685	1/1/89	1	37.5	7200/12470Y	120/240	X		GOOD	POLE	MAGNETIC	HG01560	2.50	498	25.0	
9814	970/875	1/1/89	1	15.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	HG01559	2.50	498	25.0	
9950	972	11/28/89	1	37.5	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	HG01557	2.50	498	25.0	
9950	972	11/28/89	1	25.0	7200/12470	120/240	X		GOOD	POLE	GE	6299377	1.60	330	21.8	
9950	972	11/28/89	1	25.0	7200/12470	120/240	X		GOOD	POLE	WESTINGHOUSE	6030822	3.10	950	37.0	
10811	972	6/10/76	1	167.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	830772	2.50	396	20.1	
10811	972	6/10/76	1	167.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	830771	2.50	386	19.0	
10811	972	6/10/76	1	167.0	7200/12470	120/240	X		GOOD	POLE	AC	2488542	3.40	1246	46.0	
15399	873/875	8/4/94	1	50.0	7200/12470	120/240		X	GOOD	POLE	AC	2486050	3.50	1246	46.0	
15399	873/875	8/4/94	1	50.0	7200/12470	120/240		X	GOOD	POLE	AC	2488527	3.40	1246	46.0	
15399	873/875	8/4/94	1	50.0	7200/12470	120/240		X	GOOD	POLE	UNITED UTILITY	8223P3DAA	1.80	650	28.0	
17353	835	1/1/89	1	10.0	7200/12470Y	120/240	X		GOOD	POLE	UNITED UTILITY	822065DAA	1.80	650	28.0	
21374	970/972	8/4/94	1	50.0	7200/12470	120/240		X	GOOD	POLE	UNITED UTILITY	8223820AA	1.80	650	28.0	
21374	970/972	8/4/94	1	50.0	7200/12470	120/240		X	GOOD	POLE	MAGNETIC	HG05593	3.10	213	9.0	
21374	970/972	8/4/94	1	50.0	7200/12470	120/240		X	GOOD	POLE	MAGNETIC ELEC	821654DAA	1.80	631	30.4	
27322	N. FENCE LINE	1/1/89	1	5.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC ELEC	IZ11404	2.50	631	30.4	
144	144	11/28/89	1	75C.0	7200/12470	277/480		X	GOOD	POLE	MAGNETIC ELEC	822384DAA	1.80	631	30.4	
1-150	195	8/3/94	1	50.0	7200/12470	120/240		X	GOOD	PAD	MAGNETIC	IZ11886	2.60	232	13.0	
1-150	195	8/3/94	1	50.0	7200/12470	120/240		X	GOOD	POLE	PEMCO-CHANCE	98K34790	5.75	1639	157.0	
1-150	195	8/3/94	1	50.0	7200/12470	120/240		X	GOOD	POLE	MAGNETIC ELEC	IA00026	3.20	690	37.0	
											MAGNETIC ELEC	IA00027	3.20	690	37.0	
											MAGNETIC ELEC	IA00028	3.20	690	37.0	

Per →

883 506

INFORMATION NOT AVAILABLE

TRANSFORMER NUMBERING NOT YET DETERMINED

TRANSFORMER RECORD

XFMR #	LOCATION	INSTALLED	# INST	KVA	VOLTAGE		PHASE		CONDITION	MOUNTING	MANUFACTURE	SERIAL #	% IMP	WEIGHT	AIR COOLED	
					PRIMARY	SECONDARY	SINGLE	THREE						LBS	OIL(G)	DRY
143/144	144	1/21/76	1	100.0	7200/12470	2400	X		GOOD	PAD	CENTRAL	7826-1	1.30	1120	31.0	
143/144	144	4/21/76	1	100.0	7200/12470	2400	X		GOOD	PAD	CENTRAL	7826-2	1.30	1120	31.0	
143/144	144	4/21/76	1	167.0	7200/12470	120/240	X		GOOD	PLATFORM	CENTRAL MALONEY	1855551905	3.40	1266	46.0	
143/144	144	1/1/89	1	167.0	7200/12470	120/240	X		GOOD	PLATFORM	MCGRAW-EDISON	85NN110-005	3.50	1266	46.0	
143/144	144	4/21/76	1	167.0	7200/12470	120/240	X		GOOD	PLATFORM	CENTRAL MALONEY	1855519-10	3.40	1266	46.0	
20-370	1087	8/2/94	1	150.0	7200/12470	240.0		X	GOOD	PAD	COOPER POWER	939000724	4.90	2927	134.0	
20-370	1087	8/2/94	1	500.0	7200/12470	277/480		X	GOOD	PAD	COOPER POWER	939000745	4.00	5000	185.0	
213/214	210	11/28/89	1	167.0	7200/12470	277/480			GOOD	PAD	WESTINGHOUSE	88A3110022	2.50	1385	30.0	
213/214	210	11/28/89	1	167.0	7200/12470	277/480			GOOD	PAD	WESTINGHOUSE	88A312801	2.50	1385	30.0	
213/214	210	11/28/89	1	167.0	7200/12470	277/480			GOOD	PAD	WESTINGHOUSE	88A412354	2.50	1385	30.0	
300IA	308	8/8/94	1	25.0	7200/12470	120/240		X	GOOD	POLE	WESTINGHOUSE	A712A25AAE	1.70	386	20.0	
300IA	308	8/8/94	1	25.0	7200/12470	120/240		X	GOOD	POLE	WESTINGHOUSE	A7212A25AAE	1.70	386	20.0	
300IA	308	8/8/94	1	25.0	7200/12470	120/240		X	GOOD	POLE	MCGRAW EDISON	87NE361-039	2.30	386	20.0	
325/326	329	1/1/89	1	50.0	12470	120/240	X		GOOD	PLATFORM	GE	6711354	3.00	566	50.0	
325/326	329	1/18/91	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	MAGNETIC	I211950	1.80	690	37.0	
325/326	329	11/28/89	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	PENN	3364-6	2.30	690	37.0	
336/337	330	6/7/76	1	100.0	7620	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	73J3475	1-6	1050	53.5	
336/337	330	6/7/76	1	100.0	7220	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	73J3476	1-6	1050	53.5	
336/337	330	6/7/76	1	100.0	7620	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	73J3489	1-6	1050	53.5	
352/359	350	6/7/76	1	167.0	7200	120/240	X		GOOD	PLATFORM	AC	2451028	3.50	2500	90.0	
352/359	350	6/7/76	1	167.0	7200	120/240	X		GOOD	PLATFORM	AC	2486037	3.50	2500	90.0	
352/359	350	6/7/76	1	167.0	7200	120/240	X		GOOD	PLATFORM	AC	2409369	3.50	2500	90.0	
354/355	350	1/1/89	1	50.0	12470	240/480	X		GOOD	PLATFORM	MCGRAW/EDISON	87NE246-002	1.80	575	29.0	
357/358	350	1/1/89	1	100.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	K662857K71AA	1.70	1020	53.0	
357/358	350	6/9/76	1	75.0	7200/12470	120/240	X		GOOD	PLATFORM	ESCO	7912500	2.80	1020	53.0	
367/368	360	6/8/76	1	100.0	7200/12470	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	56L28678	2.90	1020	51.0	
367/368	360	1/1/89	1	100.0	7200/12470	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	738D11239	1.60	1050	52.5	
367/368	360	6/8/76	1	100.0	7200/12470	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	56K4928	2.90	1050	52.5	
437/438	430	1/1/89	1	50.0	7200/12470	120/240	X		GOOD	POLE	PENN	3364-9	3.50	650	30.0	
437/438	430	6/9/76	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	MALONEY	696002	3.50	650	30.0	
454/455	450	6/8/76	1	75.0	7620/13200	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	6150509	3.10	1180	49.0	
454/455	450	6/8/76	1	75.0	7620/13200	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	6150510	3.10	1180	49.0	
454/455	450	1/1/89	1	75.0	7620/13200	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	611917	3.10	1180	49.0	
4914/4915	490	7/19/80	1	75.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	M901317YHRA	2.80	1100	30.0	
4914/4915	490	6/8/76	1	75.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	M5729075	2.80	1100	30.0	
4916/4917	490	1/1/89	1	50.0	7620/13200	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	6070175	2.30	631	30.4	
4916/4917	490	6/8/76	1	50.0	7620/13200	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	60701575	2.30	631	30.4	
4916/4917	490	6/8/76	1	50.0	7620/13200	120/240	X		GOOD	PLATFORM	WESTINGHOUSE	6070145	2.30	631	30.4	
635/632	630	6/9/76	1	75.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	J455485570AA	1.75	1100	30.0	
635/632	630	6/19/76	1	75.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	K507792K72AA	1.75	1100	30.0	
635/632	630	6/9/76	1	75.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	J211721Y6AAA	1.75	1100	30.0	
653/654	650	6/9/76	1	75.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	B333648	1.70	1100	30.0	
653/654	650	6/9/76	1	75.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	B333570	1.70	1100	30.0	
653/654	650	6/17/76	1	75.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	N340700YGTA	2.85	1100	30.0	
684/685	689	2/7/91	1	75.0	7200	120/240	X		GOOD	PLATFORM	MAGNETIC	HI10794	1.50	917	47.6	
684/685	689	11/28/89	1	100.0	7200/12470	120/240	X		GOOD	PLATFORM	JERRY ELEC CO	4486-8	2.20	950	28.0	
684/685	689	11/28/89	1	100.0	7200/12470	120/240	X		GOOD	PLATFORM	JERRY ELEC CO	4486-10	2.20	950	28.0	
6915/69150	690	2/7/91	1	100.0	7200/12470	120/240	X		GOOD	PLATFORM	GE	3498548Y74AA	3.10	1020	53.0	
6915/69150	690	11/28/89	1	100.0	7200/12470	120/240	X		GOOD	PLATFORM	JERRY ELEC CO	4486-12	3.20	950	28.0	
6915/69150	690	11/28/89	1	100.0	7200/12470	120/240	X		GOOD	PLATFORM	JERRY ELEC CO	4486-11	3.20	950	28.0	
974/973	972	6/10/76	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	MALONEY	694004	3.50	650	28.0	
982/983	972/970	11/28/89	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	MALONEY	693982	3.50	650	28.0	

IXA-INFORMATION NOT AVAILABLE

TRANSFORMER NUMBERING NOT YET DETERMINED

TRANSFORMER RECORD

XFMR #	LOCATION	INSTALLED	# INST	KVA	VOLTAGE		PHASE		CONDITION	MOUNTING	MANUFACTURE	SERIAL #	% IMP	WEIGHT	AIR COOLED	
					PRIMARY	SECONDARY	SINGLE	THREE						LBS	OIL (G)	DRY
982/983	972/970	11/28/89	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	PENN	3364-8	2.20	1050	30.0	
982/983	972/970	11/28/89	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	MALONEY	694006	3.50	650	28.0	
A-476	GATE 15	1/1/89	1	5.0	7200/12470Y	120/240	X		GOOD	POLE	MAGNETIC	IZ11884	2.60	232	13.0	
A-484	N. FENCE LINE	4/21/76	1	5.0	7200/12470	120/240	X		GOOD	POLE	PENN	3363-2	2.60	330	21.3	
A035/A037	209	1/18/91	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	MAGNETIC ELEC	IZ11942	1.80	631	30.4	
A035/A037	209	1/18/91	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	MAGNETIC ELEC	IZ11942	1.80	631	30.4	
A035/A037	209	1/18/91	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	MAGNETIC ELEC	IZ11866	1.80	631	30.4	
B-294	GATE 15	1/1/89	1	15.0	7200/12470Y	120/240	X		GOOD	POLE	MOL	680653	3.30	480	23.0	
C-106/C-107	529	6/8/76	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	PENN	3364-1	2.30	650	30.0	
C-106/C-107	529	6/8/76	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	PENN	3364-3	2.30	650	30.0	
C-106/C-107	529	6/8/76	1	50.0	7200/12470	120/240	X		GOOD	PLATFORM	PENN	3364-2	2.30	650	30.0	
C-196	720	8/3/94	1	37.5	7200/12470	120/240	X		GOOD	POLE	MAGNETIC ELEC	IB005041	2.40	511	25.2	
C-196	720	8/3/94	1	37.5	7200/12470	120/240	X		GOOD	POLE	MAGNETIC ELEC	IB005040	2.40	511	25.2	
C-196	720	8/3/94	1	37.5	7200/12470	120/240	X		GOOD	POLE	MAGNETIC ELEC	IB005039	2.40	511	25.2	
E-126	530	1/1/94	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	821514DAA	1.80	650	28.0	
E-126	530	8/3/94	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	820845DAA	1.80	650	28.0	
E-126	530	8/3/94	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	820975DAA	1.80	650	28.0	
E-130	530	1/1/93	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	819649DAA	1.80	650	28.0	
E-130	530	1/1/93	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	826357DAA	1.80	650	28.0	
E-130	530	1/1/93	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	826198DAA	1.80	650	28.0	
E-138	737	8/3/94	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	822068DAA	1.80	650	28.0	
E-138	737	8/3/94	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	320846DAA	1.80	650	28.0	
E-138	737	8/3/94	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	822071EAA	1.80	650	28.0	
E-66	230	1/1/89	1	25.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	IZ12138	3.30	396	20.1	
E-66	230	1/1/89	1	25.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	IZ12137	3.30	396	20.1	
E-66	230	1/1/89	1	25.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC	IZ12136	3.30	396	20.1	
G-079	250	8/4/94	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	820844DAA	1.80	650	28.0	
G-079	250	8/4/94	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	820324DAA	1.80	650	28.0	
G-079	250	8/4/94	1	50.0	7200/12470	120/240	X		GOOD	POLE	UNITED UTILITY	820847DAA	1.80	650	28.0	
G-083	250	1/1/93	1	25.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC ELEC	IZ12134	3.30	396	20.1	
G-083	250	1/1/93	1	25.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC ELEC	IZ12139	3.30	396	20.1	
G-083	250	1/1/93	1	25.0	7200/12470	120/240	X		GOOD	POLE	MAGNETIC ELEC	IZ12135	3.30	396	20.1	
G-089	350/2	1/1/89	1	50.0	7200/12470Y	120/240	X		GOOD	POLE	DELTA STAR	5400213	2.60	590	30.0	
G-089	350/2	1/1/89	1	50.0	7200/12470Y	120/240	X		GOOD	POLE	MCGRAW EDISON	87NB246-012	1.80	575	29.0	
G-089	350/2	1/1/89	1	50.0	7200/12470Y	120/240	X		GOOD	POLE	DELTA STAR	54002212	2.60	590	30.0	
[illegible]	144	8/2/94	1	750.0	7200/12470	277/480		X	GOOD	PAD	PAUWELS CHANCE	88K34490	5.75	4639	157.0	
[illegible]	210	11/28/89	1	300.0	480	208/120		X	GOOD	PAD	SQUARE D	194827-1	2.40	4190		X
[illegible]	210	11/28/89	1	300.0	480	208/120		X	GOOD	PAD	ITE POWER	3F3Y300	6.30	1320		X
[illegible]	270	1/1/89	1	75.0	7200/12470Y	120/240	X		GOOD	POLE	MAGNETIC	IG12341	1.50	998	52.4	
[illegible]	270	1/1/89	1	75.0	7200/12470Y	120/240	X		GOOD	POLE	MAGNETIC	IB09073	2.00	910	47.6	
[illegible]	270	1/1/89	1	100.0	7200/12470Y	120/240	X		GOOD	POLE	UNITED UTILITY	09509126DAA	1.50	1068	40.0	
[illegible]	274	1/1/89	1	300.0	12470	120/208	X		GOOD	PAD	WESTINGHOUSE	885288046	2.40	4190		X
[illegible]	359	9/12/80	1	167.0	7200/12470	277/480	X		GOOD	PAD	HOWARD IND	359892279	2.00	1337	46.0	
[illegible]	359	9/12/80	1	167.0	7200/12470	277/480	X		GOOD	PAD	HOWARD IND	359872279	2.00	1337	46.0	
[illegible]	359	8/12/80	1	167.0	7200/12470	277/480	X		GOOD	PAD	HOWARD IND	359882279	2.00	1337	46.0	
[illegible]	359	8/12/80	1	167.0	7200/12470	277/480	X		GOOD	PAD	HOWARD IND	359902279	2.00	1337	46.0	
[illegible]	359	8/12/80	1	167.0	7200/12470	277/480	X		GOOD	PAD	HOWARD IND	359912797	2.00	1337	46.0	
[illegible]	370	3/12/91	1	75.0	7200/12470	120/240	X		GOOD	PAD	MAGNETIC	HI10791	2.60	650	28.0	
[illegible]	490	2/8/91	1	100.0	7200/13000	120/240	X		GOOD	PAD	JIMELCO	M88F0109	2.90	1420	80.0	
[illegible]	490	1/1/89	1	100.0	7200/13000	120/240	X		GOOD	PAD	JIMELCO	89F0108	2.90	1420	80.0	
[illegible]	490	2/8/91	1	100.0	7200/13000	120/240	X		GOOD	PAD	JIMELCO	M88F0110	2.90	1420	80.0	

N/A-INFORMATION NOT AVAILABLE

TRANSFORMER NUMBERING NOT YET DETERMINED

883508

TRANSFORMER RECORD

XFMR #	LOCATION	INSTALLED	# INST	KVA	VOLTAGE		PHASE		CONDITION	MOUNTING	MANUFACTURE	SERIAL #	% IMP	WEIGHT	AIR C
					PRIMARY	SECONDARY	SINGLE	THREE						LBS	OIL(G)
[redacted]	560	9/2/94	1	1500.0	7200/12470	120/277		X	GOOD	PAD	VANTRAN ELEC	20055959	5.75	1165	415.0
[redacted]	629	8/2/94	1	1000.0	7200/12470	277/480		X	GOOD	PAD	ATLANTIC	GF07115174	5.50	8350	370.9
[redacted]	629	8/2/94	1	1000.0	7200/12470	277/480		X	GOOD	PAD	ATLANTIC	EF08274134	5.70	9500	312.0
[redacted]	670	2/8/91	1	100.0	7200/12470	120/240	X		GOOD	PAD	UNITED UTILITY	09469064DAA	1.50	1250	40.0
[redacted]	689	1/1/93	1	500.0	7200/12470	240/480		X	GOOD	PAD	ELEC EQUIPMENT	279802076	2.00	2796	107.0
[redacted]	689	1/1/93	1	500.0	7200/12470	240/480		X	GOOD	PAD	ELEC EQUIPMENT	5628-478	2.00	2796	107.0
[redacted]	770	1/1/89	1	100.0	7200/12470Y	120/240	X		GOOD	[redacted]	MAGNETIC	IZ02371	2.30	1021	48.9
[redacted]	770	1/1/89	1	100.0	7200/12470Y	120/240	X		GOOD	[redacted]	MAGNETIC	IZ02369	2.30	1021	48.9
[redacted]	770	1/1/89	1	100.0	7200/12470Y	120/240	X		GOOD	[redacted]	MAGNETIC	IZ02370	2.30	1021	48.9
[redacted]	835	1/1/89	1	1000.0	12470Y	277/480Y	X		GOOD	PAD	GE	P179944TVB	5.60	7600	360.0
[redacted]	925	1/1/89	1	50.0	7200/12470Y	120/240	X		GOOD	[redacted]	MAGNETIC	IA00950	2.20	690	37.0
[redacted]	925	1/1/89	1	50.0	7200/12470Y	120/240	X		GOOD	[redacted]	MAGNETIC	IA00290	2.20	690	37.0
[redacted]	925	1/1/89	1	50.0	7200/12470Y	120/240	X		GOOD	[redacted]	MAGNETIC	IA00943	2.20	690	37.0
[redacted]	925	1/1/89	1	25.0	7200/12470Y	277.0	X		GOOD	[redacted]	MAGNETIC	IB11159	3.20	376	20.1
[redacted]	925	1/1/89	1	25.0	7200/12470Y	277.0	X		GOOD	[redacted]	MAGNETIC	IB11160	3.20	376	20.1
[redacted]	925	1/1/89	1	25.0	7200/12470Y	277.0	X		GOOD	[redacted]	MAGNETIC	IB11158	3.20	376	20.1
[redacted]	210/4	INA	1	1500.0	12470	277/480	X		GOOD	EQUIP RM	INA	INA	INA	INA	
[redacted]	350/3	1/1/89	1	75.0	7200/12470Y	120/240	X		GOOD	POLE	UNITED UTILITY	09232798AA	1.60	914	39.0
[redacted]	390/3	1/1/89	1	75.0	7200/12470Y	120/240	X		GOOD	[redacted]	UNITED UTILITY	09423260DAA	1.60	914	39.0
[redacted]	670/3	3/6/91	1	100.0	7200/12470	120/240	X		GOOD	PAD	MAGNETIC	I212146	2.30	1021	49.0
[redacted]	689/3	1/1/93	1	500.0	7200/12470	240/480		X	GOOD	PAD	ELEC EQUIPMENT	27969-2076	2.00	2796	107.0
[redacted]	690/1	3/7/91	1	50.0	7200/12470	120/240	X		GOOD	PAD	MAGNETIC	HH01882	1.80	650	28.0
[redacted]	690/2	3/6/91	1	75.0	7200/1200	120/240	X		GOOD	PAD	MAGNETIC	H113914	1.40	917	47.6
[redacted]	690/2	3/6/91	1	75.0	7200/1200	120/240	X		GOOD	PAD	MAGNETIC	H113915	1.40	917	47.6
[redacted]	690/2	3/6/91	1	75.0	7200/1200	120/240	X		GOOD	PAD	MAGNETIC	H113916	1.40	917	47.6
[redacted]	690/2	1/1/89	1	75.0	7200/12470Y	277	X		GOOD	POLE	MAGNETIC	HI13916	1.90	891	48.0
[redacted]	690/2	1/1/89	1	75.0	7200/12470Y	277	X		GOOD	POLE	MAGNETIC	HI13914	1.90	891	48.0
[redacted]	690/2	1/1/89	1	75.0	7200/12470Y	277	X		GOOD	POLE	MAGNETIC	HI13915	1.90	891	48.0
[redacted]	690/4	3/3/94	1	1000.0	7200/1200	120/208		X	GOOD	PAD	COOPER POWER	916005449	5.80	8118	341.0
[redacted]	690/5	1/1/89	1	100.0	7200/12470Y	120/240	X		GOOD	POLE	GE	L349854Y74AA	2.10	950	28.5
			238	26,533											
TRANSFORMER RESERVE:															
NOT ASSIGNED	YARD	STAND-BY	1	750	7200/12470	277/480			NEW	STORAGE	PAUWEL CHANCE	89G31519	5.75	4639	157.0
NOT ASSIGNED	YARD	STAND-BY	1	100	7200/12470	120/240	X		NEW	STORAGE	MAGNETIC	IB09497	2.30	1021	49.0
NOT ASSIGNED	YARD	STAND-BY	1	100	7200/12470	120/240	X		NEW	STORAGE	MAGNETIC	IB09494	2.30	1021	49.0
NOT ASSIGNED	YARD	STAND-BY	1	100	7200/12470	120/240	X		NEW	STORAGE	MAGNETIC	IB09496	2.30	1021	49.0
NOT ASSIGNED	YARD	STAND-BY	1	100	7200/12470	120/240	X		NEW	STORAGE	MAGNETIC	IB09493	2.30	1021	49.0
NOT ASSIGNED	YARD	STAND-BY	1	100	7200/12470	120/240	X		NEW	STORAGE	MAGNETIC	IB09491	2.30	1021	49.0
NOT ASSIGNED	YARD	STAND-BY	1	75	7200/12470	480	X		NEW	STORAGE	MAGNETIC	IC07475	2.00	917	47.6
NOT ASSIGNED	YARD	STAND-BY	1	75	7200/12470	480	X		NEW	STORAGE	MAGNETIC	IC07476	2.00	917	47.6
NOT ASSIGNED	YARD	STAND-BY	1	75	7200/12470	480	X		NEW	STORAGE	MAGNETIC	IC07477	2.00	917	47.6
			9	1475											

INA-INFORMATION NOT AVAILABLE

TRANSFORMER NUMBERING NOT YET DETERMINED

893 509

TRANSFORMER RECORD

XFMR #	LOCATION	INSTALLED	# INST	KVA	VOLTAGE		PHASE		CONDITION	MOUNTING	MANUFACTURE	SERIAL #	% IMP	WEIGHT	AIR CO
					PRIMARY	SECONDARY	SINGLE	THREE						LBS	OIL (G)
Sample Number	Ser No.	Type	DIA (in Inches)		Height		Approx KVA	Gallons	MFG		Weight (Pounds)		PCBs (ppm)	PCB Ident	
1	3361-9	Transformer	36	x	54		75	40	Pennsylvania		1060		102	1260	
2	7812498	Transformer	36	x	50		75	60	ESCO		1329		<0.5		
3	7812499	Transformer	36	x	50		75	60	ESCO		1329		<0.5		
4	7812497	Transformer	36	x	50		75	60	ESCO		1329		<0.5		
5	H662033Y68AA	Transformer	38	x	58		100	53	Gen Electric		1020		<0.5		
6	5J53363	Transformer	28	x	45		15	17	Wagner Electric		420		1.4	1260	
7	1784784	Transformer	28	x	43		15	23	Allis Chalmer		420		63.9	1260	
8	6113313	Transformer	33	x	53		37.5	40	Westinghouse		950		8.4	1260	
Pz mb 9	68AC6617	Transformer	28	x	36		15	20	Westinghouse		550		<0.5		
10	68AC6616	Transformer	28	x	36		15	20	Westinghouse		350		<0.5		
11	ST38925	Transformer	24	x	40		15	20	Wagner Electric		350		<0.5		
12	68AC9094	Transformer	28	x	36		15	20	Westinghouse		350		<0.5		
13	2195345	Transformer	42	x	52		37.5	35	Allis Chalmer		920		<0.5		
14	6150504	Transformer	33	x	53		75	40	Westinghouse		1090		5.2	1260	
15	6150506	Transformer	33	x	53		75	40	Westinghouse		1090		6.5	1260	
16	B9F1195	Transformer	24	x	44		15	16.5	Wagner Electric		420		<0.5		
17	B9F1194	Transformer	24	x	44		15	16.5	Wagner Electric		420		<0.5		
18	6117274	Transformer	36	x	52		37.5	40	Westinghouse		950		8.3	1260	
19	B9F1196	Transformer	24	x	44		15	16.5	Wagner Electric		420		4.8	1260	
20	2195338	Transformer	34	x	53		37.5	33	Allis Chalmer		920		<0.5		
21	7812496	Transformer	36	x	60		75	50	ESCO		1329		<0.5		
22	678802	Transformer	31	x	44		25	37	Maloney Elec.		843.5		23	1260	
23	679886	Transformer	31	x	44		25	37	Maloney Elec.		843.5		26.3	1260	
24	676415	Transformer	31	x	44		25	37	Maloney Elec.		843.5		19.1	1260	
25	679866	Transformer	31	x	44		25	37	Maloney Elec.		843.5		22.1	1260	

Cont. fr

883 540

883 511

PC2

PD-EL

JJ.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, Tennessee 38501

July 23, 1996

Mr. Roger A. Burke
Chief, Environment and Resources Branch
U.S. Army Corps of Engineers
P.O. Box 2288
Mobile, Alabama 36628-0001

Dear Mr. Burke:

Thank you for your letter and enclosures of July 10, 1996, regarding the cleanup activities at the Defense Distribution Depot Memphis in Shelby County, Tennessee. The Fish and Wildlife Service (Service) has reviewed the information submitted and offers the following comments.

Information available to the Service does not indicate that wetlands exist in the vicinity of the proposed project. However, our wetland determination has been made in the absence of a field inspection and does not constitute a wetland delineation for the purposes of Section 404 of the Clean Water Act or the wetland conservation provisions of the Food Security Act. The Corps of Engineers or the Natural Resources Conservation Service should be contacted if other evidence, particularly that obtained during an on-site inspection, indicates the potential presence of wetlands.

Endangered species collection records available to the Service do not indicate that federally listed or proposed endangered or threatened species occur within the impact area of the project. We note, however, that collection records available to the Service may not be all-inclusive. Our data base is a compilation of collection records made available by various individuals and resource agencies. This information is seldom based on comprehensive surveys of all potential habitat and thus does not necessarily provide conclusive evidence that protected species are present or absent at a specific locality. However, based on the best information available at this time, we believe that the requirements of Section 7 of the Endangered Species Act of 1973, as amended, are fulfilled. Obligations under Section 7 of the Act must be reconsidered if (1) new information reveals impacts of the proposed action that may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

Thank you for the opportunity to comment on this action. If you have any questions, please contact Timothy Merritt of my staff at 615/528-6481.

Sincerely,

Lee A. Barclay, Ph.D.
Field Supervisor

883 512

-R

Advisory Council On Historic Preservation

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

JUN 15 1998

Colonel Earle C. Richardson, GS
Deputy Chief of Staff for
Engineering, Housing, Environment and Installation Logistics
U.S. Army Materiel Command
Department of the Army
5001 Eisenhower Avenue
Alexandria VA 22333-0001

REF: Closure of Defense Distribution Depot
Memphis, Shelby County, Tennessee

Dear Coloney Richardson:

The enclosed Memorandum of Agreement for the referenced project has been accepted by the Council. This acceptance completes the requirements of Section 106 of the National Historic Preservation Act and the Council's regulations. We recommend that you provide a copy of the fully-executed Agreement to the Tennessee State Historic Preservation Officer.

Should you have any questions, please contact me at (202) 606-8528.

Sincerely,

Ralston Cox

Ralston Cox
Historic Preservation Analyst
Office of Planning and Review

Enclosure

883 513

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

DDSP-F

August 26, 1999

Turpin Ballard
Environmental Protection Agency
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 75-foot strip along Hayes Road on the east side of Dunn Field as a separate BRAC parcel. This is a necessary step to the Department of Defense making this strip available to the City of Memphis for a roadway widening project. This project was discussed at the June 1999 BRAC Cleanup Team meeting.

This redesignation of that strip will be established and defined in the upcoming BRAC Cleanup Plan. The parcel map will also be updated to reflect this change.

For more information, please contact me at (901) 544-0611.

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

883 514

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

Cooper Denise (DDMT)

883 515

From: HokieTrout@aol.com
Sent: 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
OL, MEMPHIS
2163 AIRWAYS BOULEVARD
MEMPHIS, TENNESSEE 38114

IN REPLY
REFER TO

DDSP-D (Memphis)

August 9, 2002

Mr. Turpin Ballard
Environmental Protection Agency, Region IV
Federal Facilities Branch
61 Forsyth Street
Atlanta, GA 30303

Dear Mr. Ballard:

This letter is to notify you of parcel boundary changes at Dunn Field. These changes are needed to facilitate the Dunn Field finding of suitability to lease/transfer process.

- Create Parcel 36.32 to delineate the Recreation Area as defined by JDB. Parcel 36.32 description will read: "open land area not included in other parcels in northeast corner of Dunn Field surrounding Building 1185, the former pistol range and the drainage ditches." Boundaries for this parcel will be: bounded on the north by fence line, bounded on the east by Parcel 36.31 (75-foot wide strip along Hays Road), bounded on the west by top of the ridgeline inside the dirt/gravel road, and bounded on the south by inside of gravel road.
- Parcel 36.15: Change description from "fluvial aquifer groundwater contamination beneath Dunn Field" to "open land area surrounding disposal sites in northwest corner of Dunn Field." Change map boundaries to: bounded on the north by the fence line, on the east by the inside of the road that runs along the railroad tracks, on the south by the southern edge of the asphalt pad (intersecting but excluding Parcel 36.29), and on the west by the fence line. This area basically coincides with the Disposal Area identified in the Dunn Field Remedial Investigation – eastern boundary in the DF RI for the Disposal Area along foot of ridgeline on east side of railroad tracks, so that the Disposal Area includes the railroad track and paved road.
- Parcel 36.30: Change description and map boundaries to: "all open land areas of Dunn Field not included in other parcels." This parcel coincides with areas on Dunn Field that appear to be available for unrestricted reuse based on the DF RI.

These changes were incorporated into the Rev. 0 BRAC Cleanup Plan Version 6 (BCPV6) document. All pertinent maps will also be updated to reflect this change.

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

JOHN P. DEBACK
DOD Base Transition Coordinator

Cc:
Mike Dobbs, DDC
Jim Covington, DRC

DEFENSE LOGISTICS AGENCY
DEFENSE DEPOT SUSQUEHANNA PENNSYLVANIA
OL, MEMPHIS
2163 AIRWAYS BOULEVARD
MEMPHIS, TENNESSEE 38114

IN REPLY REFER TO DDSP-D (Memphis)

August 9, 2002

Mr. Turpin Ballard
Environmental Protection Agency, Region IV
Federal Facilities Branch
61 Forsyth Street
Atlanta, GA 30303

Dear Mr. Ballard:

This letter is to notify you of parcel boundary changes at the Main Installation. These changes will facilitate a finding of suitability to transfer for the Main Installation. Below are the descriptions for the four new sub parcels we are creating in this year's BCP based on the areas identified for the next Finding of Suitability to Transfer for the Main Installation (MI FOST 3).

- Sub parcel Number and Label 24.4(4) HS/PS
  CERFA Map Location 12,6
  This sub parcel is associated with the eastern side of open storage area X03 extending from the recently constructed W.E. Freeman Drive to 6th Street. The Depot created this sub parcel in 2003 upon request from the DRC in order to facilitate transfer of this area. This sub parcel consists of a gravel area that was used to store mission stock chemicals and POLs in 55-gallon drums. This area was also historically sprayed with waste oil containing PCP, pesticides and herbicides. The MI RI Report indicated levels of several constituents exceeding BCT screening criteria that did not present unacceptable risks for industrial reuse, but did present unacceptable risks for residential reuse. The MI ROD calls for remedial action in the form of ICs to prevent residential or daycare operations reuse. In 2003, the BCT concurred that this sub parcel be a Category 4 based on implementation of the ICs.

- Sub parcel Number and Label 29.4(4)
  CERFA Map Location 4,18
  This sub parcel is associated with the eastern end of open storage area X30 extending from the recently constructed W.E. Freeman Drive to C Street. The Depot created this sub parcel in 2003 upon request from the DRC in order to facilitate transfer of this area. This sub parcel 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 addition, this sub parcel is associated with a 1.25-gallon hydraulic fluid spill that was reported on September 12, 1995. 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 residues in accordance with federal, state and local regulations. The MI RI Report indicated levels of several constituents exceeding BCT screening criteria that did not present unacceptable risks for industrial reuse, but did present unacceptable risks for residential reuse. The MI ROD calls for remedial action in the form of ICs to prevent residential or daycare operations reuse. In 2003, the BCT concurred that this sub parcel be Category 4 based on implementation of the ICs.

- Sub parcel Number and Label 33.12(4)
  CERFA Map Location 14,9
  This sub parcel is associated with the open land area surrounding Sub parcels 33.2, 33.4, 33.3, 33.7, 33.10 and 33.11 at the southern end of Parcel 33 extending from the Memphis Depot Parkway and W.E. Freeman Drive to 6th Street. The Depot created this

sub parcel in 2003 upon request from the DRC in order to facilitate transfer of this area. This sub parcel 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. The MI RI Report indicated levels of several constituents exceeding BCT screening criteria that did not present unacceptable risks for industrial reuse, but did present unacceptable risks for residential reuse. The MI ROD calls for remedial action in the form of ICs to prevent residential or daycare operations reuse. In 2003, the BCT concurred that this sub parcel be Category 4 based on implementation of the ICs.

- Sub parcel Number and Label 33.13(4)
  CERFA Map Location 12,15
  This sub parcel is associated with the open storage areas X09 and X08 as well as the open land area surrounding Buildings 720 and 727 at the northern end of Parcel 33 extending from W.E. Freeman Drive to 6th Street. The Depot created this sub parcel in 2003 upon request from the DRC in order to facilitate transfer of this area. This area contains gravel areas where mission stock chemical items were stored in 55-gallon drums. This sub parcel 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 contained a 12,000-gallon diesel aboveground storage tank west of Building 720 that was removed in 1997. The MI RI Report indicated levels of several constituents exceeding BCT screening criteria that did not present unacceptable risks for industrial reuse, but did present unacceptable risks for residential reuse. The MI ROD calls for remedial action in the form of ICs to prevent residential or daycare operations reuse. In 2003, the BCT concurred that this sub parcel be Category 4 based on implementation of the ICs.

These changes are incorporated into the Rev. 0 BRAC Cleanup Plan Version 7 document. All pertinent maps will also be updated to reflect this change.

For more information, please contact me at (901) 544-0622.

John P. DeBack

JOHN P. DEBACK
DOD Base Transition Coordinator

CC:
Mike Dobbs, DDC
Jim Covington, DRC

DEFENSE LOGISTICS AGENCY
DEFENSE DISTRIBUTION CENTER
2001 MISSION DRIVE
NEW CUMBERLAND, PA 17070-5000

IN REPLY
REFER TO

DDC J-3/J-4E

July 30, 2004

Mr. Turpin Ballard
Environmental Protection Agency, Region 4
Office of Solid Waste
Federal Facilities Branch
61 Forsyth Street, SW
Atlanta, Georgia 30303

Subject: Sub-Parcel Boundary Changes, Dunn Field

Dear Mr. Ballard:

This letter is to notify you of subparcel boundary changes at Dunn Field, Parcel 36. These changes will facilitate a finding of suitability to transfer for Dunn Field and were discussed at the BRAC Cleanup Team meeting on March 18, 2004. Below are descriptions for the subparcels affected by this change. The map locations refer to BRAC Cleanup Plan Figure 3-6, Environmental Condition of Property Map Dunn Field.

- Subparcel Number and Label 36.27(3)
  Map Location 31,12
  This subparcel is associated with Site 50 (Dunn Field Northeast Quadrant Drainage Ditch); a concrete-lined drainage ditch collects stormwater runoff from surrounding areas. In 2004, the BCT concurred to change the subparcel boundary to eliminate the area situated above groundwater contamination along the northern fence line (north subparcel boundary now ends about 225 feet south of the northern fence line). The Dunn Field RI Report indicated levels of several constituents exceeding BCT screening criteria that did not present unacceptable risks for residential, recreational and industrial reuse. The Dunn Field ROD does not contain Remedial Action Objectives for this site. In 2004, the BCT concurred to change this subparcel from Category 6 to Category 3.

- Subparcel Number and Label 36.30 (3)
  Map Location 28,12
  This subparcel is associated with the open land area east of the railroad tracks of Dunn Field excluding Subparcels 36.12 and 36.13 and includes Site 63 (8 Fluorspar storage mounds removed by the Defense National Stock Pile in 1999). In 2004, the BCT concurred to change the subparcel boundary to eliminate the

area situated above groundwater contamination along the northern fence line (north subparcel boundary now ends about 225 feet south of the northern fence line). The BCT also changed the western boundary to coincide with the area identified in the Dunn Field ROD as available for unrestricted reuse. This subparcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. This subparcel also contains grassed and gravel areas that were historically sprayed with pesticides and herbicides. The Dunn Field RI Report indicated several constituents exceeding BCT screening criteria that did not present unacceptable risks for industrial or residential reuse, except for arsenic levels that presented unacceptable risks for residential reuse, but were similar to levels identified throughout Shelby County and will not require remedial action. The Dunn Field ROD does not contain Remedial Action Objectives for this area or for Site 63. In 2004, the BCT concurred to change this subparcel from Category 6 to Category 3.

- Subparcel Number and Label 36.31 (3)
  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. In 2004, the BCT concurred to change the subparcel boundary eliminating the area situated above groundwater contamination along the northern fence line (northeast corner of subparcel boundary now ends about 116 feet south of the northern fence line and northwest corner of subparcel boundary now ends about 163.37 south of the northern fence line). This subparcel contains grassy areas that were historically sprayed with pesticides and herbicides. The Dunn Field RI Report indicated levels of several constituents exceeding BCT screening criteria that did not present unacceptable risks for residential or industrial reuse. The Dunn Field ROD does not contain Remedial Action Objectives for this subparcel. In 2004, the BCT concurred to change this subparcel from Category 6 to Category 3.

- Subparcel Number and Label 36.32 (3)
  Map Location 36,13
  This subparcel is associated with the open land area in the northeast corner of Dunn Field, excluding Subparcels 36.14, 36.25, 36.26 and 36.27. The Depot created this subparcel due to interest in the area as a future recreation/park area. In 2004, the BCT concurred to change the subparcel boundary eliminating the area situated above groundwater contamination along the northern fence line (north subparcel boundary now ends about 225 feet south of the northern fence line). This subparcel contains grassy areas that were historically sprayed with pesticides and herbicides. The Dunn Field RI Report indicated several constituents exceeding BCT screening criteria that did not present unacceptable risks for residential, recreational or industrial reuse. The Dunn Field ROD does not contain

Remedial Action Objectives for this area. In 2004, the BCT concurred to change this subparcel from Category 6 to Category 3.

These changes will be incorporated into the text and figures of the next version of the BRAC Cleanup Plan. Should you have any questions, please contact ma at (717) 770-6950 or Tom Holmes of MACTEC at (770) 421-3373.

Sincerely,

MICHAEL A. DOBBS
Environmental Program Manager

cc: Jim Morrison, TDEC
Jim Covington, DRC
Tom Holmes , MACTEC

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

401 CHURCH STREET
L & C ANNEX 6TH FLOOR
NASHVILLE TN 37243-1534

June 29, 2001

Mr. Cyde Hunt
Remedial Program Manager
Defense Distribution Depot Memphis
2163 Airways Boulevard
Memphis, TN 38114

Subject: **TERMINATION OF NPDES Permit No. TN0022322**
Defense Distribution Depot Memphis
Memphis, Shelby County, Tennessee

Dear Mr. Hunt:

This letter is to inform you the Division of Water Pollution Control is terminating the above referenced permit effective as of the date of this letter. The reason for this action is that the facility is being leased by the City of Memphis and Shelby County which has been transferred to Depot Redevelopment Corporation (DRC) per your letter dated April 9, 2001.

If you should decide to discharge again, you must reapply for an NPDES permit at least 180 days prior to any proposed discharge.

If you have questions concerning this correspondence or if we may be of assistance to you in any way, please contact Ms. Ranjana Chopra Sharp at (615) 532-0644 or by E-mail at *rsharp@mail.state.tn.us.*

Sincerely,

Saya Ann Qualls, P.E.
Manager, Permit Section
Division of Water Pollution Control

SAQ/RCS
P/WAT-29
Termination Final Letter TN0022322.DOC

Enclosure

cc: Division of Water Pollution Control, Permit Section
Environmental Assistance Center - Memphis, Division of Water Pollution Control
Enforcement and Compliance Section, Nashville

883 523 received
OCT 27 1998

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Solid Waste Management
Fifth Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243 - 1535

October 22, 1998

CERTIFIED MAIL P 446 336 049
RETURN RECEIPT REQUESTED

Mr. M.J. Kennedy
Colonel, USMC
Commander
Defense Logistics Agency
Defense Distribution Depot Memphis
2163 Airways Boulevard
Memphis, Tennessee 38114-5210

RE: Termination of Permitted
Container Storage
Defense Logistics Agency
Defense Distribution Depot Memphis
2163 Airways Boulevard
Memphis, Tennessee 38114-5210
EPA ID No.: TN4 21 002 0570
Permit No.: TNHW-053

Dear Mr. Kennedy:

The purpose of this letter is to notify you that pursuant to Tennessee Rule 1200-1-11-.07(9)(d), I have terminated only the operational container storage portions of your permit. This termination action does not affect the remainder of the permit (TNHW-053) or any permit condition, including any corrective action requirements. Termination of the container storage portion of your permit signifies that, by this action, the present permit (TNHW-053) is modified to reflect that only the container storage portion no longer has any valid authority to either be constructed or operated.

This termination and the subsequent modification of the operating permit is effective on October 22, 1998. After this date, the container storage can no longer be constructed or operated for the management of hazardous waste unless a new permit is sought and obtained in accordance with Rule 1200-1-11-.07.

This decision can be appealed pursuant to the Hazardous Waste Management Act, T.C.A. 68-212-113, and Rule 1200-1-11-.07(7)(k).

If you have any questions, please contact Ms. Hymelia Craig of my staff at (615) 532-0828.

Sincerely,

Tom Tiesler

Tom Tiesler, Director
Division of Solid Waste Management

Enclosure (1)

cc: Ms. Jamie Burroughs, Manager, Treatment and Storage Section
Mr. Otis Johnson, EPA, Region IV
Mr. Narindar Kumar, EPA, Acting Chief, RCRA Branch
Mr. Mark Thomas, Memphis Field Office
Mr. O.J. Wingfield, Chief, Financial Compliance
Mr. Bill Krispin, Manager, Land TSD Section

State of Tennessee
Department of Environment and Conservation
Division of Solid Waste Management

Hazardous Waste Management Program
5th Floor, L & C Tower
401 Church Street
Nashville, TN 37243-1535
(615) 532-0828

883 525

NOTICE OF TERMINATION OF A PERMITTED ACTIVITY AND MODIFICATION OF THE OPERATIONAL PERMIT

Permittee:	U.S. Department of Defense and Defense Logistics Agency, Defense Depot Memphis
Facility Location:	2163 Airways Blvd. Memphis, Tennessee 38114-5210
EPA ID No.:	TN4 21 002 0570
Permitted Activity:	Container Storage (S01)
Permitted Capacity:	154,440 gallons
Permit Number:	TNHW-053

Pursuant to the Tennessee Hazardous Waste Management Act of 1977, as amended (Tennessee Code Annotated 68, Chapter 212, Part 1) and the regulations promulgated thereunder by the Tennessee Solid Waste Disposal Control Board (found at Tennessee Rule Chapter 1200-1-11), it has been decided to terminate only the portion of the operational permit that allowed the construction and operation of a 154,440 gallon hazardous waste container storage area. This decision is based on the Permittee's request, dated June 30, 1997, to remove this from the permitted activities as identified in Permit Number: TNHW - 053.

Only activities authorized in the permit as part of the container storage operation will terminate on the effective date this document is signed. Terminated portions of the permit include Section III and Attachments 1 through 10. This action does not affect the remainder of the permit or any permit condition, including any corrective action requirements. After the effective date, no further activities involving the container storage portion of the permit is effective and if, in the future, the Permittee wishes to conduct such operations, a permit must be applied for and obtained from this Department in accordance with Rule 1200-1-11-.07.

This permit termination action is being processed as set forth in Rule 1200-1-11-.07(7) and can be appealed pursuant to the Hazardous Waste Management Act, T.C.A. 68-212-113 and Rule 1200-1-11-.07(7)(k).

Tom Tiesler, Director
Division of Solid Waste Management
Tennessee Department of Environment and Conservation

10/22/98
Effective Date

819 1

File: C.H. 549.700.000

883 526

AR# 819

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Solid Waste Management
Fifth Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243-1535

January 19, 2005

Mr. Michael A. Dobbs
Environmental Program Manager
Defense Logistics Agency (DLA)
Defense Distribution Center
2001 Mission Drive
New Cumberland, PA 17070-5000

CERTIFIED MAIL 7003 1680 0005 5753 4556
RETURN RECEIPT REQUESTED

RE: Denial to Reissue the Hazardous Waste Corrective Action Permit
Defense Depot Memphis Tennessee (DDMT)
EPA I.D. Number: TN4 210 020 570
TN Permit Number: TNHW-053

Dear Mr. Dobbs:

Enclosed is a copy of the Notice to Deny the Renewal of a Corrective Action Permit, which terminates the requirement for the permittee to continue corrective action under the hazardous waste management regulations at DDMT. Included is the Response to Comments on the Draft Corrective Action Permit. Denial of this permit is in accordance with Tennessee Hazardous Waste Management Rule 1200-1-11-.07(7) and it is effective as of January 19, 2005. All corrective action activities shall continue to be performed under CERCLA authority.

Please note that Rule 1200-1-11-.07(7)(k) outlines the process for appeals to a final permit decision. If you have any questions or comments, please contact Clayton Bullington at (615) 532-0859 or at clayton.bullington@state.tn.us.

Sincerely,

Charles Burroughs
Manager, Corrective Action Section

cc: Jon Johnston, Chief, RCRA Branch, EPA, Region 4
Thomas Holmes, MACTEC
David M. Buxbaum, Regional Attorney, US Army SREO
William Krispin, Manager, Permitting Sections, DSWM
Jamie Burroughs, Manager, TSD Section, DSWM
Phil Davis, Memphis Field Office, DSWM

State of Tennessee
Department of Environment and Conservation
Division of Solid Waste Management

Hazardous Waste Management Program
5th Floor L & C Tower
401 Church Street
Nashville, Tennessee 37243-1535

NOTICE OF DENIAL TO RENEW CORRECTIVE ACTION PERMIT

Permittee: U.S. Defense Logistics Agency
Facility: Defense Depot Memphis Tennessee
Identification Number: TN4 210 020 570
Owner: U.S. Department of the Army
Operator: Defense Logistics Agency
Permit Number: TNHW-053

Pursuant to the Tennessee Hazardous Waste Management Act of 1977, as amended (Tennessee Code Annotated 68, Chapter 212, Part 1) and the regulations promulgated thereunder by the Tennessee Solid Waste Disposal Control Board (found at Tennessee Rule Chapter 1200-1-11), it has been decided to deny renewal of the above referenced permit that required corrective action. This decision resulted from the Permittee's request to withdraw the permit application, as per letter dated September 24, 2004, and with agreement between the US Environmental Protection Agency and the Tennessee Department of Environment and Conservation to allow corrective action at Defense Depot Memphis Tennessee to continue under the authority of an enforceable CERCLA Federal Facilities Agreement.

All activities authorized in the permit as part of the corrective action requirements will terminate on the effective date this document is signed. After the effective date, all corrective action shall continue to be performed as authorized under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Federal Facility Agreement as entered into by the Defense Logistics Agency, the US Environmental Protection Agency and the State of Tennessee on March 6, 1995.

This permit termination action is being processed as set forth in Rule 1200-1-11-.07(7) and can be appealed pursuant to the Hazardous Waste Management Act, T.C.A. 68-212-113 and Rule 1200-1-11-.07(7)(k).

January 19, 2005
Effective Date

Mike Apple, Director
Division of Solid Waste Management

NOTICE OF FINAL DECISION TO DENY A HAZARDOUS WASTE CORRECTIVE ACTION PERMIT UNDER THE TENNESSEE HAZARDOUS WASTE MANAGEMENT ACT

The Tennessee Department of Environment and Conservation's (TDEC), Division of Solid Waste Management (DSWM) has made a final decision, effective as of January 19, 2005, to deny the renewal of hazardous waste permit (Permit Number: TNHW-053, EPA ID Number: TN4 210 020 570) for Defense Depot Memphis Tennessee (DDMT). This decision is based on the Defense Logistics Agency's (DLA) request to withdraw the RCRA (hazardous waste) permit renewal application (as per the reasons in the request letter dated September 24, 2004). This action follows a 45-day public comment period, which ended on September 27, 2004. It included a public hearing held on September 21, 2004. Two comments were received from the public during this comment period. This decision can be appealed pursuant to the Hazardous Waste Management Act, T.C.A. 68-212-113 and Rule 1200-1-11-.07(7)(k).

The draft permit identified known solid waste management units (SWMUs) and areas of concern (AOCs) at DDMT and required DLA to investigate any releases of hazardous waste or hazardous constituents pursuant to the permit, regardless of the time at which waste was placed in a unit, and to take appropriate corrective action for any such releases. The DLA, EPA and TDEC entered into a Federal Facility Agreement (FFA), effective March 6, 1995, to investigate and implement appropriate response actions at the DDMT, as necessary to protect the public health and the environment. In accordance with the FFA, all corrective action under the permit was deferred to, and being performed under, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. As part of the request to withdraw their application, DLA updated the status of the SWMUs and AOCs listed in the draft permit attachment. All the units and areas at DDMT have been investigated and now have a selected remedy under CERCLA. Since no hazardous waste activity that would require a permit is being performed at DDMT and because TDEC and EPA will have full authority to continue to enforce implementation of the selected remedies under CERCLA, DSWM will not issue the renewal permit.

A copy of the Response to Comments is available for public inspection at the Memphis/Shelby County Public Library - Cherokee Branch, 3300 Sharpe Ave., Memphis, Tennessee 38111(901-743-3655). These materials are also available for public inspection during normal business hours, 8:00 a.m. to 4:30 p.m., Monday through Friday, except legal holidays, at the TDEC Memphis Environmental Assistance Center, Public Access Area, Perimeter Park, 2510 Mt. Moriah, Suite E-645, Memphis, TN 38115 (901-368-7939).

For further information contact: Mr. Clayton Bullington; Corrective Action Section; Division of Solid Waste Management; Tennessee Department of Environment and Conservation; 5th Floor, L & C Tower; 401 Church Street; Nashville, Tennessee 37243-1535; telephone 615-532-0859; fax 615-532-0886 or e-mail to clayton.bullington@state.tn.us.

TDEC is committed to principles of equal opportunity, equal access and affirmative action. Contact the EEO/AA Coordinator or the ADA Coordinator at 1-888-867-2757 for further information. Hearing impaired callers may use the Tennessee Relay Service (1-800-848-0298).

Persons who wish to be added to the DSWM's mailing list should request a Mailing List Request form by calling or writing: Public Participation Officer; Division of Solid Waste Management; Tennessee Department of Environment and Conservation; 5th Floor, L & C Tower; 401 Church Street; Nashville, Tennessee 37243-1535; telephone 615-532-0798; or e-mail Solid.Waste@state.tn.us.

PUBLIC NOTICE ISSUED: _____

RESPONSE TO COMMENTS ON DRAFT CORRECTIVE ACTION PERMIT

This document has been prepared in accordance with Tennessee Rule 1200-1-11-.07(7)(j). It has resulted from the Tennessee Department of Environment and Conservation (TDEC) Division of Solid Waste Management's (DSWM) public notice of intent to reissue a draft corrective action permit to the U.S. Department of Army, owner of Defense Depot Memphis Tennessee (DDMT), and the Defense Logistics Agency (DLA). The facility is located in Memphis, Tennessee and is identified by EPA Installation I.D. Number TN4 210 020 570.

The draft permit identified known solid waste management units (SWMUs) and areas of concern (AOCs) at DDMT. The owner and operator (permittee) would be required to investigate any releases of hazardous waste or hazardous constituents pursuant to the permit, regardless of the time at which waste was placed in a unit, and to take appropriate corrective action for any such releases. The DLA, EPA and TDEC entered into a Federal Facility Agreement (FFA), effective March 6, 1995, to conduct investigation and implement appropriate response actions at the DDMT as necessary to protect the public health and the environment. In accordance with the FFA, all corrective action under the permit would be deferred to, and be performed under, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. Part A of this document describes the efforts made by the DSWM to obtain public input. Part B summarizes and responds to all significant comments received.

A. Public Involvement Opportunities

DSWM issued a public notice of the proposed reissuance of the corrective action permit in the August 13, 2004 edition of the Commercial Appeal. Three 30-second announcements of the action, referencing the notice published in the newspapers, were also provided over each of the following radio stations: WJRK (FM) and WDIA (AM) both in Memphis. The public notice advised that copies of the draft permit and modification with associated materials were available for review at the TDEC Memphis Environmental Assistance Center and Memphis/Shelby County Public Library – Cherokee Branch. The public notice also advised that copies of the fact sheet and draft permit were available. It further announced a public hearing set for September 21, 2004 at the South Memphis Senior Citizens Center, established a 45-day comment period (ending September 27, 2004) and described how interested persons could comment in writing or at the hearing on the proposed action.

B. Public Comment/Response Summary

Based on discussions with TDEC and EPA, the Defense Logistics Agency submitted a request to withdraw their permit application after the draft permit and a notice for a public hearing were issued. Five local members of the community attended the public hearing and three college students filmed the proceedings. Only one attendee provided oral comments at the hearing. A member of the facility Restoration Advisory Board provided a comment by e-mail during the 45-day draft permit comment period. A brief summary of the comments that are relevant to the permit decision and responses to those comments on the draft permit follow.

FACILITY COMMENT

COMMENT: The following paragraphs, as excerpted from the September 24, 2004 letter from DLA to TDEC, provide the request to withdraw their application:

Due to recent discussions between TDEC and U.S. Environmental Protection Agency (EPA) Region 4 Chief Resource Conservation and Recovery Act (RCRA) Programs, on behalf of Defense Logistics Agency (DLA) and the Department of Army (permittee), I respectfully withdraw the RCRA permit renewal application submitted for the DDMT on March 29, 2004.

It my understanding that all parties have agreed that the permit is not necessary considering: 1) the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) cleanup being conducted pursuant to a Federal Facilities Agreement (FFA), effective March 6, 1995, between DLA, TDEC and EPA; 2) the fact that permittee does not operate a hazardous waste management unit; and 3) the EPA policy to integrate RCRA and CERCLA cleanup programs at sites such as DDMT.

We are pleased the parties acknowledge that any corrective action which otherwise might be required under a RCRA permit for releases from all of the known SWMUs and areas of concern (AOCs) has been and shall continue to be deferred to the CERCLA response action process consistent with the FFA Section IX. RCRA/CERCLA INTEGRATION.

RESPONSE: The State agrees to allow DLA to withdraw their application for a corrective action permit. Prior to finalizing the decision to terminate the correction action permit, the State solicited comments from EPA on DLA's request, including submitting a draft copy of this Response to Comments for EPA's review. On November 24, 2004, the DSWM received a letter from EPA supporting TDEC's decision not to require a permit for DDMT. EPA agreed with the circumstances DLA cited as described in the above comment and as follows:

In accordance with the FFA, all corrective action under this permit is deferred to, and being performed under, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. At the time the permit application was submitted in March, 2004, the Record of Decision for Dunn Field had not been finalized. Also, the list of solid waste management units (SWMUs) and areas of concern (AOCs) did not appear to agree with the Record of Decision (ROD) when it was finalized in April, 2004. The summary table in the ROD said that several SWMUs had remedial action planned, though the permit application stated that no further action was required. As part of the request to withdraw their application, DLA updated the status of the SWMUs and AOCs listed in the draft permit attachment. All the units and areas at DDMT have been investigated and now have a selected remedy under CERCLA. Since no hazardous waste activity that would require a permit is being performed at DDMT and because TDEC and EPA have full authority to continue to enforce implementation of the selected remedies under the FFA, DSWM will not issue the renewal permit. The cleanup of DDMT under CERCLA pursuant to the FFA satisfies the requirements of RCRA Section 3004(u) and (v), as well as TCA 68-212-101 et seq. and TDEC regulations [Chapter 1200-1-11-.06(6)(1)].

PUBLIC COMMENTS

WRITTEN COMMENT: As a Restoration Advisory Board Member and community representative, I am in favor of the renewal of the correction action permit as detailed in the Notice of Public Meeting on September 21, 2004 fact sheet.

RESPONSE: TDEC has decided not to proceed with issuance of the permit. The draft permit was an administrative tool for corrective action that incorporated the work as performed under CERCLA. As all remedy selections are in place, the Commissioner of TDEC can fully enforce the implementation of those remedies under the state's Division of Superfund and/or the Division of Solid Waste Management. As the hazardous waste corrective action permit would only incorporate the work and decisions already made by the Division of Superfund and EPA in accordance with the FFA, and since all remedies are already selected, TDEC has decided not to renew the permit.

ORAL COMMENT: The commenter requested a 90-day waiting period before issuing the permit. She claimed the public had very limited involvement during past investigations and cleanups at the facility, nor during the final selection process. Also, the venue for review and input from the public was not conducive with the government overseeing the meetings. She would like the time to review the records of decisions and remedial design plans, and to allow her to organize and head a community meeting. Another comment concerned leaving contaminated media in place and not returning the site to pristine and safe for residential uses.

RESPONSE: TDEC has not received any notice for a community meeting, but will attend a meeting if one is held and provide assistance to the community in understanding the remedial selections. At the public hearing for the draft hazardous waste corrective action permit, TDEC noted receipt of DLA's request to withdraw their permit application and explained that TDEC intended to grant the withdrawal. As noted and for the reasoning in the previous responses, TDEC is not renewing the permit.

TDEC agrees that the facility will not be returned to pristine state. The cleanup levels for each area have been selected to limit any unreasonable exposures for on-site workers, members of the surrounding community or the environment. The site will be remediated to a level that is protective of human health and the environment based on the current and future uses of the property.

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE