



THE MEMPHIS DEPOT TENNESSEE

ADMINISTRATIVE RECORD COVER SHEET

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Post Removal Report

Contaminated Soil Remediation Family Housing Area Memphis Depot, Tennessee

Volume I of II

***USACE Contract No. DACA45-96-D-0014
Delivery Order No. 0010***

***U.S. Army Corps of Engineers
Mobile District
Tennessee Area Office
Arnold AFB, Tennessee 37389-9102***

March 1999 • Project No. 920560



**OHM Remediation
Services Corp.**

A Member of The IT Group

**POST REMOVAL REPORT
CONTAMINATED SOIL REMEDIATION**

**FAMILY HOUSING AREA
MEMPHIS DEPOT, TENNESSEE**

Submitted to:

U.S. Army Corps of Engineers
Mobile District, Tennessee Area Office
Contract No. DACA45-96-D-0014
Delivery Order No. 0010

Submitted by:

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TABLE OF CONTENTS

1.0	INTRODUCTION	1-1
1.1	Report Organization	1-1
1.2	Remedial Action Objective	1-2
1.3	Project Scope of Work	1-2
1.4	Site Description and Background.....	1-3
2.0	CHRONOLOGY OF EVENTS	2-1
3.0	REMEDIAL ACTION.....	3-1
3.1	Temporary Facilities	3-1
3.2	Implementation of the Environmental Protection Plan	3-2
3.2.1	Stormwater and Sediment Control Measures.....	3-2
3.2.1	Dust and Air pollution Control	3-2
3.3	Vegetation Removal and Protection.....	3-3
3.4	Pre-Excavation Field Screening	3-3
3.4.1	Area A Soil Screening.....	3-4
3.4.2	Area B Soil Screening	3-5
3.4.3	Area C Soil Screening	3-5
3.5	Initial Soil Excavation - Areas A & B.....	3-6
3.5.1	Initial Confirmation Sampling - Area A.....	3-6
3.5.2	Initial Confirmation Sampling - Area B.....	3-7
3.6	Final Soil Excavation - Areas A & B.....	3-8
3.6.1	Final Confirmation Sampling - Areas A and B.....	3-9
3.7	Soil Excavation - Area C.....	3-9
3.7.1	Confirmation Sampling - Area C	3-9
3.8	Backfilling and Site Restoration	3-10
3.9	Site-Specific Health and Safety Summary	3-10
4.0	TRANSPORTATION AND DISPOSAL OF EXCAVATED SOIL.....	4-1
4.1	Disposal Characterization	4-1
4.2	Transportation and Off-Site Disposal	4-1

TABLES

Table 1	Immunoassay Field Screening Results
Table 2	Composite Confirmation Sample Analytical Results-Area A at 6-inch Excavation
Table 3	Individual Grid Confirmation Sample Analytical Results-Area A at 6-inch Excavation
Table 4	Composite Confirmation Sample Analytical Results-Area A at 12-inch Excavation
Table 5	Composite Confirmation Sample Analytical Results-Area B at 12-inch Excavation
Table 6	Individual Grid Confirmation Sample Analytical Results-Area B
Table 7	Composite Confirmation Sample Analytical Results-Area C at 12-inch Excavation
Table 8	Clean Backfill (Top Soil) Analytical Results
Table 9	Disposal Characterization Analytical Results

TABLE OF CONTENTS - CONTINUED

FIGURES

Figure 1	Site Layout - Family Housing Area
Figure 2	Family Housing - Areas A, B and C
Figure 3	Sample Grid Locations
Figure 4	Immunoassay Soil Screening Locations and Results (0-6" bls)
Figure 5	Immunoassay Soil Screening Locations and Results (6-12" bls)
Figure 6	Area A - Confirmation Soil Samples Following 6-inch Excavation
Figure 7	Area A - Individual Grid Soil Samples Following 6-inch Excavation
Figure 8	Area A - Confirmation Soil Samples Following 12-inch Excavation
Figure 9	Area B - Confirmation Soil Sample Following 6-inch Excavation
Figure 10	Area B - Individual Grid Soil Samples Following 6-inch Excavation
Figure 11	Area B - Confirmation Soil Samples Following 12-inch Excavation
Figure 12	Area C - Confirmation Soil Samples Following 12-inch Excavation
Figure 13	Final Excavation Depths

APPENDICES

Appendix A	USEPA Region 3 Risk-Based Concentrations for Soil, dated 22-Oct-97
Appendix B	Photographic Documentation of Soil Removal Action
Appendix C	Laboratory Analytical Reports with Chemical Analytical Data Evaluation Checklists and Chain of Custody Documentation
Appendix D	Letter from Subtitle D Landfill, Transportation & Disposal Log, and Waste Disposal Manifests

TAB

1.0

1.0 INTRODUCTION

This Post Removal Report presents the results of OHM Remediation Services Corp.'s (OHM) implementation of the dieldrin contaminated surface soil remedial action (RA) at the Family Housing Area of the Memphis Depot, Memphis, Tennessee (Depot). This work was performed under Federal Contract Number DACA45-96-D-0014, Delivery Order 0010 for the U.S. Army Corps of Engineers (USACE), Mobile District.

The design for this soil removal action was presented in the Technical Specification Package and Drawings, dated February 1998, prepared by CH2M HILL for the USACE. These specifications contained background data, design considerations, and assumptions for executing the project.

The pre-construction work plans that were developed and implemented for this delivery order, and that are to be considered as critical components to this RA, include the following:

- Sampling and Analysis Plan (SAP), dated May 22, 1998
- Site-Specific Health and Safety Plan (SHSP), dated June 15, 1998
- Remedial Action Work Plan (RAWP), dated June 23, 1998
- Environmental Protection Plan (EPP - included in the RAWP)
- Transportation and Disposal Plan (TDP - included in the RAWP)

1.1 REPORT ORGANIZATION

This Post Removal Report describes and documents how OHM implemented the major tasks encompassing the remediation of the contaminated surface soil at the Family Housing Area in conformance with the delivery order requirements. Section 1.0 of this report describes the remedial objective, scope of work, and site description. Section 2.0 details the chronology of events for the project. Section 3.0 describes the methodologies used for the environmental protection, excavation of soil, confirmation sampling and site restoration. The analytical results are also presented in this section. Section 4.0 documents the off-site disposal of the excavated soil.

1.2 REMEDIAL ACTION OBJECTIVE

The remedial objective for the surface soil at the Family Housing Area was to remove and dispose of the contaminated soils which have contaminants of concern (dieldrin) exceeding the established remediation goals. Under this time-critical approach of removal and off-site disposal, potential risks due to contaminated soil exposure would be reduced to acceptable levels using a residential scenario.

The risk-based remediation goal for dieldrin in the surface soil at the Family Housing Area is 0.04 mg/kg, as defined in the U.S. EPA Region 3 Risk-Based Concentrations-Residential Soil Ingestion, dated October 22, 1997 (included in *Appendix A*). Dieldrin contaminated soils exceeding the remedial goal were excavated and disposed off-site. Initially, the surficial 6-inches of soil was to be excavated from Area A based on historical analytical data. Concurrently, soil samples were to be collected within Areas A (6-12" bls), and Areas B and C (0-12" bls) to determine if the excavation of additional soil was required. As presented in this report, a majority of the soil in Areas A, B and C were excavated to 12-inches bls. No excavation was to be extended beyond 12-inches bls.

1.3 PROJECT SCOPE OF WORK

The following tasks were performed as part of the soil remedial actions at the Family Housing Area:

- Staked and surveyed 48 sampling grids in Areas A, B, and C.
- Field screened a total of 73 surface soil samples (collected from 0-12 inches below land surface [bls]) in Areas A, B, and C for dieldrin using immunoassay test kits.
- Verified the screening results of approximately 29% of the samples for dieldrin at an off-site, fixed-based laboratory.
- Installed a permanent chain-link fence along the south and west boundaries of the Family Housing Area, including the replacement of Installation Gate 4.
- Excavated 8 of 23 grids in Area A, and 1 of 8 grids in Area B to 6-inches bls.
- Excavated 15 of 23 grids in Area A, 7 of 8 grids in Area B and 17 grids in Area C to 12-inches bls.
- Collected and analyzed 16 composite confirmation samples and 20 individual confirmation samples from the completed excavations in Areas A, B and C.

- Collected and analyzed 5 soil samples of the clean backfill (top soil) used to restore the site.
- Placed approximately 4,800 cubic yards of clean backfill and approximately 103,000 square feet of sod in Areas A, B and C as part of site restoration.
- Collected and analyzed 7 disposal characterization samples of the excavated soil.
- Transported and disposed of approximately 5,020 tons of excavated soil/debris to an off-site RCRA Subtitle D landfill.

1.4 SITE DESCRIPTION AND BACKGROUND

The Depot covers 642 acres of land in Shelby County, Memphis, Tennessee, in the southwestern portion of the state. The facility is approximately four miles southeast of the central business district and one mile northwest of the Memphis International Airport. The Depot began operations in 1942 with the mission to inventory and supply materials for the United States Army. In 1964, its mission was expanded to serve as one of the principle distribution centers of a complete range of commodities. Past activities at the Depot include a wide range of storage, distribution, and maintenance practices. The Depot has been closed (since 1997) and is maintained by the Memphis Depot Caretaker Division, under the control of the Defense Depot Susquehanna, Pennsylvania/Defense Logistics Agency (DLA). The Depot is currently undergoing Base Realignment and Closure (BRAC) activities.

The Family Housing Area is located on the east-southeast portion of the Depot, between Half Street and Zero Street, and occupies approximately four acres of land area (see Figure 1). Four currently vacant residential structures are located on the site. Private commercial and residential property abuts the site to the east, and Depot installation property abuts the site to the north, south and west. The existing Depot installation fence borders the site to the east and north.

For the purposes of this project, the site was divided into three areas; Area A (approximately 63,500 ft²), Area B (approximately 15,200 ft²) and Area C (approximately 24,200 ft²). Each of the three areas is shown on Figure 2. The primary contaminant of concern at the site is dieldrin, a pesticide which was sprayed in the area. Previous soil sampling by CH2M HILL at the site prior to the soil removal action indicated dieldrin concentrations in the range of 0.720 mg/kg to 5.5 mg/kg.

TAB

2.0

2.0 CHRONOLOGY OF EVENTS

On February 27, 1998, OHM was requested by the USACE to prepare a proposal for the contaminated surface soil remediation at the Family Housing Area of the Depot. Delivery order award occurred on May 29, 1998 and final work plans were completed on June 24, 1998. OHM mobilized to the site on June 22, 1998 and began soil removal actions in Area A on July 16, 1998. Final excavation and off-site disposal activities were completed on October 2, 1998, and final site restoration in Area C was complete on October 5, 1998.

The following chronology provides a summary of major events and/or activities associated with award of the delivery order through the completion of the soil removal action.

DESCRIPTION OF ACTIVITY OR EVENT	DATE
<u>Contractual</u>	
Receipt of RFP from USACE.....	27-Feb-98
OHM Submits Initial Proposal.....	17-Mar-98
Proposal Negotiation with USACE.....	21-Apr-98
OHM Submits Revised Proposal.....	24-Apr-98
Delivery Order Award and Notice to Proceed from USACE ..	29-May-98
Preconstruction Conference.....	17-Jun-98
Receive Authorization from USACE to Proceed with the Excavation of Additional Soil from Areas A, B, and C per the Negotiated Unit Prices..	5-Aug-98
<u>Work Plan and Submittals</u>	
Submittal of Sampling and Analysis Plan.....	16-May-98
Submittal of Site Specific Health and Safety Plan.....	12-Jun-98
Submittal of Remedial Action Work Plan.....	24-Jun-98
Submittal of Environmental Protection Plan.....	24-Jun-98
Submittal of Transportation and Disposal Plan	24-Jun-98
<u>Field Activities for Areas A & B</u>	
Site Mobilization & Construct Temporary Facilities.....	22-Jun-98 to 11-Jul-98
Field Screening of Soil in Areas A, B and C.....	24-Jun-98 to 30-Jun-98
Install Permanent Fence and Gates.....	25-Jun-98 to 15-Jul-98
Install Erosion Control Measures for Areas A & B	29-Jun-98 to 6-Jul-98

Clearing of Vegetation from Areas A & B 8-Jul-98 to 10-Jul-98
 Excavate Area A (0-6") 16-Jul-98 to 7-Aug-98
 T&D of Excavated Soil from Area A 21-Jul-98 to 13-Aug-98
 Confirmation Sampling in Area A 23-Jul-98 to 29-Jul-98
 Excavate Additional Soil from Area A 6-Aug-98 to 1-Sep-98
 Excavate Additional Soil from Area B 10-Aug-98 to 1-Sep-98
 Additional Excavation Confirmation Sampling in Area A 14-Aug-98
 Excavation Confirmation Sampling in Area B 17-Aug-98 to 3-Sep-98
 Excavation Confirmation Sampling in Area A 31-Aug-98 to 3-Sep-98
 Backfill Areas A & B. 1-Sep-98 to 15-Sep-98
 Placement of Sod in Areas A & B... .. 15-Sep-98 to 19-Sep-98
 T&D of Additional Soil from Areas A & B.. .. 13-Aug-98 to 21-Sep-98

Field Activities for Area C

Clearing of Vegetation from Area C 17-Aug-98 to 1-Sep-98
 Install Erosion Control Measures for Area C 1-Sep-98 to 19-Sep-98
 Excavate Soil from Area C to 12-inches bls 19-Sep-98 to 2-Oct-98
 Excavation Confirmation Sampling in Area C.. 22-Sep-98 to 2-Oct-98
 Backfill Area C..... 22-Sep-98 to 2-Oct-98
 Placement of Sod in Area C..... 23-Sep-98 to 5-Oct-98
 T&D of Excavated Soil from Area C. 21-Sep-98 to 2-Oct-98
 Site Tear-down and Set-up for Excavation at the Cafeteria 2-Oct-98 to 15-Oct-98

TAB

30

3.0 REMEDIAL ACTIONS

On June 17, 1998, a pre-construction conference was held at the Depot by the USACE. Following the conference OHM mobilized to the site on June 22, 1998 and began construction of the temporary facilities required to support the planned soil removal action. Utility clearances were conducted at the Family Housing Area on June 17, 1998, prior to site mobilization. Underground utility lines were identified and marked in the field. Site utility lines are shown on Figure 1.0. Field activities continued until early October 1998. Photo documentation of the field activities is included in *Appendix B*.

3.1 TEMPORARY FACILITIES

OHM utilized its office trailer located at Dunn Field as a temporary administrative area and project management office. Field immunoassay tests were performed in this office trailer as part of the initial mobilization. The office trailer was then moved to the Family Housing Area prior to the start of construction activities. In addition, a personnel decontamination trailer and equipment decontamination area were constructed on-site (see Figure 1.0).

A temporary soil stockpile staging area was constructed on the existing asphalt parking lot, abutting the site north of Area C (see Figure 1.0). It was constructed with a bermed 40-mil bottom liner, and was covered with 10-mil liner. OHM installed a temporary chain-link fence with a locking gate to secure the stockpile area. Off-site transportation and disposal was conducted weekly to limit the accumulation of stockpiled soil at the Depot during non-work days (Sundays).

Permanent chain-link fencing was also installed on the site between June 25, 1998 and July 15, 1998, per Section 02831 of the Technical Specifications, on the south and west boundaries of the site (see Figure 1.0). The new permanent fence tied into the existing Depot installation fence to form a secure boundary to the site. Three gates were installed in the fence, and existing Installation Gate No. 4 was replaced with a 20-foot double swing gate.

3.2 IMPLEMENTATION OF THE ENVIRONMENTAL PROTECTION PLAN

3.2.1 Stormwater and Sediment Control Measures

The installation of the erosion control measures for Areas A and B began on June 29, 1998, and continued through July 15, 1998. The installation of the erosion control measures for Areas C began on September 1 and were completed on September 16, 1998. Stormwater run-off protection and sediment control were instituted by installing silt fencing, straw bales, sediment logs and grading. Prior to disturbance of vegetation and soil, temporary erosion and sediment control was established on the down gradient side of each area of excavation. Controls were installed along the east side of Areas A & B (on the west side of Zero Street), around the stormwater drains on the east side of Half Street, along the drainage gutter on the west side of Zero Street, and along the east boundary of Area C. OHM protected the existing stormwater drains from silt and sediment; however, stormwater runoff was allowed to continue to flow off-site via its normal routes.

3.2.2 Dust and Air Pollution Control

Personnel and ambient air monitoring was conducted as necessary in order to determine airborne dust and contaminant levels per the Site Specific Health and Safety Plan. Ambient air monitoring was conducted with a real-time aerosol monitor (miniram) at working locations and at the perimeter of the project site. The miniram is used to measure airborne particulate in personnel breathing zones and along the work area perimeter to determine when dust control measures must be instituted. The action level for the breathing zone and the site perimeter was $>1.0 \text{ mg/m}^3$. No exceedance of this action level was recorded during the monitoring. However, dust control measures were implemented based on the close proximity of the work areas to residential property along the east boundary of the Depot installation.

Specific measures taken to minimize particle emissions for major activities during site construction included the following:

Soil Excavation, Handling, Site Grading and Transportation

- Sprayed water on the soil during excavation and load out, and on traffic areas as necessary to minimize dust emissions.
- Covered stockpiles with sheeting to minimize wind and/or stormwater erosion.
- Moved and loaded soil for transport within the site that limits free fall of material and was least likely to generate dust emissions.
- Halted dust-generating work when wind conditions exceeded 35 miles per hour.

Movement of Equipment

- Watered traffic areas as required to minimize dust emissions.
- Designated equipment traffic patterns to minimize travel distance and vehicular dust emissions.
- Limited vehicle speed to minimize dust emissions.

3.3 VEGETATION REMOVAL AND PROTECTION

The trees and shrubs within the excavation zone were removed by OHM in accordance with Section 02222 of the technical specifications. Shrubs, landscaping and other vegetation (except for grass) within the areas of excavation were cut off flush with the existing ground surface and removed. All mature trees were left in place and protected in Areas A and B. Select trees were removed from Area C at the direction of the USACE Field Engineer.

All stumps greater than 2-inches in diameter, and associated roots, were cut or removed to a depth of 12-inches bls. All debris from the vegetation clearing was chipped/mulched to minimize volume and transported to the temporary soil stockpile staging area. Roots, stumps, and decorative landscaping lumber were also transported to the temporary soil stockpile staging area for subsequent off-site disposal at a RCRA Subtitle D landfill.

Prudent steps were taken to protect the mature trees inside the excavation zones. Low hanging branches were trimmed to prevent damage to the trees from the heavy excavating equipment. Hand digging was conducted around the trees and root masses within the radius of the drip lines. This was conducted to protect the roots of the mature trees.

3.4 PRE-EXCAVATION FIELD SCREENING

Screening samples were collected within Areas A, B, and C from June 24, 1998 to June 30, 1998. A grid system was surveyed prior to sampling and is illustrated on Figure 3.0. Two sample containers of one sample were collected for every 2,500 square feet area in accordance with Section 3.1.1 of the SAP. One of the sample containers was screened using an EnviroGard™ chlordane in soil immunoassay test kit. The other sample container was stored in a 4°C container for possible laboratory analysis, pending results from the immunoassay tests.

The EnviroGard™ test kit is cross-sensitive to dieldrin, the target compound, and meets risk-based remedial soil cleanup goal for dieldrin of 40 ug/Kg. Based on historical data, dieldrin was the only organochlorine pesticide found on the site above the risk-based soil cleanup goals. Therefore, it was conservatively assumed that the total concentration from the screening method would come from dieldrin. For this field screening event, the EnviroGard™ test kits had standards of 8.3 ug/Kg, 42 ug/Kg and 250 ug/Kg for dieldrin.

Upon obtaining the results of the immunoassay field screening, OHM then determined which samples would be sent to an off-site, fixed-based laboratory for verification of the screening results. Samples which fell into low (8.3 ug/Kg), mid (42 ug/Kg), and high (250 ug/Kg) level concentrations of dieldrin were sent to the off-site laboratory to obtain a correlation between the screening and off-site results. Approximately 29% of the screening samples were sent to the off-site lab for analyses.

3.4.1 Area A Soil Screening

Area A was divided into 23, 2500 square foot grids, excluding the areas for the building footprints and sidewalks, and was sampled as described in Section 3.1.1.4 of the SAP. Samples were collected at a depth of 6-12 inches bls. The soil from 0-6 inches in Area A was slated for excavation. The sampling locations are detailed on Figure 5.0.

The results of the field screening of the Area A soil samples indicated the presence of dieldrin at concentrations >42 ug/Kg in seven of the 23 samples (see Figure 5.0). Five samples were sent to the laboratory for confirmation analysis via SW-846 method 8081A. The laboratory analyses confirmed the field screening concentration in four of the five samples. The field screening sample from Grid A12 indicated a concentration of dieldrin of >250 ug/Kg; however, the laboratory analysis did not detect dieldrin. A second sample was collected from Grid A-12 on July 24, 1998, and was analyzed via SW-846 Method 8081A. Dieldrin was detected at a concentration of 2.37 ug/Kg, well below the soil cleanup goal for dieldrin of 40 ug/Kg. Based on the results of the field screening, Grids A2, A3, A13, A16, A20 and A23 were slated for further excavation to 12-inches bls.

The analytical results of the field screening and laboratory confirmation analyses for the Area A samples are summarized in Table 1.0, and the lab reports are included in *Appendix C*.

3.4.2 Area B Soil Screening

Area B was divided into eight, 2500 square foot grids and sampled as described in Section 3.1.1.4 of the SAP. Samples were collected at a depth of 0-6 inches bls and 6-12 inches bls. The sampling locations are detailed on Figures 4.0 and 5.0.

The results of the field screening of the Area B soil samples collected from 0-6 inches bls indicated the presence of dieldrin at concentrations >42 ug/Kg in all eight samples (see Figure 4.0). The results of the field screening of the Area B soil samples collected from 6-12 inches indicated the presence of dieldrin at concentrations >42 ug/Kg in five of eight samples (see Figure 5.0). Four samples were sent to the laboratory for confirmation analysis via SW-846 Method 8081A. The laboratory analyses confirmed the field screening concentration in three of the four samples. The field screening sample from Grid B1 (6-12 inches) indicated a concentration of dieldrin of <42 ug/Kg; however, the laboratory analysis indicated a concentration of dieldrin of 64.7 ug/Kg. Based on the results of the field screening and laboratory analyses, all of Area B was slated for excavation to 6-inches, and Grids B1, B2, B3, B7, and B8 were slated for further excavation to 12-inches bls.

The analytical results of the field screening and laboratory confirmation analyses for the Area B samples are summarized in Table 1.0, and the lab reports are included in *Appendix C*.

3.4.3 Area C Soil Screening

Area C was divided into 17, 2500 square foot grids and sampled as described in Section 3.1.1.4 of the SAP. Samples were collected at a depth of 0-6 inches and 6-12 inches from ground surface. The sampling locations are detailed on Figures 4.0 and 5.0.

The results of the field screening of the Area C soil samples collected from 0-6 inches indicated the presence of dieldrin at concentrations >42 ug/Kg in 14 of 17 samples (see Figure 4.0). The results of the field screening of the Area B soil samples collected from 6-12 inches indicated the presence of dieldrin at concentrations >42 ug/Kg in seven of 17 samples (see Figure 5.0). Eleven samples were sent to the laboratory for confirmation analysis via SW-846 Method 8081A. The laboratory analyses confirmed the field screening concentration in all 11 samples. Based on the results of the field screening and laboratory analyses, all of Area C, except for Grids C6, C7 and C15, was slated for excavation to 6-inches, and Grids C1, C2, C4, C5, C8, C9 and C11 were slated for further excavation to 12-inches bls.

The analytical results of the field screening and laboratory confirmation analyses for the Area C samples are summarized in Table 1.0, and the lab reports are included in *Appendix C*.

3.5 INITIAL SOIL EXCAVATION - AREAS A & B

Tracked and rubber-tired excavators were used to carefully excavate the soil. In addition, hand excavation was required around buildings, sidewalks, underground utilities and existing trees. Excavation depths were manually monitored with grade stakes and a tape measure to document the depth of the excavated soil. All excavated soil was transported to the temporary soil stockpile staging area for subsequent off-site disposal.

Excavation activities began in Area A on July 16, 1998, with the first 6-inches of soil. This portion of the excavation activities was completed on August 7, 1998. Per the results of the field screening, additional soil was excavated in Areas A and B beginning on August 6, 1998. At the completion of the initial excavation activities: (1) all of Area A had been excavated to 6-inches bls; (2) Grids A2, A3, A13, A16, A20 and A23 were excavated to 12-inches bls; (3) Grids B4, B5 and B6 were excavated to 6-inches bls; and (4) Grids B1, B2, B3, B7 and B8 were excavated to 12-inches bls.

3.5.1 Initial Confirmation Sampling - Area A

Following initial excavation activities, samples were collected at a frequency of not less than one composite sample for every 10,000 square foot area in the base of the completed excavations in Areas A and B, in accordance with Section 3.1.3 of the SAP. These composite samples were made up of soil from each of the corresponding 2500 square foot quadrants making up the corresponding area. Each composite sample was analyzed for pesticides by SW-846 Method 8081A, PCBs by SW-846 Method 8082, PAHs by SW-846 Method 8270C and TAL Metals (by various SW-846 Methods).

On July 23 and 31, 1998, four composite soil samples were collected from the 17 grids in Area A that were excavated to 6-inches. The locations of each of these four samples are detailed on Figure 6.0. The results of the laboratory analyses indicated the following (the analytical results are summarized in Table 2.0 and the laboratory reports are included in *Appendix C*):

1. Dieldrin was detected at a concentration of 159 ug/Kg in sample RA-A-001 (Grids A10, A11, A21, A22). This exceeds the cleanup goal of 40 ug/Kg.

2. Benzo(a)pyrene was detected at a concentration of 252 ug/Kg in sample RA-A-002 (Grids A8, A9, A18, A19). This exceeds the cleanup goal of 88 ug/Kg.
3. Dieldrin was detected at a concentration of 42 ug/Kg (262 ug/Kg in the duplicate sample) in sample RA-A-003 (Grids A1, A4, A7, A12, A15). This exceeds the cleanup goal of 40 ug/Kg.
4. Dieldrin was detected at a concentration of 80 ug/Kg and benzo(a)pyrene was detected at a concentration of 462 ug/Kg in sample RA-A-004 (Grids A5, A6, A14, A17). This exceeds the cleanup goals of 40 ug/Kg and 88 ug/Kg, respectively.

Based on these analytical results, 16 of the 17 grids were re-sampled individually on August 17, 1998 for the target contaminants of concern (dieldrin by SW-846 Method 8081A and/or benzo(a)pyrene by SW-846 Method 8270C). Grid A-12 was not re-sampled because it had already been re-sampled for dieldrin on July 24, 1998, and the results were well below the 40 ug/Kg cleanup goal (see Table 1.0). These 16 sample were collected and analyzed to better determine which grid or grids are contributing to the exceedances of dieldrin and/or benzo(a)pyrene. These samples were collected in accordance with sampling procedures outlined in the SAP. The location of each of the 16 samples are shown on Figure 7.0. The results of the laboratory analyses indicated the following (the analytical results are summarized in Table 3.0 and the laboratory reports are included in *Appendix C*):

1. No dieldrin or benzo(a)pyrene were detected in the samples collected from seven of the 16 grids (A1, A4, A8, A9, A10, A19 and A21) at concentrations greater than the cleanup goals. No further excavation was warranted in these grids.
2. Dieldrin and/or benzo(a)pyrene were detected in the samples collected from 10 of the 16 grids (A5, A6, A7, A11, A14, A15, A17, A18 and A22) at concentrations greater than the cleanup goals. The concentrations of dieldrin ranged from 42.7 ug/Kg to 964 ug/Kg, and the concentrations of benzo(a)pyrene ranged from 144 ug/Kg to 242 ug/Kg. These 10 grids were further excavated to a depth of 12-inches bls.

3.5.2 Initial Confirmation Sampling - Area B

On August 17, 1998, two composite soil samples were collected from the eight grids excavated in Area B. Sample RA-B-006 was collected from grids B1, B2, B3 and B7 that

were excavated to 12-inches bls. Sample RA-B-008 was collected from Grids B4, B5, B6 and B8. Grids B4, B5 and B6 were excavated to 6-inches and B8 was excavated to 12-inches bls. The locations of two samples are detailed on Figures 9.0 and 11.0. The results of the laboratory analyses indicated the following (the analytical results are summarized in Table 5.0 and the laboratory reports are included in *Appendix C*):

1. No analytes were detected in sample RA-B-006 at concentrations exceeding the applicable soil cleanup goals.
2. Benzo(a)pyrene was detected at a concentration of 121 ug/Kg in sample RA-A-008 (Grids B4, B5, B6, B8). This exceeds the cleanup goal of 88 ug/Kg.

Based on these analytical results, the four grids that comprised sample RA-B-008 were re-sampled individually on August 24, 1998 for the target contaminant of concern (benzo(a)pyrene by SW-846 Method 8270C). These samples were collected and analyzed to better determine which grid or grids were contributing to the exceedances of benzo(a) pyrene. These samples were collected in accordance with sampling procedures outlined in the SAP. The locations of each of the four samples are shown on Figure 10.0. The results of the laboratory analyses indicated the following (the analytical results are summarized in Table 6.0 and the laboratory reports are included in *Appendix C*):

1. No benzo(a)pyrene was detected in the samples collected from Grids B4 and B8 at concentrations greater than the cleanup goal of 88 ug/Kg. No further excavation was warranted in these grids.
2. Benzo(a)pyrene were detected in the samples collected from Grids B5 and B6 at concentrations 132 ug/Kg and 218 ug/Kg, which exceeds the cleanup goal of 88 ug/Kg. These two grids were further excavated to a depth of 12-inches bls.

3.6 FINAL SOIL EXCAVATION - AREAS A & B

Grids A5, A6, A7, A11, A14, A15, A17, A18 and A22 were further excavated to a depth of 12-inches. The final excavation in Area A was completed on September 3, 1998 (see Figure 13.0). Grids B5 and B6 were also further excavated to a final depth of 12-inches bls. The final excavation in Area B was completed on August 17, 1998 (see Figure 13.0).

3.6.1 Final Confirmation Sampling - Areas A and B

Following final excavation activities, confirmation samples were collected at a frequency of not less than one composite sample for every 10,000 square foot area of the base of the final excavations in Areas A and B, in accordance with Section 3.1.3 of the SAP. Each composite sample was analyzed for pesticides by SW-846 Method 8081A, PCBs by SW-846 Method 8082, PAHs by SW-846 Method 8270C and TAL Metals (by various SW-846 Methods).

On August 31, 1998, and September 3, 1998, four composite soil samples were collected from the 15 grids in Area A that were excavated to 12-inches. The locations of each of these four samples are detailed on Figure 8.0. The analytical results are summarized in Table 4.0 and the laboratory reports are included in *Appendix C*.

On August 31, 1998, one final composite soil sample was collected from Grids B5 and B6 in Area B that were excavated to 12-inches. The locations of the confirmation samples collected from 12-inches bls are detailed on Figure 11.0. The analytical results are summarized in Table 5.0 and the laboratory reports are included in *Appendix C*.

3.7 SOIL EXCAVATION - AREA C

Based on a decision made in the September BRAC Cleanup Team (BCT) meeting, and as approved by the Depot and the USACE, all of Area C was to be excavated to a depth of 12-inches bls. Excavation activities began in Area C on September 19, 1998, and continued until October 2, 1998.

3.7.1 Confirmation Sampling - Area C

Following excavation activities, samples were collected at a frequency of not less than one composite sample for every 10,000 square foot area of the base of the completed excavations in Area C, in accordance with Section 3.1.3 of the SAP. These composite samples were made up of soil from each of the corresponding 2500 square foot quadrants making up the corresponding area. Each composite sample was analyzed for pesticides by SW-846 Method 8081A, PCBs by SW-846 Method 8082, PAHs by SW-846 Method 8270C and TAL Metals (by various SW-846 Methods).

On September 22 and 29, 1998, and on October 2, 1998, a total of four composite soil samples were collected from the 17 grids in Area C that were excavated to 12-inches. The

locations of each of these four samples are detailed on Figure 12.0. The analytical results are summarized in Table 7.0 and the laboratory reports are included in *Appendix C*.

3.8 BACKFILLING AND SITE RESTORATION

Once the contaminated soils had been removed to a depth of 12-inches or confirmation sampling verified attainment of the remedial action goals, OHM began site restoration activities. Figure 13.0 illustrates the depths of each of the excavations in Areas A, B and C. All backfilling and site restoration activities were conducted in accordance with Sections 02222, 02935 and 02950 of the Technical Specifications.

A total of five samples of the backfill soils were collected (representing one sample per every 1,000 cubic yards of general fill/topsoil delivered to the site) in accordance with Section 3.1.4 of the SAP. The samples were collected between the dates of July 22, 1998, and October 1, 1998. Each sample was composed of four grabs from each 1,000 cubic yards of backfill, except for the volatile aliquot. An EnCore sampler was used to collect each volatile aliquot. The backfill samples were submitted to the laboratory for the following analyses: TCL pesticides/PCBs/volatiles/semi-volatiles, TAL metals and cyanide. The analytical results are summarized in Table 8.0 and the laboratory reports are included in *Appendix C*.

The bottom of the excavations were prepared by removing any standing water, stabilizing any wet areas, and rolling the surface to provide a firm and stable surface. A total of approximately 4,800 cubic yards of backfill/top soil material was placed in Areas A, B and C between the dates of September 1, 1998, and October 2, 1998.

Approximately 103,000 square feet of state-approved, nursery-grown sod (Bermuda grass blend) was placed across Areas A, B and C between the dates of September 15, 1998, and October 5, 1998. Placement of the nursery-grown plants will be re-established around the residential structures following completion of the lead based paint abatement activities.

3.9 SITE-SPECIFIC HEALTH AND SAFETY SUMMARY

OHM and its subcontractors performed more than 100 workdays and greater than 7,500 man-hours on this project without: (1) an OSHA recordable; (2) a lost time accident; and (3) a near miss. Signs were placed in the work zones, not only stating the required personal protective equipment (PPE) and where emergency equipment was located, but also stating the

location of the specific excavation area in which they were working. This proved to be good communication procedures, not only with the crew, but also with sub-contractors.

Heat stress was identified as the primary hazard for this project, especially with the amount of hand-digging required in Modified Level D protection during the summer months. A heat stress monitoring program was implemented as per the Site Health & Safety Plan. The guidelines followed were to have heat stress monitoring station set up in the Contamination Reduction Zone (CRZ). At this station the employee's pulse rate was recorded before and after each entry into the work zone. The action level for the pulse rate was 110 beat per minute (BPM). Each crew member was told when they felt hot to break and rest/cool down, and to always drink plenty of fluids. Each crew member was informed of the symptoms for heat exhaustion and stroke, not only to monitor them, but so they could be aware of the symptoms if displayed by a co-worker. The break area set up for the crew included a tent for cover from the sun and a 48" fan to insure the crew members would cool down during breaks.

TAB

40

4.0 TRANSPORTATION AND DISPOSAL OF EXCAVATED SOIL

This section of the report presents the findings of the disposal characterization, and documents the transportation and off-site disposal of the excavated soil from Areas A, B and C of the Family Housing Area at the Depot.

4.1 Disposal Characterization

In accordance with the SAP, three grab disposal characterization soil samples (designed RA-A-031-DS, RA-A-032-DS and RA-A-033-DS) were collected from *in situ* soil in Area A (Grids A3, A12 and A20) on July 2, 1998. These initial disposal characterization samples represented the first 1,500 cubic yards (or approximately 2,100 tons) of soil to be excavated from Area A. These samples were collected following the results of the immunoassay field screening. Based on the increased quantity of soil excavated from Areas A, B and C, four additional disposal characterization soil samples were collected. These samples were designed RA-A-034-DS, RA-A-035-DS, RA-A-036-DS and RA-A-037-DS, and were collected on August 19, 1998 and September 3, 1998.

All seven disposal characterization samples were submitted for TCLP analyses per 40 CFR 261.24 (full scan TCLP organics and inorganics). Sample collection was at the rate one sample for each 500 cubic yards of soil excavated. Soil analytical results were below the criteria listed in Table 1 of 40 CFR 261.23 for Maximum Concentration of Contaminants for the Toxicity Characteristic. The disposal characterization sample laboratory analytical reports are provided in *Appendix C* and the results are summarized in Table 9.0.

4.2 Transportation and Off-Site Disposal

Based on analytical results of the disposal characterization samples, the soil excavated from the Family Housing Area did not meet the criteria for hazardous waste. The waste profiling permitted direct disposal at a RCRA permitted Subtitle D landfill. Between July 21, 1998 and October 2, 1998, approximately 5,030 tons (204 truck loads) of excavated soil and associated debris (vegetation, trees, roots, wood, concrete, plastic liners and PPE) were loaded into end dump tractor trailers by OHM for off-site disposal. Water collected from the bermed temporary soil stockpile and generated during the decontamination of excavating equipment, along with water from the Depot fire hydrant system, was sprayed on the stockpiled soil during load-out activities as a dust control measure.

The excavated soil and debris was transported off-site to the Trash Hunters of Tunica (a Division of Waste Management) solid waste landfill facility, in Tunica County, Mississippi. The Trash Hunters of Tunica Landfill is a CERCLA approved, RCRA Subtitle D landfill. A description of the Trash Hunters of Tunica Landfill facility, the T&D tracking log and the non-hazardous waste disposal manifests are included in *Appendix D*.

TAB

Tables

Table No. 1: Immunoassay Field Screening Results
Family Housing Area
Memphis Depot, TN

378 28

Sample Grid Location	Sample Depth (inches, bis)	Immunoassay Absorbance Value	Field Screening Results (ppb)	Confirmation Laboratory Sample ID	Collection Date	Collection Time	Field Screening and Lab Analysis Dieldrin Conc. Correlation	Laboratory Confirmation Results (ug/kg) SW-846 Method 8081A Organochlorine Pesticides (only compounds detected listed)				
								Dieldrin	4,4'DDD	4,4'DDE	4,4'DDT	Chlordane
							USEPA Region III RBCs (ug/kg)	40	2700	1900	1900	1800
A-1	6-12	0.81	<42		6/29/98	9:30						
A-2	6-12	0.42	>42		6/29/98	9:40						
A-3	6-12	0.28	>250		6/29/98	10:45						
A-4	6-12	0.71	<42		6/29/98	11:20						
A-4 (dup)	6-12	0.74	<42		6/29/98	11:20						
A-5	6-12	0.66	<42		6/27/98	15:30						
A-6	6-12	0.76	<42		6/27/98	14:25						
A-7	6-12	0.87	<42	RA-A-016-06-12"	6/27/98	15:40	Yes	19.7	4.12	17.5	18.9	<10
A-7 (dup)	6-12	0.86	<42	RA-A-019-00-00"	6/27/98	0:00	Yes	18.2	<1.0	18.5	12.3	<10
A-8	6-12	0.70	<42		6/27/98	14:30						
A-9	6-12	0.73	<42		6/27/98	13:00						
A-10	6-12	1.15	<42	RA-A-017-06-12"	6/27/98	10:15	Yes	<1.0	<1.0	<1.0	<1.0	<10
A-11	6-12	0.71	<42		6/27/98	11:15						
A-12	6-12	0.25	>250	RA-A-022-06-12"	6/30/98	9:00	No	<1.0	<1.0	<1.0	<1.0	<10
A-12	6-12	N/A	N/A	RA-A-022A-06-12"	7/24/98	13:15	-	2.37	<1.0	1.16	1.82	18.4
A-13	6-12	0.53	>42		6/27/98	15:00						
A-14	6-12	0.62	<42	RA-A-023-06-12	6/29/98	15:05	Yes	<10	55.4	42.5	84.9	<100
A-15	6-12	1.02	<42		6/27/98	10:00						
A-16	6-12	0.53	>42	RA-A-028-06-12"	6/29/98	16:55	Yes	81.2	6.43	14.9	9.65	<100
A-17	6-12	0.80	<42		6/29/98	16:55						
A-18	6-12	1.08	<42		6/27/98	16:30						
A-19	6-12	0.61	<42		6/27/98	16:40						
A-20	6-12	0.50	>42	RA-A-018-06-12"	6/27/98	13:10	Yes	94.8	<1.0	29.7	24.9	<10
A-21	6-12	0.90	<42		6/30/98	8:45						
A-22	6-12	0.66	<42		6/27/98	11:20						
A-23	6-12	0.38	>42		6/30/98	8:50						
EQB	N/A	N/A	N/A	RA-A-030-RB05	6/29/98	14:00		<0.04	<0.04	<0.04	<0.04	<0.4/<0.5

J = Estimated value Presence of the compounds was confirmed but less than the reported detected limit.

bis = below land surface

dup = duplicate QA sample

EQB = equipment rinse/seal blank

230 = exceeds USEPA RBC cleanup goal

Immunoassay Standards Stnd I = 8.3 ppb, Stnd II = 42 ppb, Stnd III = 250 ppb

25-Jun-98 Neg = 1.08 absorb, Stnd I = 0.85 absorb, Stnd II = 0.55 absorb, Stnd III = 0.27 absorb / 30 ppb stnd = 0.58 absorb

26-Jun-98(a) Neg = 1.00 absorb, Stnd I = 0.69 absorb, Stnd II = 0.50 absorb, Stnd III = 0.25 absorb / 30 ppb stnd = 0.57 absorb

26-Jun-98(b) Neg = 1.15 absorb, Stnd I = 0.86 absorb, Stnd II = 0.61 absorb, Stnd III = 0.28 absorb

27-Jun-98(a) Neg = 1.05 absorb, Stnd I = 0.72 absorb, Stnd II = 0.45 absorb, Stnd III = 0.21 absorb

27-Jun-98(b) Neg = 1.13 absorb, Stnd I = 0.87 absorb, Stnd II = 0.53 absorb, Stnd III = 0.23 absorb / 30 ppb stnd = 0.63 absorb

29-Jun-98 Neg = 1.22 absorb, Stnd I = 0.94 absorb, Stnd II = 0.62 absorb, Stnd III = 0.31 absorb / 30 ppb stnd = 0.74 absorb

30-Jun-98 Neg = 1.17 absorb, Stnd I = 0.91 absorb, Stnd II = 0.58 absorb, Stnd III = 0.28 absorb / 30 ppb stnd = 0.64 absorb

Table No. 1: Immunoassay Field Screening Results
Family Housing Area
Memphis Depot, TN

378 29

Sample Grid Location	Sample Depth (inches, bis)	Immunoassay Absorbance Value	Field Screening Results (ppb)	Confirmation Laboratory Sample ID	Collection Date	Collection Time	Field Screening and Lab Analysis Dieldrin Conc. Correlation	Laboratory Confirmation Results (ug/kg) SW-846 Method 8081A Organochlorine Pesticides (only compounds detected listed)				
								Dieldrin	4,4'DDD	4,4'DDE	4,4'DDT	Chlordane
B-1	0-6	0.20	>250		6/25/98	9:05						
B-1	6-12	0.62	<42	RA-B-001-06-12"	6/25/98	9:10	No	84.7	<10	<10	<10	<100
B-2	0-6	0.20	>250	RA-B-003-00-06"	6/25/98	9:20	Yes	700	31.9	210	174	<100
B-2 (dup)	0-6	0.22	>250	RA-B-004-00-00"	6/25/98	0:00	Yes	980	<10	253	142	<100
B-2	6-12	0.28	>42		6/25/98	9:25						
B-3	0-6	0.14	>250		6/25/98	9:35						
B-3	6-12	0.55	>42		6/25/98	10:25						
B-3 (dup)	6-12	0.55	>42		6/25/98	10:25						
B-4	0-6	0.41	>42		6/24/98	16:25						
B-4	6-12	0.62	<42		6/24/98	16:35						
B-5	0-6	0.53	>42		6/24/98	16:15						
B-5	6-12	0.70	<42		6/24/98	16:20						
B-6	0-6	0.52	>42	RA-B-002-00-06"	6/24/98	15:50	Yes	70.5	<10	3.5	5.94	<10
B-6	6-12	0.77	<42		6/24/98	16:00						
B-7	0-6	0.14	>250		6/25/98	10:50						
B-7	6-12	0.17	>250		6/25/98	11:00						
B-8	0-6	0.14a	>250		6/25/98	10:45						
B-8 (dup)	0-6	0.12a	>250		6/25/98	10:45						
B-8	6-12	0.30a	>42	RA-B-006-06-12"	6/25/98	10:45	Yes	318	16.2	76.7	113	<100
EQB	N/A	N/A	N/A	RA-B-005-RB01	6/25/98	9:25		<0.04	<0.04	<0.04	<0.04	<0.04/<0.5
EQB	N/A	N/A	N/A	RA-B-014-RB02	6/26/98	8:56		<0.04	<0.04	<0.04	<0.04	<0.04/<0.5

J = Estimated value Presence of the compounds was confirmed but less than the reported detected limit.

bis = below land surface

dup = duplicate QA sample

EQB = equipment rinse/blank

250 = exceeds USEPA RBC cleanup goal

Immunoassay Standards Stnd I = 8.3 ppb, Stnd II = 42 ppb, Stnd III = 250 ppb

25-Jun-98 Neg = 1.08 absorb, Stnd I = 0.85 absorb, Stnd II = 0.55 absorb, Stnd III = 0.27 absorb / 30 ppb stnd = 0.58 absorb

26-Jun-98(a) Neg = 1.00 absorb, Stnd I = 0.69 absorb, Stnd II = 0.50 absorb, Stnd III = 0.25 absorb / 30 ppb stnd = 0.57 absorb

26-Jun-98(b) Neg = 1.15 absorb, Stnd I = 0.86 absorb, Stnd II = 0.61 absorb, Stnd III = 0.28 absorb

27-Jun-98(a) Neg = 1.05 absorb, Stnd I = 0.72 absorb, Stnd II = 0.45 absorb, Stnd III = 0.21 absorb

27-Jun-98(b) Neg = 1.13 absorb, Stnd I = 0.87 absorb, Stnd II = 0.53 absorb, Stnd III = 0.23 absorb / 30 ppb stnd = 0.63 absorb

29-Jun-98 Neg = 1.22 absorb, Stnd I = 0.94 absorb, Stnd II = 0.62 absorb, Stnd III = 0.31 absorb / 30 ppb stnd = 0.74 absorb

30-Jun-98 Neg = 1.17 absorb, Stnd I = 0.91 absorb, Stnd II = 0.58 absorb, Stnd III = 0.28 absorb / 30 ppb stnd = 0.64 absorb

Table No. 1: Immunoassay Field Screening Results
Family Housing Area
Memphis Depot, TN

378 30

Sample Grid Location	Sample Depth (inches, bis)	Immunoassay Absorbance Value	Field Screening Results (ppb)	Confirmation Laboratory Sample ID	Collection Date	Collection Time	Field Screening and Lab Analysis Dieldrin Conc. Correlation	Laboratory Confirmation Results (ug/kg) SW-846 Method 8081A Organochlorine Pesticides (only compounds detected listed)				
								Dieldrin	4,4'DDD	4,4'DDE	4,4'DDT	Chlordane
C-1	0-6	0.58	>42	RA-C-026-00-06"	6/27/98	9:35	Yes	52.4	<10	<10	2.8J	<100
C-1	6-12	0.59	>42		6/27/98	9:45						
C-2	0-6	0.18a	>250	RA-C-024-00-06"	6/25/98	16:30	Yes	460	<10	<10	4.9	<10
C-2	6-12	0.37a	>42		6/26/98	16:35						
C-2 (dup)	6-12	0.36a	>42		6/26/98	16:35						
C-3	0-6	0.35b	>42		6/26/98	15:20						
C-3	6-12	0.90b	<42		6/26/98	15:25						
C-4	0-6	0.37b	>42		6/26/98	15:30						
C-4	6-12	0.45b	>42		6/26/98	15:35						
C-5	0-6	0.31b	>42	RA-C-027-00-06"	6/26/98	15:05	Yes	173	33	130	100	<100
C-5 (dup)	0-6	0.35b	>42	RA-C-029-00-00"	6/26/98	0:00	Yes	261	37.5	170	201	<100
C-5	6-12	0.30b	>42		6/26/98	15:10						
C-6	0-6	0.88b	<42		6/26/98	13:55						
C-6	6-12	0.87b	<42		6/26/98	14:00						
C-6 (dup)	6-12	0.88b	<42		6/26/98	14:00						
C-7	0-6	0.62b	<42		6/26/98	14:05						
C-7	6-12	0.69b	<42		6/26/98	14:10						
C-8	0-6	0.16b	>250	RA-C-025-00-06"	6/26/98	13:00	Yes	496	69.3	380	360	<100
C-8	6-12	0.19b	>250		6/26/98	13:00						
C-9	0-6	0.13a	>250		6/26/98	13:30						
C-9	6-12	0.23a	>42		6/26/98	13:45						
C-10	0-6	0.43a	>42		6/26/98	12:30						
C-10	6-12	0.67a	<42		6/26/98	12:40						
C-11	0-6	0.13a	>250	RA-C-007-00-06"	6/25/98	16:50	Yes	1940	67.7	1050	1030	<100
C-11	6-12	0.13a	>250	RA-C-008-06-12"	6/25/98	17:00	Yes	1990	129	1020	756	<100
C-12	0-6	0.49a	>42		6/25/98	15:00						
C-12	6-12	0.61a	<42		6/25/98	15:10						

J = Estimated value Presence of the compounds was confirmed but less than the reported detected limit.

bis = below land surface

dup = duplicate QA sample

EQB = equipment rinseate blank

250 = exceeds USEPA RBC cleanup goal

Immunoassay Standards Stnd I = 8.3 ppb, Stnd II = 42 ppb, Stnd III = 250 ppb

25-Jun-98 Neg = 1.08 absorb, Stnd I = 0.85 absorb, Stnd II = 0.55 absorb, Stnd III = 0.27 absorb / 30 ppb stnd = 0.58 absorb

26-Jun-98(a) Neg = 1.00 absorb, Stnd I = 0.69 absorb, Stnd II = 0.50 absorb, Stnd III = 0.25 absorb / 30 ppb stnd = 0.57 absorb

26-Jun-98(b) Neg = 1.15 absorb, Stnd I = 0.86 absorb, Stnd II = 0.61 absorb, Stnd III = 0.28 absorb

27-Jun-98(a) Neg = 1.05 absorb, Stnd I = 0.72 absorb, Stnd II = 0.45 absorb, Stnd III = 0.21 absorb

27-Jun-98(b) Neg = 1.13 absorb, Stnd I = 0.87 absorb, Stnd II = 0.53 absorb, Stnd III = 0.23 absorb / 30 ppb stnd = 0.63 absorb

29-Jun-98 Neg = 1.22 absorb, Stnd I = 0.94 absorb, Stnd II = 0.62 absorb, Stnd III = 0.31 absorb / 30 ppb stnd = 0.74 absorb

30-Jun-98 Neg = 1.17 absorb, Stnd I = 0.91 absorb, Stnd II = 0.58 absorb, Stnd III = 0.28 absorb / 30 ppb stnd = 0.64 absorb

Table No. 1: Immunoassay Field Screening Results
Family Housing Area
Memphis Depot, TN

378 31

Sample Grid Location	Sample Depth (inches, bis)	Immunoassay Absorbance Value	Field Screening Results (ppb)	Confirmation Laboratory Sample ID	Collection Date	Collection Time	Field Screening and Lab Analysis Dieldrin Conc. Correlation	Laboratory Confirmation Results (ug/kg) SW-846 Method 8081A Organochlorine Pesticides (only compounds detected listed)				
								Dieldrin	4,4'DDD	4,4'DDE	4,4'DDT	Chlordane
C-13	0-6	0.49a	>42		6/25/98	16 30						
C-13	6-12	0.84a	<42	RA-C-009-06-12"	6/25/98	16 40	Yes	9.14	<1.0	11.6	11.8	<10
C-14	0-6	0.38a	>42	RA-C-010-00-06"	6/25/98	14.30	Yes	233	7.84	60.9	71.2	<100
C-14 (dup)	0-6	0.39a	>42	RA-C-011-00-00"	6/25/98	0 00	Yes	202	7.42J	60.6	105	<100
C-14	6-12	0.73a	<42	RA-C-012-06-12"	6/25/98	14.50	Yes	17.3	3.49	6.91	11.8	<10
C-15	0-6	0.66	<42		6/27/98	15 50						
C-15	6-12	0.90	<42	RA-C-015-06-12"	6/27/98	15 55	Yes	6.35	<1.0	<1.0	6.33	<10
C-16	0-6	0.23a	>42		6/26/98	11 00						
C-16	6-12	0.75a	<42		6/26/98	11 00						
C-17	0-6	0.48a	>42	RA-C-013-00-06"	6/26/98	10 40	Yes	49.1	<1.0	<1.0	<1.0	<10
C-17	6-12	0.74a	<42		6/26/98	10 40						
C-17 (dup)	6-12	0.73a	<42		6/26/98	10 40						
EQB	N/A	N/A	N/A	RA-C-020-RB03	6/27/98	8 45		<0.04	<0.04	<0.04	<0.04	<0.04/<0.5
EQB	N/A	N/A	N/A	RA-C-021-RB04	6/29/98	8 30		<0.04	<0.04	<0.04	<0.04	<0.04/<0.5

J = Estimated value. Presence of the compounds was confirmed but less than the reported detected limit.

bis = below land surface

dup = duplicate QA sample

EQB = equipment rinse/seal blank

230 = exceeds USEPA RBC cleanup goal

Immunoassay Standards: Stnd I = 8.3 ppb, Stnd II = 42 ppb, Stnd III = 250 ppb

25-Jun-98 Neg = 1.08 absorb, Stnd I = 0.85 absorb, Stnd II = 0.55 absorb, Stnd III = 0.27 absorb / 30 ppb stnd = 0.58 absorb

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26-Jun-98(b) Neg = 1.15 absorb, Stnd I = 0.86 absorb, Stnd II = 0.61 absorb, Stnd III = 0.28 absorb

27-Jun-98(a) Neg = 1.05 absorb, Stnd I = 0.72 absorb, Stnd II = 0.45 absorb, Stnd III = 0.21 absorb

27-Jun-98(b) Neg = 1.13 absorb, Stnd I = 0.87 absorb, Stnd II = 0.53 absorb, Stnd III = 0.23 absorb / 30 ppb stnd = 0.63 absorb

29-Jun-98 Neg = 1.22 absorb, Stnd I = 0.94 absorb, Stnd II = 0.62 absorb, Stnd III = 0.31 absorb / 30 ppb stnd = 0.74 absorb

30-Jun-98 Neg = 1.17 absorb, Stnd I = 0.91 absorb, Stnd II = 0.58 absorb, Stnd III = 0.28 absorb / 30 ppb stnd = 0.64 absorb

Table No. 2: Composite Confirmation Soil Sample Analytical Results
Area A at 6-Inch Excavation Depth
Family Housing Area
Memphis Depot, TN

378 32

SAMPLE DESIGNATION		RA-A-001	RA-A-002	RA-A-003	RA-A-005	RA-A-004	RA-A-EQ-001-CS
GRID COMPOSITE		A10, A11, A21, A22	A8, A9, A18, A19	A1, A4, A7, A12, A15	Duplicate of RA-A-003	A5, A6, A14, A17	equipment rinse/seal
SAMPLE DEPTH		6 inches	6 inches	6 inches		6 inches	EQ
LABORATORY ID NO.		9807738-01	9807738-02	9807A24-01	9807A24-03	9807A24-02	9807738-03
DATE SAMPLED		23-Jul-98	23-Jul-98	31-Jul-98		31-Jul-98	23-Jul-98
PERCENT SOLIDS		89%	98%	85%	84%	81%	Aqueous
LABORATORY ANALYSES		Units					
TCL Organochlorine Pesticides (SW-846 Method 8081A)							
Alpha-BHC	ug/Kg	<2.0	<2.0	<2.0	<2.0	<2.0	<0.04 ug/L
Beta-BHC	ug/Kg	<2.0	<2.0	<2.0	<2.0	<2.0	<0.04 ug/L
Delta-BHC	ug/Kg	<2.0	<2.0	<2.0	<2.0	<2.0	<0.04 ug/L
Gamma-BHC (Lindane)	ug/Kg	<2.0	<2.0	<2.0	<2.0	<2.0	<0.04 ug/L
Heptachlor	ug/Kg	<2.0	<2.0	<2.0	<2.0	<2.0	<0.04 ug/L
Aldrin	ug/Kg	<2.0	<2.0	<2.0	<2.0	<2.0	<0.04 ug/L
Heptachlor Epoxide	ug/Kg	4.12	<2.0	8.15	4.8	13.9	<0.04 ug/L
Endosulfan I	ug/Kg	2.15	<2.0	<2.0	<2.0	<2.0	<0.04 ug/L
Dieldrin	ug/Kg	159	30.5	42.2	262	80.4	<0.04 ug/L
4,4'-DDE	ug/Kg	107	27.5	58.6	143	77.6	<0.04 ug/L
Endrin	ug/Kg	<2.0	<2.0	<2.0	<2.0	<2.0	<0.04 ug/L
Endosulfan II	ug/Kg	<2.0	<2.0	<2.0	<2.0	<2.0	<0.04 ug/L
4,4'-DDD	ug/Kg	11.5	15.4	<2.0	<2.0	2.83	<0.04 ug/L
Endosulfan Sulfate	ug/Kg	3.51	<2.0	<2.0	<2.0	<2.0	<0.04 ug/L
4,4'-DDT	ug/Kg	730	67.9	105	282	334	<0.04 ug/L
Endrin Aldehyde	ug/Kg	10.4	3.01	<2.0	<2.0	<2.0	<0.04 ug/L
Endrin Ketone	ug/Kg	<2.0	<2.0	<2.0	<2.0	<2.0	<0.04 ug/L
Methoxychlor	ug/Kg	<2.0	<2.0	<2.0	<2.0	<2.0	<0.16 ug/L
Alpha-Chlordane	ug/Kg	49.9	7.93	14.6	77.3	32.3	<0.04 ug/L
Gamma-Chlordane	ug/Kg	33.1	4.97	7.49	59.4	17.7	<0.04 ug/L
Chlordane-Technical	ug/Kg	396	69.3	84.5	506	148	<0.50 ug/L
Toxaphene	ug/Kg	<35	<35	<35	<35	<35	<2.50 ug/L
PCBs (SW-846 Method 8082)							
PCB - 1016	ug/Kg	<35	<35	<35	<35	<35	<0.50 ug/L
PCB - 1221	ug/Kg	<35	<35	<35	<35	<35	<0.50 ug/L
PCB - 1232	ug/Kg	<35	<35	<35	<35	<35	<0.50 ug/L
PCB - 1242	ug/Kg	<35	<35	<35	<35	<35	<0.50 ug/L
PCB - 1248	ug/Kg	<35	<35	<35	<35	<35	<0.50 ug/L
PCB - 1254	ug/Kg	<35	<35	<35	<35	<35	<0.50 ug/L
PCB - 1260	ug/Kg	41.7	14.4J	<35	<35	<35	<0.50 ug/L
TCL PAHs (SW-846 Method 8270C)							
Acenaphthene	ug/Kg	<67	<67	<67	<67	<67	<2.0 ug/L
Acenaphthylene	ug/Kg	<67	<67	<67	<67	<67	<2.0 ug/L
Anthracene	ug/Kg	<67	<67	<67	<67	<67	<2.0 ug/L
Benzo(a)anthracene	ug/Kg	<67	216	<67	<67	494	<2.0 ug/L
Benzo(b)fluoranthene	ug/Kg	92.7	539	<67	<67	759	<2.0 ug/L
Benzo(k)fluoranthene	ug/Kg	<67	199	<67	<67	625	<2.0 ug/L
Benzo(g,h,i)perylene	ug/Kg	<67	164	<67	<67	311	<2.0 ug/L
Benzo(a)pyrene	ug/Kg	<67	229	<67	<67	462	<2.0 ug/L
Chrysene	ug/Kg	96.9	360	<67	<67	765	<2.0 ug/L
Dibenzo(a,h)anthracene	ug/Kg	<67	<67	<67	<67	<67	<2.0 ug/L
Fluoranthene	ug/Kg	119	293	<67	<67	801	<2.0 ug/L
Fluorene	ug/Kg	<67	<67	<67	<67	<67	<2.0 ug/L
Indeno(1,2,3-cd)pyrene	ug/Kg	<67	213	<67	<67	317	<2.0 ug/L
Naphthalene	ug/Kg	<67	<67	<67	<67	<67	<2.0 ug/L
Phenanthrene	ug/Kg	<67	79.2	<67	<67	81.6	<2.0 ug/L
Pyrene	ug/Kg	125	427	<67	<67	783	<2.0 ug/L

NOTES: Based on these results, Grids A1, A4, A5, A6, A7, A8, A9, A10, A11, A14, A15, A17, A18, A19, A21, A22 were sampled individually for dieldrin and/or benzo(a)pyrene

mg/Kg - milligrams per kilogram

ug/Kg - micrograms per kilogram

mg/L - milligrams per liter

ug/L - micrograms per liter

EQ = Equipment Blank

J = Estimated value based on data evaluation - data is acceptable

TCL - Target compound list

TAL - Target analyte list

PCB - polychlorinated biphenyl

PAH - polynuclear aromatic hydrocarbon

NA - not analyzed

Table No. 2: Composite Confirmation Soil Sample Analytical Results
Area A at 6-Inch Excavation Depth
Family Housing Area
Memphis Depot, TN

378 33

SAMPLE DESIGNATION	RA-A-001	RA-A-002	RA-A-003	RA-A-005	RA-A-004	RA-A-EQ-001-CS
GRID COMPOSITE	A10, A11, A21, A22	A8, A9, A18, A19	A1, A4, A7, A12, A15	Duplicate of RA-A-003	A5, A6, A14, A17	equipment rinsewater
SAMPLE DEPTH	6 inches	6 inches	6 inches		6 inches	EQ
LABORATORY ID NO.	9807738-01	9807738-02	9807A24-01	9807A24-03	9807A24-02	9807738-03
DATE SAMPLED	23-Jul-98	23-Jul-98	31-Jul-98		31-Jul-98	23-Jul-98
PERCENT SOLIDS	89%	98%	85%	84%	81%	Aqueous
LABORATORY ANALYSES	Units					
TAL Metals & Cyanide						
Silver (SW-846 Method 6010B)	mg/Kg	<0.7	<0.7	<0.7	<0.7	<0.009 mg/L
Aluminum (SW-846 Method 6010B)	mg/Kg	10900	11000	9740	14300	<0.060 mg/L
Arsenic (SW-846 Method 7060A)	mg/Kg	12.9	12.9	15.2	21.1	<0.003 mg/L
Barium (SW-846 Method 6010B)	mg/Kg	147	140	116	142	<0.003 mg/L
Beryllium (SW-846 Method 6010B)	mg/Kg	0.518	0.558	0.422	0.57	<0.002 mg/L
Calcium (SW-846 Method 6010B)	mg/Kg	1870	1570	1620	1760	0.030 mg/L
Cadmium (SW-846 Method 6010B)	mg/Kg	<0.4	<0.4	<0.4	<0.4	<0.005 mg/L
Cobalt (SW-846 Method 6010B)	mg/Kg	7.71	8.33	7.03	10.4	<0.009 mg/L
Chromium (SW-846 Method 6010B)	mg/Kg	13.4	14.5	13	18.2	<0.009 mg/L
Copper (SW-846 Method 6010B)	mg/Kg	16	17.8	17.3	22.4	<0.008 mg/L
Iron (SW-846 Method 6010B)	mg/Kg	19000	20400	17000	24200	<0.009 mg/L
Mercury (SW-846 Method 7471A)	mg/Kg	0.061	0.05	0.039	0.041	<0.0002 mg/L
Potassium (SW-846 Method 6010B)	mg/Kg	1040	960	722	1120	<0.250 mg/L
Magnesium (SW-846 Method 6010B)	mg/Kg	2190	2300	1970	2630	<0.040 mg/L
Manganese (SW-846 Method 6010B)	mg/Kg	587	681	595	723	<0.003 mg/L
Sodium (SW-846 Method 6010B)	mg/Kg	92.7	67.5	57.1	91.4	<0.050 mg/L
Nickel (SW-846 Method 6010B)	mg/Kg	16.8	18.5	15.1	18.6	<0.020 mg/L
Lead (SW-846 Method 7421)	mg/Kg	21.7	14.6	13.4	16.4	<0.002 mg/L
Antimony (SW-846 Method 6010B)	mg/Kg	<3.2	<3.2	<3.2	<3.2	<0.040 mg/L
Selenium (SW-846 Method 7740)	mg/Kg	0.412	0.224	0.304	0.349	<0.003 mg/L
Thallium (SW-846 Method 7871)	mg/Kg	0.173	0.195	0.181	0.302	<0.002 mg/L
Vanadium (SW-846 Method 6010B)	mg/Kg	21.4	21.6	18.8	26.5	<0.010 mg/L
Zinc (SW-846 Method 6010B)	mg/Kg	69.3	64.9	56.8	72.5	<0.010 mg/L
Cyanide (SW-846 Method 9010A)	mg/Kg	<1	<1	<1	<1	<0.010 mg/L

NOTES

mg/Kg - milligrams per kilogram
 ug/Kg - micrograms per kilogram
 mg/L - milligrams per liter
 ug/L - micrograms per liter

EQ = Equipment Blank
 J = Estimated value based on data evaluation - data is acceptable
 TCL - Target compound list
 TAL - Target analyte list

PCB - polychlorinated biphenyl
 PAH - polynuclear aromatic hydrocarbon
 NA - not analyzed

Table No. 3: Individual Grid Confirmation Soil Sample Analytical Results
Area A at 6-Inch Excavation Depth
Family Housing Area
Memphis Depot, TN

SAMPLE DESIGNATION		RA-A-CS-A1	RA-A-CS-A4	RA-A-CS-A5	RA-A-CS-A6	RA-A-CS-A7	RA-A-CS-A26 (Duplicate)	RA-A-CS-A8	RA-A-CS-A9	RA-A-CS-A24 (Duplicate)	RA-A-CS-A10
SAMPLE DEPTH		6 inches	6 inches	6 inches	6 inches	6 inches	6 inches	6 inches	6 inches	6 inches	6 inches
PERCENT SOLIDS		90%	91%	86%	84%	78%	79%	83%	89%	88%	86%
LABORATORY ID NO.		9808439-01	9808439-02	9808439-03	9808439-04	9808439-05	9808439-20	9808439-06	9808439-07	9808439-18	9808439-08
DATE SAMPLED		14-Aug-98	14-Aug-98	14-Aug-98	14-Aug-98	14-Aug-98	14-Aug-98	14-Aug-98	14-Aug-98	14-Aug-98	14-Aug-98
ORIGINAL COMPOSITE CONFIRMATION SAMPLE		RA-A-003	RA-A-003	RA-A-004	RA-A-004	RA-A-003	RA-A-003	RA-A-002	RA-A-002	RA-A-002	RA-A-001
LABORATORY ANALYSES		Units									
Semi-Volatiles PAH (SW-846 Method 8270C)		ug/Kg									
Benzo (a) pyrene		ug/Kg	NA	NA	<67	NA	NA	<67	<67	<67	NA
Organochlorine Pesticides (SW-846 Method 8081A)		Dieldrin	13	17.6J	964	54.7	37.7	NA	NA	NA	10.6J

NOTES

mg/Kg - milligrams per kilogram
ug/Kg - micrograms per kilogram
mol/L - milligrams per liter
ug/L - micrograms per liter
EO = Equipment Blank
J = Estimated value based on data evaluation - data is acceptable
TCL - Target compound list
TAL - Target analyte list
PCB - polychlorinated biphenyl
PAH - polynuclear aromatic hydrocarbon
NA - not analyzed

Table No. 3: Individual Grid Confirmation Soil Sample Analytical Results
Area A at 6-Inch Excavation Depth
Family Housing Area
Memphis Depot, TN

SAMPLE DESIGNATION		RA-A-CS-A11	RA-A-CS-A14	RA-A-CS-A15	RA-A-CS-A17	RA-A-CS-A18	RA-A-CS-A19	RA-A-CS-A21	RA-A-CS-A25 (Duplicate)	RA-A-CS-A22	RA-A-EQ-002
SAMPLE DEPTH		6 Inches	6 Inches	6 Inches	6 Inches	6 Inches	6 Inches	6 Inches	6 Inches	6 Inches	Equip. Blank
PERCENT SOLIDS		88%	88%	79%	80%	71%	84%	90%	89%	89%	Aqueous
LABORATORY ID NO.		9808439-09	9808439-10	9808439-11	9808439-12	9808439-13	9808439-14	9808439-15	9808439-19	9808439-16	9808439-17
DATE SAMPLED		14-Aug-98	14-Aug-98	14-Aug-98	14-Aug-98	14-Aug-98	14-Aug-98	14-Aug-98	14-Aug-98	14-Aug-98	14-Aug-98
ORIGINAL COMPOSITE CONFIRMATION SAMPLE		RA-A-001	RA-A-003	RA-A-003	RA-A-003	RA-A-002	RA-A-002	RA-A-001	RA-A-001	RA-A-001	
LABORATORY ANALYSES		Units									
Semi-Volatile PAH (SW-846 Method 8270C)											
Benzo (a) pyrene	ug/Kg	NA	222	NA	242	144	<67	NA	NA	NA	<2.0 ug/L
Organochlorine Pesticides (SW-846 Method 8081A)											
Dieldrin	ug/Kg	101	294	45.4	625	NA	NA	18.6J	16.7J	46.4	<0.04 ug/L

NOTES

mg/Kg - milligrams per kilogram
ug/Kg - micrograms per kilogram
mg/L - milligrams per liter
ug/L - micrograms per liter
EQ = Equipment Blank
J = Estimated value based on data evaluation - data is acceptable
TCL - Target compound list
TAL - Target analyte list
PCB - polychlorinated biphenyl
PAH - polynuclear aromatic hydrocarbon
NA - not analyzed

Table No. 4: Composite Confirmation Soil Sample Analytical Results
Area A at 12-inch Excavation Depth
Family Housing Area
Memphis Depot, TN

378 36

SAMPLE DESIGNATION	RA-A-009	RA-A-010	RA-A-011	RA-A-013	RA-A-0014	RA-A-EQ-004-CS	RA-A-EQ-005-CS
GRID COMPOSITE	A2, A3, A13, A14	Duplicate of RA-A-009	A5, A15, A16, A17	A6, A7, A18, A20	A11, A22, A23	equipment rinseate	equipment rinsate
SAMPLE DEPTH	12 Inches		12 Inches	12 Inches	12 Inches	EQ	EQ
LABORATORY ID NO.	9808978-01	9808978-02	9808978-03	9809153-01	9809153-02	9808978-05	9809153-03
DATE SAMPLED	31-Aug-98		31-Aug-98	03-Sep-98	03-Sep-98	31-Aug-98	03-Sep-98
PERCENT SOLIDS	97%		95%	85%	88%	Aqueous	Aqueous
LABORATORY ANALYSES	Units						
TCL Organochlorine Pesticides (SW-846 Method 8081A)							
Aldrin	ug/Kg	<20 0	<20 0	<20 0	<2 0	<0 040	<0 040
Alpha-BHC	ug/Kg	<20 0	<20 0	<20 0	<2 0	<0 040 ug/L	<0 040 ug/L
Beta-BHC	ug/Kg	<20 0	<20 0	<20 0	<2 0	<0 040 ug/L	<0 040 ug/L
Delta-BHC	ug/Kg	<20 0	<20 0	<20 0	<2 0	<0 040 ug/L	<0 040 ug/L
Gamma-BHC (Lindane)	ug/Kg	<20 0	<20 0	<20 0	<2 0	<0 040 ug/L	<0 040 ug/L
Alpha-Chlordane	ug/Kg	68.5	84	<20 0	<2 0	<0 040 ug/L	<0 040 ug/L
Gamma-Chlordane	ug/Kg	53.5	63.7	<20 0	<2 0	0.071 ug/L	<0 040 ug/L
Chlordane	ug/Kg	469	142J	<20 0	<20 0	<0 250 ug/L	<0 250 ug/L
4,4'-DDD	ug/Kg	54.3	51	14.2J	<2 0	<0 040 ug/L	<0 040 ug/L
4,4'-DDE	ug/Kg	268	176J	29	40.4	<0 040 ug/L	<0 040 ug/L
4,4'-DDT	ug/Kg	1220	1040	141J	34	10.3	<0 040 ug/L
Dieldrin	ug/Kg	414	299	<20 0	40	<2 0	<0 040 ug/L
Endosulfan I	ug/Kg	<20 0	<20 0	<20 0	<2 0	<0 040 ug/L	<0 040 ug/L
Endosulfan II	ug/Kg	<20 0	<20 0	<20 0	<2 0	<0 040 ug/L	<0 040 ug/L
Endosulfan Sulfate	ug/Kg	<20 0	<20 0	<20 0	<2 0	<0 040 ug/L	<0 040 ug/L
Endrin	ug/Kg	<20 0	<20 0	<20 0	<2 0	<0 040 ug/L	<0 040 ug/L
Endrin Aldehyde	ug/Kg	<20 0	<20 0	<20 0	<2 0	<0 040 ug/L	<0 040 ug/L
Endrin Ketone	ug/Kg	<20 0	<20 0	<20 0	<2 0	<0 040 ug/L	<0 040 ug/L
Heptachlor	ug/Kg	<20 0	<20 0	<20 0	<2 0	<0 040 ug/L	<0 040 ug/L
Heptachlor Epoxide	ug/Kg	<20 0	<20 0	<20 0	<2 0	<0 040 ug/L	<0 040 ug/L
Methoxychlor	ug/Kg	<20 0	<20 0	<20 0	<2 0	<0 040 ug/L	<0 040 ug/L
Toxaphene	ug/Kg	<2000	<2000	<2000	<200	<3 0 ug/L	<3 0 ug/L
PCBs (SW-846 Method 8082)							
PCB - 1016	ug/Kg	<35	<35	<35	<35	<0 50 ug/L	<0 50 ug/L
PCB - 1221	ug/Kg	<35	<35	<35	<35	<0 50 ug/L	<0 50 ug/L
PCB - 1232	ug/Kg	<35	<35	<35	<35	<0 50 ug/L	<0 50 ug/L
PCB - 1242	ug/Kg	<35	<35	<35	<35	<0 50 ug/L	<0 50 ug/L
PCB - 1248	ug/Kg	<35	<35	<35	<35	<0 50 ug/L	<0 50 ug/L
PCB - 1254	ug/Kg	<35	<35	<35	<35	<0 50 ug/L	<0 50 ug/L
PCB - 1260	ug/Kg	<35	<35	<35	<35	<0 50 ug/L	<0 50 ug/L
TCL PAHs (SW-846 Method 8270C)							
Acenaphthene	ug/Kg	<67	<67	<67	<67	<2 0 ug/L	<2 0 ug/L
Acenaphthylene	ug/Kg	<67	<67	<67	<67	<2 0 ug/L	<2 0 ug/L
Anthracene	ug/Kg	<67	<67	<67	<67	<2 0 ug/L	<2 0 ug/L
Benzo(a)anthracene	ug/Kg	<67	<67	<67	<67	<2 0 ug/L	<2 0 ug/L
Benzo(b)fluoranthene	ug/Kg	<67	<67	<67J	<67	<2 0 ug/L	<2 0 ug/L
Benzo(k)fluoranthene	ug/Kg	<67	<67	<67J	<67	<2 0 ug/L	<2 0 ug/L
Benzo(g,h,i)perylene	ug/Kg	<67	<67	<67J	<67	<2 0 ug/L	<2 0 ug/L
Benzo(a)pyrene	ug/Kg	<67	<67	<67J	<67	<2 0 ug/L	<2 0 ug/L
Chrysene	ug/Kg	<67	<67	<67	<67	<2 0 ug/L	<2 0 ug/L
Dibenzo(a,h)anthracene	ug/Kg	<67	<67	<67J	<67	<2 0 ug/L	<2 0 ug/L
Fluoranthene	ug/Kg	<67	<67	<67	52J	<2 0 ug/L	<2 0 ug/L
Fluorene	ug/Kg	<67	<67	<67	<67	<2 0 ug/L	<2 0 ug/L
Indeno(1,2,3-cd)pyrene	ug/Kg	<67	<67	<67J	<67	<2 0 ug/L	<2 0 ug/L
Naphthalene	ug/Kg	<67	<67	<67	<67	<2 0 ug/L	<2 0 ug/L
Phenanthrene	ug/Kg	<67	<67	<67	<67	<2 0 ug/L	<2 0 ug/L
Pyrene	ug/Kg	<67	<67	<67	40J	<2 0 ug/L	<2 0 ug/L

NOTES

mg/Kg - milligrams per kilogram
ug/Kg - micrograms per kilogram
mg/L - milligrams per liter
ug/L - micrograms per liter

EQ = Equipment Blank
J = Estimated value based on data evaluation - data is acceptable
TCL - Target compound list
TAL - Target analyte list

PCB - polychlorinated biphenyl
PAH - polynuclear aromatic hydrocarbon
NA - not analyzed

Table No. 4: Composite Confirmation Soil Sample Analytical Results
Area A at 12-Inch Excavation Depth
Family Housing Area
Memphis Depot, TN

378 37

SAMPLE DESIGNATION	RA-A-009	RA-A-010	RA-A-011	RA-A-013	RA-A-0014	RA-A-EQ-004-CS	RA-A-EQ-005-CS
GRID COMPOSITE	A2, A3, A13, A14	Duplicate of RA-A-009	A5, A15, A16, A17	A6, A7, A18, A20	A11, A22, A23	equipment rinseate	equipment rinsate
SAMPLE DEPTH	12 Inches		12 Inches	12 inches	12 Inches	EQ	EQ
LABORATORY ID NO.	9808978-01	9808978-02	9808978-03	9809153-01	9809153-02	9808978-05	9809153-03
DATE SAMPLED	31-Aug-98		31-Aug-98	03-Sep-98	03-Sep-98	31-Aug-98	03-Sep-98
PERCENT SOLIDS	97%	97%	95%	85%	88%	Aqueous	Aqueous
LABORATORY ANALYSES	Units						
TAL Metals & Cyanide							
Silver (SW-846 Method 6010B)	mg/Kg	<0.7	<0.7	<0.7	<0.7	<0.009 mg/L	<0.009 mg/L
Aluminum (SW-846 Method 6010B)	mg/Kg	10100	9520	9070	11500	12600	<0.060 mg/L
Arsenic (SW-846 Method 7060A)	mg/Kg	9.48	11.5	6.73	13.7	10.8	<0.003 mg/L
Barium (SW-846 Method 6010B)	mg/Kg	130	166	88.1	207	155	<0.003 mg/L
Beryllium (SW-846 Method 6010B)	mg/Kg	0.494	0.557	0.454	0.629	0.543	<0.002 mg/L
Calcium (SW-846 Method 6010B)	mg/Kg	2860	1860	3010	2540	1850	0.066 mg/L
Cadmium (SW-846 Method 6010B)	mg/Kg	<0.4	<0.4	<0.4	<0.4	<0.4	<0.005 mg/L
Cobalt (SW-846 Method 6010B)	mg/Kg	7.76	10.6	7.62	9.92	9.01	<0.009 mg/L
Chromium (SW-846 Method 6010B)	mg/Kg	17.1	15.7	15.4	14	14.9	<0.009 mg/L
Copper (SW-846 Method 6010B)	mg/Kg	17	18.1	14.6	20.7	19.5	<0.008 mg/L
Iron (SW-846 Method 6010B)	mg/Kg	19600	21200	17800	23600	23100	0.018 mg/L
Mercury (SW-846 Method 7471A)	mg/Kg	0.038	0.024	0.02	0.038	0.041	<0.0002 mg/L
Potassium (SW-846 Method 6010B)	mg/Kg	806	787	795	916	995	<0.250 mg/L
Magnesium (SW-846 Method 6010B)	mg/Kg	2300	2390	2260	2660	2710	<0.040 mg/L
Manganese (SW-846 Method 6010B)	mg/Kg	574	804	544	1000	687	<0.003 mg/L
Sodium (SW-846 Method 6010B)	mg/Kg	89.1	96.2	92.8	76	75.5	0.152 mg/L
Nickel (SW-846 Method 6010B)	mg/Kg	18	20.1	17.6	21.9	18.9	<0.020 mg/L
Lead (SW-846 Method 7421)	mg/Kg	32.8	17.7	8.42	16.8	14	<0.002 mg/L
Antimony (SW-846 Method 6010B)	mg/Kg	<3.2	<3.2	<3.2	<3.2	<3.2	<0.040 mg/L
Selenium (SW-846 Method 7740)	mg/Kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.003 mg/L
Thallium (SW-846 Method 7871)	mg/Kg	0.187	0.233	0.152	0.298	0.3	<0.002 mg/L
Vanadium (SW-846 Method 6010B)	mg/Kg	21.6	21.8	23.7	22.8	23.8	<0.010 mg/L
Zinc (SW-846 Method 6010B)	mg/Kg	64.9	63.1	48	79.1	71.6	<0.010 mg/L
Cyanide (SW-846 Method 9010A)	mg/Kg	<1	<1	<1	<1	<1	<0.010 mg/L

NOTES

mg/Kg - milligrams per kilogram
ug/Kg - micrograms per kilogram
mg/L - milligrams per liter
ug/L - micrograms per liter

EQ = Equipment Blank
J = Estimated value based on level 3 data evaluation - data acceptable
TCL - Target compound list
TAL - Target analyte list

PCB - polychlorinated biphenyl
PAH - polynuclear aromatic hydrocarbon
NA - not analyzed

**Table No. 5: Composite Confirmation Soil Sample Analytical Results
Area B at 6 12-Inch Excavation Depths Family Housing Area
Memphis Depot, TN**

378 38

SAMPLE DESIGNATION	RA-B-006	RA-B-007	RA-B-008	RA-B-012	RA-B-EQ-002-CS
GRID COMPOSITE	B1, B2, B3, B7	Duplicate of RA-B-006	B4, B5, B6, B8	B5 & B6	equipment rinseate
SAMPLE DEPTH	12 inches		6 & 12 inches ⁽¹⁾	12 inches	EQ
LABORATORY ID NO.	9808483-01	9808483-02	9808483-04	9808978-04	9808483-03
DATE SAMPLED	17-Aug-98		17-Aug-98	31-Aug-98	17-Aug-98
PERCENT SOLIDS	91%	92%	91%	92%	Aqueous
LABORATORY ANALYSES	Units				
Organochlorine Pesticides (SW-846 Method 8061A)					
Aldrin	ug/Kg	<2.0	<2.0	<2.0	<0.04 ug/L
Alpha-BHC	ug/Kg	<2.0	<2.0	<2.0	<0.04 ug/L
Beta-BHC	ug/Kg	<2.0	<2.0	<2.0	<0.04 ug/L
Delta-BHC	ug/Kg	<2.0	<2.0	<2.0	<0.04 ug/L
Gamma-BHC (Lindane)	ug/Kg	<2.0	<2.0	<2.0	<0.04 ug/L
Alpha-Chlordane	ug/Kg	<2.0	<2.0	<2.0	<0.04 ug/L
Gamma-Chlordane	ug/Kg	<2.0	<2.0	<2.0	<0.04 ug/L
Chlordane	ug/Kg	<20.0	<20.0	<20.0	<0.25 ug/L
4,4'-DDD	ug/Kg	<2.0	<2.0	<2.0	<0.04 ug/L
4,4'-DDE	ug/Kg	5.13	5.08	7.99	<0.04 ug/L
4,4'-DDT	ug/Kg	<2.0	3.88	5.88	<0.04 ug/L
Dieldrin	ug/Kg	7.16	7.07	25.2	<0.04 ug/L
Endosulfan I	ug/Kg	<2.0	<2.0	<2.0	<0.04 ug/L
Endosulfan II	ug/Kg	<2.0	<2.0	<2.0	<0.04 ug/L
Endosulfan Sulfate	ug/Kg	<2.0	<2.0	<2.0	<0.04 ug/L
Endrin	ug/Kg	<2.0	<2.0	<2.0	<0.04 ug/L
Endrin Aldehyde	ug/Kg	<2.0	<2.0	<2.0	<0.04 ug/L
Endrin Ketone	ug/Kg	<2.0	<2.0	<2.0	<0.04 ug/L
Heptachlor	ug/Kg	<2.0	<2.0	<2.0	<0.04 ug/L
Heptachlor Epoxide	ug/Kg	<2.0	<2.0	<2.0	<0.04 ug/L
Methoxychlor	ug/Kg	<2.0	<2.0	<2.0	<0.04 ug/L
Toxaphene	ug/Kg	<200	<200	<200	<3 ug/L
PCBs (SW-846 Method 8082)					
PCB - 1016	ug/Kg	<35	<35	<35	<0.50 ug/L
PCB - 1221	ug/Kg	<35	<35	<35	<0.50 ug/L
PCB - 1232	ug/Kg	<35	<35	<35	<0.50 ug/L
PCB - 1242	ug/Kg	<35	<35	<35	<0.50 ug/L
PCB - 1248	ug/Kg	<35	<35	<35	<0.50 ug/L
PCB - 1254	ug/Kg	<35	<35	<35	<0.50 ug/L
PCB - 1260	ug/Kg	<35	<35	<35	<0.50 ug/L
TCL PAHs (SW-846 Method 8270C)					
Acenaphthene	ug/Kg	<67	<67	<67	<2.0 ug/L
Acenaphthylene	ug/Kg	<67	<67	<67	<2.0 ug/L
Anthracene	ug/Kg	<67	<67	<67	<2.0 ug/L
Benzo(a)anthracene	ug/Kg	<67	<67	<67	<2.0 ug/L
Benzo(b)fluoranthene	ug/Kg	<67	<67	<67	<2.0 ug/L
Benzo(k)fluoranthene	ug/Kg	<67	<67	<67	<2.0 ug/L
Benzo(g,h,i)perylene	ug/Kg	<67	<67	<67	<2.0 ug/L
Benzo(a)pyrene	ug/Kg	<67	<67	121	<2.0 ug/L
Chrysene	ug/Kg	<67	<67	<67	<2.0 ug/L
Dibenzo(a,h)anthracene	ug/Kg	<67	<67	<67	<2.0 ug/L
Fluoranthene	ug/Kg	<67	<67	<67	<2.0 ug/L
Fluorene	ug/Kg	<67	<67	<67	<2.0 ug/L
Indeno(1,2,3-cd)pyrene	ug/Kg	<67	<67	<67	<2.0 ug/L
Naphthalene	ug/Kg	<67	<67	<67	<2.0 ug/L
Phenanthrene	ug/Kg	<67	<67	<67	<2.0 ug/L
Pyrene	ug/Kg	<67	<67	<67	<2.0 ug/L

NOTES ⁽¹⁾ Grids B4, B5, and B6 were collected from the floor of the 6 inch excavation, Grid B8 was sampled from the floor of the 12 inch excavation

mg/Kg - milligrams per kilogram

EQ = Equipment Blank

PCB - polychlorinated biphenyl

ug/Kg - micrograms per kilogram

J = Estimated value based on data evaluation - data is acceptable

PAH - polynuclear aromatic hydrocarbon

mg/L - milligrams per liter

TCL - Target compound list

NA - not analyzed

ug/L - micrograms per liter

TAL - Target analyte list

**Table No. 5: Composite Confirmation Soil Sample Analytical Results
Area B at 6 12-Inch Excavation Depths Family Housing Area
Memphis Depot, TN**

378 39

SAMPLE DESIGNATION	RA-B-006	RA-B-007	RA-B-008	RA-B-012	RA-B-EQ-002-CS
GRID COMPOSITE	B1, B2, B3, B7	Duplicate of RA-B-006	B4, B5, B6, B8	B5 & B6	equipment rinseate
SAMPLE DEPTH	12 inches		6 & 12 inches ⁽¹⁾	12 inches	EQ
LABORATORY ID NO.	9808483-01	9808483-02	9808483-04	9808978-04	9808483-03
DATE SAMPLED	17-Aug-98		17-Aug-98	31-Aug-98	17-Aug-98
PERCENT SOLIDS	91%	92%	91%	92%	Aqueous
LABORATORY ANALYSES	Units				
TAL Metals & Cyanide					
Silver (SW-846 Method 6010B)	mg/Kg	<0.7	<0.7	<0.7	<0.009 mg/L
Aluminum (SW-846 Method 6010B)	mg/Kg	12400	12000	13800	0.080 mg/l
Arsenic (SW-846 Method 7060A)	mg/Kg	9.49	9.13	12.6	<0.003 mg/L
Barium (SW-846 Method 6010B)	mg/Kg	130	120	128	<0.003 mg/L
Beryllium (SW-846 Method 6010B)	mg/Kg	0.562	0.528	0.527	0.545
Calcium (SW-846 Method 6010B)	mg/Kg	1430	1300	1830	1740
Cadmium (SW-846 Method 6010B)	mg/Kg	<0.4	<0.4	<0.4	<0.005 mg/L
Cobalt (SW-846 Method 6010B)	mg/Kg	8.94	8.07	8.62	9.55
Chromium (SW-846 Method 6010B)	mg/Kg	14.9	14.6	15.6	14.8
Copper (SW-846 Method 6010B)	mg/Kg	18.1	16.5	16.9	17.8
Iron (SW-846 Method 6010B)	mg/Kg	20700	19700	13800	21700
Mercury (SW-846 Method 7471A)	mg/Kg	0.042	0.041	0.051	0.044
Potassium (SW-846 Method 6010B)	mg/Kg	951	1050	1100	975
Magnesium (SW-846 Method 6010B)	mg/Kg	2330	2220	2230	2430
Manganese (SW-846 Method 6010B)	mg/Kg	711	620	683	784
Sodium (SW-846 Method 6010B)	mg/Kg	67.2	59.2	54.1	65.5
Nickel (SW-846 Method 6010B)	mg/Kg	18.2	17.9	17.9	17.7
Lead (SW-846 Method 7421)	mg/Kg	14.7	14.1	20.5	12.6
Antimony (SW-846 Method 6010B)	mg/Kg	<3.2	<3.2	<3.2	<3.2
Selenium (SW-846 Method 7740)	mg/Kg	0.57	0.532	<0.2	<0.2
Thallium (SW-846 Method 7871)	mg/Kg	0.237	0.232	0.265	0.269
Vanadium (SW-846 Method 6010B)	mg/Kg	22.8	22.5	24	22.8
Zinc (SW-846 Method 6010B)	mg/Kg	62.3	61.4	64.5	67.9
Cyanide (SW-846 Method 9010A)	mg/Kg	<1	<1	<1	<1

NOTES ⁽¹⁾ Grids B4, B5, and B6 were collected from the floor of the 6 inch excavation, Grid B8 was sampled from the floor of the 12 inch excavation

mg/Kg - milligrams per kilogram

ug/Kg - micrograms per kilogram

mg/L - milligrams per liter

ug/L - micrograms per liter

EQ = Equipment Blank

J = Estimated value based on data evaluation - data is acceptable

TCL - Target compound list

TAL - Target analyte list

PCB - polychlorinated biphenyl

PAH - polynuclear aromatic hydrocarbon

NA - not analyzed

Table No. 6: Individual Grid Confirmation Soil Sample Analytical Results
From Area B
Family Housing Area
Memphis Depot, TN

SAMPLE DESIGNATION		RA-B-CS-B4	RA-B-CS-B5	RA-B-CS-B6	RA-B-CS-B8	RA-B-EQ-003-CS
SAMPLE DEPTH		6 inches	6 inches	6 inches	12 inches	Equip. Blank
PERCENT SOLIDS		98%	98%	100%	97%	AQUEOUS
LABORATORY ID NO.		9808720-01	9808720-02	9808720-03	9808720-04	9808720-05
DATE SAMPLED		24-Aug-98	24-Aug-98	24-Aug-98	24-Aug-98	24-Aug-98
ORIGINAL COMPOSITE CONFIRMATION SAMPLE		RA-B-008	RA-B-008	RA-B-008	RA-B-008	
LABORATORY ANALYSES		Units				
Semi-Volatile PAHs (SW-846 Method 8270C)						
Acenaphthene	ug/Kg	<67	<67	<67	<67	<0.2 ug/L
Acenaphthylene	ug/Kg	<67	<67	<67	<67	<0.2 ug/L
Anthracene	ug/Kg	<67	<67	44J	<67	<0.2 ug/L
Benzo (a) anthracene	ug/Kg	<67	108	237	65J	<0.2 ug/L
Benzo (b) fluoranthene	ug/Kg	47J	201	302	108	<0.2 ug/L
Benzo (k) fluoranthene	ug/Kg	<67	110	203	51J	<0.2 ug/L
Benzo (g,h,i) perylene	ug/Kg	<67	86	184	<67	<0.2 ug/L
Benzo (a) pyrene	ug/Kg	<67	132	218	66J	<0.2 ug/L
Chrysene	ug/Kg	34J	145	275	95	<0.2 ug/L
Dibenzo (a,h) anthracene	ug/Kg	<67	<67	<67	<67	<0.2 ug/L
Fluoranthene	ug/Kg	56J	218	499	137	<0.2 ug/L
Fluorene	ug/Kg	<67	<67	<67	<67	<0.2 ug/L
Indeno (1,2,3-cd) pyrene	ug/Kg	<67	71	143	<67	<0.2 ug/L
Naphthalene	ug/Kg	<67	<67	<67	<67	<0.2 ug/L
Phenanthrene	ug/Kg	<67	74	261	89	<0.2 ug/L
Pyrene	ug/Kg	50J	186	396	119	<0.2 ug/L

NOTES

mg/Kg - milligrams per kilogram
ug/Kg - micrograms per kilogram
mg/L - milligrams per liter
ug/L - micrograms per liter

EQ = Equipment Blank

J = Estimated value based on data evaluation - data is acceptable

TCL - Target compound list

TAL - Target analyte list

PCB - polychlorinated biphenyl

PAH - polynuclear aromatic hydrocarbon

NA - not analyzed

Table No. 7. Composite Confirmation Soil Sample Analytical Results
Area C at 12-inch Excavation Depth
Family Housing Area
Memphis Depot, TN

378 41

SAMPLE DESIGNATION	RA-C-009	RA-C-015	RA-C-016	RA-C-0017	RA-C-018	RA-C-019	RA-C-EQ-003-CS	RA-C-EQ-006-CS
GRID COMPOSITE	C6, C7, C15*	C14, C15, C16, C17	Duplicate of RA-C-015	C10, C11, C12, C13	C6, C7, C8, C9	C1, C2, C3, C4, C5	equipment rinseate	equipment rinsate
SAMPLE DEPTH	Land Surface	12 inches		12 inches	12 inches	12 inches	EQ	EQ
LABORATORY ID NO	9808641-01	9809658-01	9809658-02	9809658-03	9809902-01	9810086-01	9808641-02	9809902-02
DATE SAMPLED	20-Aug-98	21-Sep-98		21-Sep-98	29-Sep-98	02-Oct-98	20-Aug-98	29-Sep-98
PERCENT SOLIDS	88%	86%	85%	95%	95%	91%	Aqueous	Aqueous
LABORATORY ANALYSES								
TCL Organochlorine Pesticides (SW-846 Method 8081A)								
Aldrin	ug/Kg	<20	<20	<20	<20	<20	<0.040 ug/L	<0.04 ug/L
Alpha-BHC	ug/Kg	<20	<20	<20	<20	<20	<0.040 ug/L	<0.04 ug/L
Beta-BHC	ug/Kg	<20	<20	<20	<20	<20	<0.040 ug/L	<0.04 ug/L
Delta-BHC	ug/Kg	<20	<20	<20	<20	<20	<0.040 ug/L	<0.04 ug/L
Gamma-BHC (Lindane)	ug/Kg	<20	<20	<20	<20	<20	<0.040 ug/L	<0.04 ug/L
Alpha-Chlordane	ug/Kg	<20	<20	<20	<20	35	<0.040 ug/L	<0.04 ug/L
Gamma-Chlordane	ug/Kg	<20	<20	<20	<20	24.5	<0.040 ug/L	<0.04 ug/L
Chlordane	ug/Kg	<200	<200	<200	<200	149	<0.250 ug/L	<0.25 ug/L
4,4'-DDD	ug/Kg	<20	<20	<20	<20	<20	<0.040 ug/L	<0.04 ug/L
4,4'-DDE	ug/Kg	37.3J	<20	<20	<20	59.2	<0.040 ug/L	<0.04 ug/L
4,4'-DDT	ug/Kg	35J	<20	<20	<20	88.3J	<0.040 ug/L	<0.04 ug/L
Dieldrin	ug/Kg	248	2.19	2.25	12.1	167	<0.040 ug/L	<0.04 ug/L
Endosulfan I	ug/Kg	<20	<20	<20	<20	<20	<0.040 ug/L	<0.04 ug/L
Endosulfan II	ug/Kg	<20	<20	<20	<20	<20	<0.040 ug/L	<0.04 ug/L
Endosulfan Sulfate	ug/Kg	<20	<20	<20	<20	<20	<0.040 ug/L	<0.04 ug/L
Endrin	ug/Kg	<20	<20	<20	<20	<20J	<0.040 ug/L	<0.04 ug/L
Endrin Aldehyde	ug/Kg	<20	<20	<20	<20	<20J	<0.040 ug/L	<0.04 ug/L
Endrin Ketone	ug/Kg	<20	<20	<20	<20	<20J	<0.040 ug/L	<0.04 ug/L
Heptachlor	ug/Kg	<20	<20	<20	<20	<20	<0.040 ug/L	<0.04 ug/L
Heptachlor Epoxide	ug/Kg	<20	<20	<20	<20	<20	<0.040 ug/L	<0.04 ug/L
Methoxychlor	ug/Kg	<20	<20	<20	<20	<20J	<0.040 ug/L	<0.04 ug/L
Toxaphene	ug/Kg	<2000	<2000	<2000	<2000	<20	<3.0 ug/L	<3.00 ug/L
PCBs (SW-846 Method 8082)								
PCB - 1016	ug/Kg	<35	<35	<35	<35	<35	<0.500 ug/L	<0.50 ug/L
PCB - 1221	ug/Kg	<35	<35	<35	<35	<35	<0.500 ug/L	<0.50 ug/L
PCB - 1232	ug/Kg	<35	<35	<35	<35	<35	<0.500 ug/L	<0.50 ug/L
PCB - 1242	ug/Kg	<35	<35	<35	<35	<35	<0.500 ug/L	<0.50 ug/L
PCB - 1248	ug/Kg	<35	<35	<35	<35	<35	<0.500 ug/L	<0.50 ug/L
PCB - 1254	ug/Kg	<35	<35	<35	<35	<35	<0.500 ug/L	<0.50 ug/L
PCB - 1260	ug/Kg	<35	<35	<35	<35	<35J	<0.500 ug/L	<0.50 ug/L
TCL PAHs (SW-846 Method 8270C)								
Acenaphthene	ug/Kg	<67	<67	<67	<67	<67	<2.0 ug/L	<2.0 ug/L
Acenaphthylene	ug/Kg	<67	<67	<67	<67	<67	<2.0 ug/L	<2.0 ug/L
Anthracene	ug/Kg	<67	<67	<67	<67	<67	<2.0 ug/L	<2.0 ug/L
Benzo(a)anthracene	ug/Kg	260	<67	<67	80.1	50J	<2.0 ug/L	<2.0 ug/L
Benzo(b)fluoranthene	ug/Kg	397	<67	<67	145	102	<2.0 ug/L	<2.0 ug/L
Benzo(k)fluoranthene	ug/Kg	142	<67	<67	64.1J	46J	<2.0 ug/L	<2.0 ug/L
Benzo(g,h,i)perylene	ug/Kg	214	<67	<67	82.4	<67J	<2.0 ug/L	<2.0 ug/L
Benzo(a)pyrene	ug/Kg	289	<67	<67	116	<67	<2.0 ug/L	<2.0 ug/L
Chrysene	ug/Kg	351	<67J	<67J	104J	91	<2.0 ug/L	<2.0 ug/L
Dibenzo(a,h)anthracene	ug/Kg	<67	<67	<67	<67	<67J	<2.0 ug/L	<2.0 ug/L
Fluoranthene	ug/Kg	541	<67	<67	131	133	<2.0 ug/L	<2.0 ug/L
Fluorene	ug/Kg	<67	<67	<67	<67	<67	<2.0 ug/L	<2.0 ug/L
Indeno(1,2,3-cd)pyrene	ug/Kg	249	<67	<67	78	<67J	<2.0 ug/L	<2.0 ug/L
Naphthalene	ug/Kg	<67	<67	<67J	<67	<67	<2.0 ug/L	<2.0 ug/L
Phenanthrene	ug/Kg	270	<67	<67	44.3J	45J	<2.0 ug/L	<2.0 ug/L
Pyrene	ug/Kg	408	<67	<67	120	105	<2.0 ug/L	<2.0 ug/L

NOTES *Gnds C8, C7, C15 were later excavated to a depth of 12 inches

mg/Kg - milligrams per kilogram

ug/Kg - micrograms per kilogram

mg/L - milligrams per liter

ug/L - micrograms per liter

EQ = Equipment Blank

J = Estimated value based on data evaluation - data is acceptable

TCL - Target compound list

TAL - Target analyte list

PCB - polychlorinated biphenyl

PAH - polynuclear aromatic hydrocarbon

NA - not analyzed

**Table No. 7: Composite Confirmation Soil Sample Analytical Results
Area C at 12-inch Excavation Depth
Family Housing Area
Memphis Depot, TN**

378 42

SAMPLE DESIGNATION	RA-C-009	RA-C-015	RA-C-016	RA-C-0017	RA-C-018	RA-C-019	RA-C-EQ-003-CS	RA-C-EQ-006-CS
GRID COMPOSITE	C6, C7, C15*	C14, C15, C16, C17	Duplicate of RA C-015	C10,C11,C12, C13	C6,C7,C8,C9	C1,C2,C3,C4, C5	equipment rinseate	equipment rinsate
SAMPLE DEPTH	Land Surface	12 inches		12 inches	12 inches	12 inches	EQ	EQ
LABORATORY ID NO	9808641-01	9809658-01	9809658-02	9809658-03	9809902-01	9810086-01	9808641-02	9809902-02
DATE SAMPLED	20-Aug-98	21-Sep-98		21-Sep-98	29-Sep-98	02-Oct-98	20-Aug-98	29-Sep-98
PERCENT SOLIDS	88%	86%	85%	95%	95%	91%	Aqueous	Aqueous
LABORATORY ANALYSES	Units							
TAL Metals & Cyanide								
Silver (SW-846 Method 6010B)	mg/Kg	<0.7	<0.7	<0.7	<0.7	<0.7	<0.009 mg/L	<0.009 mg/L
Aluminum (SW-846 Method 6010B)	mg/Kg	10400	12700	11400	13600	13600	<0.060 mg/L	<0.060 mg/L
Arsenic (SW-846 Method 7060A)	mg/Kg	27.7	9.4	9.14	9.62	14.4	<0.003 mg/L	<0.003 mg/L
Barium (SW-846 Method 6010B)	mg/Kg	126	122	106	117	125	<0.003 mg/L	<0.003 mg/L
Beryllium (SW-846 Method 6010B)	mg/Kg	0.479	0.541	0.534	0.542	0.571	<0.002 mg/L	<0.002 mg/L
Calcium (SW-846 Method 6010B)	mg/Kg	2750	1560	1370	1680	1820	0.085 mg/L	21 mg/L
Cadmium (SW-846 Method 6010B)	mg/Kg	<0.4	<0.4	<0.4	<0.4	<0.4	<0.004 mg/L	<0.005 mg/L
Cobalt (SW-846 Method 6010B)	mg/Kg	7.21	8.85	8.79	8.75	10.9	<0.009 mg/L	<0.009 mg/L
Chromium (SW-846 Method 6010B)	mg/Kg	14.1	15.4	14.1	16.3	16.4	<0.009 mg/L	<0.009 mg/L
Copper (SW-846 Method 6010B)	mg/Kg	19.6	17.9	17.6	18.2	19.4	<0.008 mg/L	<0.008 mg/L
Iron (SW-846 Method 6010B)	mg/Kg	18400	21700	20500	22000	21800	0.014 mg/L	<0.009 mg/L
Mercury (SW-846 Method 7471A)	mg/Kg	0.065	0.046	0.038	0.042	0.059	<0.0002 mg/L	<0.0002 mg/L
Potassium (SW-846 Method 6010B)	mg/Kg	1150	918	862	1060	1030	<0.250 mg/L	<0.250 mg/L
Magnesium (SW-846 Method 6010B)	mg/Kg	2080	2560	2430	2460	2260	<0.040 mg/L	<0.040 mg/L
Manganese (SW-846 Method 6010B)	mg/Kg	702	701	687	629	716	<0.003 mg/L	<0.003 mg/L
Sodium (SW-846 Method 6010B)	mg/Kg	63.2	71.5	79.3	62.3	70.5	<0.050 mg/L	<0.050 mg/L
Nickel (SW-846 Method 6010B)	mg/Kg	16.5	17.7	17.4	17.5	18	<0.020 mg/L	<0.020 mg/L
Lead (SW-846 Method 7421)	mg/Kg	54.3	14.3	14.3	14.6	31.8	<0.002 mg/L	<0.002 mg/L
Antimony (SW-846 Method 6010B)	mg/Kg	<3.2	4.77	<3.2	<3.2	<3.2	<0.040 mg/L	<0.040 mg/L
Selenium (SW-846 Method 7740)	mg/Kg	<0.2	<0.2	<0.2	<0.2	0.249	<0.003 mg/L	<0.003 mg/L
Thallium (SW-846 Method 7871)	mg/Kg	0.238	0.257	0.257	0.239	0.269	<0.002 mg/L	<0.002 mg/L
Vanadium (SW-846 Method 6010B)	mg/Kg	21.9	24.5	23.2	24.9	24	<0.010 mg/L	<0.010 mg/L
Zinc (SW-846 Method 6010B)	mg/Kg	87	58.8	57.6	62.4	106	<0.010 mg/L	<0.010 mg/L
Cyanide (SW-846 Method 9010A)	mg/Kg	<1	<1	<1	<1	<1	<0.010 mg/L	<0.010 mg/L

NOTES *Grids C6, C7, C15 were later excavated to a depth of 12 inches

mg/Kg - milligrams per kilogram

ug/Kg - micrograms per kilogram

mg/L - milligrams per liter

ug/L - micrograms per liter

EQ = Equipment Blank

J = Estimated value based on data evaluation - data is acceptable

TCL - Target compound list

TAL - Target analyte list

PCB - polychlorinated biphenyl

PAH - polynuclear aromatic hydrocarbon

NA - not analyzed

Table No. 8: Clean Backfill (Top Soil) Analytical Results
Family Housing Area
Memphis Depot, TN

378 43

SAMPLE DESIGNATION		RA-TS-001	RA-TS-004A	RA-TS-005	RA-TS-006	RA-TS-007
PERCENT SOLIDS		83%	84%	87%	99%	87%
LABORATORY ID NO		9807737-01	9808526-01	9809235-01	9809581-01	9810042-01
DATE SAMPLED		22-Jul-98	17-Aug-98	08-Sep-98	18-Sep-99	01-Oct-98
LABORATORY ANALYSES		Units				
TCL Pesticides (SW-846 Method 8081A)						
Aldrin	ug/Kg	<2	<2	<2	<2	<2
Alpha-BHC	ug/Kg	<2	<2	<2	<2	<2
Beta-BHC	ug/Kg	<2	<2	<2	<2	<2
Delta-BHC	ug/Kg	<2	<2	<2	<2	<2
Gamma-BHC (Lindane)	ug/Kg	<2	<2	<2	<2	<2
alpha-Chlordane	ug/Kg	<2	<2	<2	<2	<2
gamma-Chlordane	ug/Kg	<2	<2	<2	<2	<2
Chlordane	ug/Kg	<20	<20	<20	<20	<20
4,4'-DDD	ug/Kg	<2	<2	<2	<2	<2
4,4'-DDE	ug/Kg	<2	<2	<2	<2	<2
4,4'-DDT	ug/Kg	<2	5.88	<2	<2	<2
Dieldrin	ug/Kg	<2	<2	<2	<2	<2
Endosulfan I	ug/Kg	<2	<2	<2	<2	<2
Endosulfan II	ug/Kg	<2	<2	<2	<2	<2
Endosulfan Sulfate	ug/Kg	<2	<2	<2	<2	<2
Endrin	ug/Kg	<2	<2	<2	<2	<2
Endrin Aldehyde	ug/Kg	<2	<2	<2	<2	<2
Endrin Ketone	ug/Kg	<2	<2	<2	<2	<2
Heptachlor	ug/Kg	<2	<2	<2	<2	<2
Heptachlor Epoxide	ug/Kg	<2	<2	<2	<2	<2
Methoxychlor	ug/Kg	<25	<2	<2	<2	<2
Toxaphene	ug/Kg	<35	<200	<200	<200	<200
PCBs (SW-846 Method 8082)						
PCB - 1016	ug/Kg	<35	<35	<350	<35	<35
PCB - 1221	ug/Kg	<35	<35	<350	<35	<35
PCB - 1232	ug/Kg	<35	<35	<350	<35	<35
PCB - 1242	ug/Kg	<35	<35	<350	<35	<35
PCB - 1248	ug/Kg	<35	<35	<350	<35	<35
PCB - 1254	ug/Kg	<35	<35	<350	<35	<35
PCB - 1260	ug/Kg	<35	<35	<350	<35	<35
TCL Volatiles (SW-846 Method 8260B)						
Acetone	ug/Kg	<100	<50	<50	<50	<75
Benzene	ug/Kg	<4	<2	<2	<2	<3
Bromodichloromethane	ug/Kg	<4	<2	<2	<2	<3
Bromoform	ug/Kg	<4	<2	<2	<2	<3
Bromomethane	ug/Kg	<4	<2	<2	<2	<3
Carbon Disulfide	ug/Kg	<50	<25	<25	<25	<37.5
Carbon Tetrachloride	ug/Kg	<4	<2	<2	<2	<3
Chlorobenzene	ug/Kg	<4	<2	<2	<2	<3
Chlorodibromomethane	ug/Kg	<4	<2	<2	<2	<3
Chloroethane	ug/Kg	<4	<2	<2	<2	<3
Chloroform	ug/Kg	<4	<2	<2	<2	<3
Chloromethane	ug/Kg	<4	<2	<2	<2	<3
1,1-Dichloroethane	ug/Kg	<4	<2	<2	<2	<3
1,2-Dichloroethane	ug/Kg	<4	<2	<2	<2	<3
1,1-Dichloroethene	ug/Kg	<4	<2	<2	<2	<3
trans-1,2-Dichloroethene	ug/Kg	<4	<2	<2	<2	<3
1,2-Dichloropropane	ug/Kg	<4	<2	<2	<2	<3
cis-1,3-Dichloropropene	ug/Kg	<4	<2	<2	<2	<3
trans-1,3-Dichloropropene	ug/Kg	<4	<2	<2	<2	<3
Ethylbenzene	ug/Kg	<4	<2	<2	<2	<3
2-Hexanone (MBK)	ug/Kg	<100	<50	<50	<50	<75
4-Methyl-2-pentanone (MIBK)	ug/Kg	<100	<50	<50	<50	<75
2-Butanone (MEK)	ug/Kg	<100	<50	<50	<50	<75
Methylene Chloride	ug/Kg	<100	<50	<50	<50	<75
Styrene	ug/Kg	<4	<2	<2	<2	<3
1,1,2,2-Tetrachloroethane	ug/Kg	<4	<2	<2	<2	<3
Tetrachloroethene	ug/Kg	<4	<2	<2	<2	<3
Toluene	ug/Kg	<4	<2	<2	<2	3.71
1,1,1-Trichloroethane	ug/Kg	<4	<2	<2	<2	<3
1,1,2-Trichloroethane	ug/Kg	<4	<2	<2	<2	<3
Trichloroethene	ug/Kg	<4	<2	<2	<2	<3
Vinyl Acetate	ug/Kg	<50	<25	<25	<25	<37.5
Vinyl Chloride	ug/Kg	<4	<2	<2	<2	<3
o-Xylenes	ug/Kg	<4	<2	<2	<2	<3
m-Xylenes	ug/Kg	<4	<2	<2	<2	<3
p-Xylenes	ug/Kg	<4	<2	<2	<2	<3
cis-1,2-Dichloroethene	ug/Kg	<4	<2	<2	<2	<3

NOTES

mg/Kg - milligrams per kilogram
ug/Kg - micrograms per kilogram
mg/L - milligrams per liter
ug/L - micrograms per liter

EQ = Equipment Blank
J = Estimated value based on data evaluation - data is acceptable
TCL - Target compound list
TAL - Target analyte list

PCB - polychlorinated biphenyl
PAH - polynuclear aromatic hydrocarbon
NA - not analyzed

Table No. 8: Clean Backfill (Top Soil) Analytical Results
Family Housing Area
Memphis Depot, TN

378 44

SAMPLE DESIGNATION		RA-TS-001	RA-TS-004A	RA-TS-005	RA-TS-006	RA-TS-007
PERCENT SOLIDS		83%	84%	87%	99%	87%
LABORATORY ID NO		9807737-01	9808526-01	9809235-01	9809581-01	9810042-01
DATE SAMPLED		22-Jul-98	17-Aug-98	08-Sep-98	18-Sep-99	01-Oct-98
LABORATORY ANALYSES		Units				
TCL Semi-Volatiles (SW-846 Method 8270C)						
Acenaphthene	ug/Kg	<67	<67	<67	<67	<67
Acenaphthylene	ug/Kg	<67	<67	<67	<67	<67
Anthracene	ug/Kg	<67	<67	<67	<67	<67
Benzo (a) anthracene	ug/Kg	<67	58J	<67	<67	<67
Benzo (b) fluoroanthene	ug/Kg	<67	<67	<67	<67	<67
Benzo (k) fluoroanthene	ug/Kg	<67	<67	<67	<67	<67
Benzo (g,h,i) perylene	ug/Kg	<67	<67	<67	<67	<67
Benzo (a) pyrene	ug/Kg	<67	<67	<67	<67	<67
Benzoic Acid	ug/Kg	<660	<1670	<1670	<1670	<1670
Benzyl Alcohol	ug/Kg	<170	<170	<170	<170	<170
Bis (2-chloroethoxy) methane	ug/Kg	<170	<170	<170	<170	<170
Bis (2-chloroethyl) ether	ug/Kg	<170	<170	<170	<170	<170
Bis (2-chloroisopropyl) ether	ug/Kg	<170	<170	<170	<170	<170
Bis (2-ethylhexyl) phthalate	ug/Kg	<170	<170	<170	<170	<170
4-Bromophenyl phenyl ether	ug/Kg	<170	<170	<170	<170	<170
Butyl benzyl phthalate	ug/Kg	<170	<170	<170	<170	<170
4-Chloroaniline	ug/Kg	<170	<170	<170	<170	<170
2-Chloronaphthalene	ug/Kg	<170	<170	<170	<170	<170
4-Chloro-3-methylphenol	ug/Kg	<170	<170	<170	<170	<170
2-Chlorophenol	ug/Kg	<170	<170	<170	<170	<170
4-Chlorophenyl phenyl ether	ug/Kg	<170	<170	<170	<170	<170
Chrysene	ug/Kg	<67	46J	<67	<67	<67
Dibenzo (a,h) anthracene	ug/Kg	<67	<67	<67	<67	<67
Dibenzofuran	ug/Kg	<170	<170	<170	<170	<170
Di-n-butyl phthalate	ug/Kg	<170	<170	<170	<170	<170
1,2-Dichlorobenzene	ug/Kg	<170	<170	<170	<170	<170
1,3-Dichlorobenzene	ug/Kg	<170	<170	<170	<170	<170
1,4-Dichlorobenzene	ug/Kg	<170	<170	<170	<170	<170
3,3'-Dichlorobenzidine	ug/Kg	<170	<170	<170	<170	<170
2,4-Dichlorophenol	ug/Kg	<170	<170	<170	<170	<170
2,6-Dichlorophenol	ug/Kg	<170	<170	<170	<170	<170
Diethyl phthalate	ug/Kg	<170	<170	<170	<170	<170
2,4-Dimethylphenol	ug/Kg	<170	<170	<170	<170	<170
Dimethyl phthalate	ug/Kg	<170	<170	<170	<170	<170
4,6-Dinitro-2-methylphenol	ug/Kg	<170	<170	<170	<170	<170
2,4-Dinitrophenol	ug/Kg	<330	<330	<330	<330	<330
2,4-Dinitrotoluene	ug/Kg	<170	<170	<170	<170	<170
2,6-Dinitrotoluene	ug/Kg	<170	<170	<170	<170	<170
Di-n-octyl phthalate	ug/Kg	<170	<170	<170	<170	<170
Fluoranthene	ug/Kg	<67	81J	<67	<67	<67
Fluorene	ug/Kg	<67	<67	<67	<67	<67
Hexachlorobenzene	ug/Kg	<170	<170	<170	<170	<170
Hexachlorobutadiene	ug/Kg	<170	<170	<170	<170	<170
Hexachlorocyclopentadiene	ug/Kg	<170	<170	<170	<170	<170
Hexachloroethane	ug/Kg	<170	<170	<170	<170	<170
Indeno (1,2,3-cd) pyrene	ug/Kg	<67	<67	<67	<67	<67
Isophorone	ug/Kg	<170	<170	<170	<170	<170
2-Methylnaphthalene	ug/Kg	<67	<67	<67	<67	<67
2-Methylphenol (o-cresol)	ug/Kg	<170	<170	<170	<170	<170
3-Methylphenol (m-cresol)	ug/Kg	<170	<170	<170	<170	<170
4-Methylphenol (p-cresol)	ug/Kg	<170	<170	<170	<170	<170
Naphthalene	ug/Kg	<67	<67	<67	<67	<67
Nitrobenzene	ug/Kg	<170	<170	<170	<170	<170
2-Nitroaniline	ug/Kg	<170	<170	<170	<170	<170
3-Nitroaniline	ug/Kg	<170	<170	<170	<170	<170
4-Nitroaniline	ug/Kg	<170	<170	<170	<170	<170
2-Nitrophenol	ug/Kg	<170	<170	<170	<170	<170
4-Nitrophenol	ug/Kg	<170	<170	<170	<170	<170
N-Nitrosodiphenylamine	ug/Kg	<170	<170	<170	<170	<170
N-Nitrosodipropylamine	ug/Kg	<170	<170	<170	<170	<170
Pentachlorophenol	ug/Kg	<170	<170	<170	<170	<170
Phenanthrene	ug/Kg	<67	72J	<67	<67	<67
Phenol	ug/Kg	<170	<170	<170	<170	<170
Pyrene	ug/Kg	<67	63J	<67	<67	<67
1,2,4-Trichlorobenzene	ug/Kg	<170	<170	<170	<170	<170
2,4,5-Trichlorophenol	ug/Kg	<170	<170	<170	<170	<170
2,4,6-Trichlorophenol	ug/Kg	<170	<170	<170	<170	<170

NOTES

mg/Kg - milligrams per kilogram

ug/Kg - micrograms per kilogram

mg/L - milligrams per liter

ug/L - micrograms per liter

EQ = Equipment Blank

J = Estimated value based on data evaluation - data is acceptable

TCL - Target compound list

TAL - Target analyte list

PCB - polychlorinated biphenyl

PAH - polynuclear aromatic hydrocarbon

NA - not analyzed

Table No. 8: Clean Backfill (Top Soil) Analytical Results
Family Housing Area
Memphis Depot, TN

378 45

SAMPLE DESIGNATION		RA-TS-001	RA-TS-004A	RA-TS-005	RA-TS-006	RA-TS-007
PERCENT SOLIDS		83%	84%	87%	99%	87%
LABORATORY ID NO		9807737-01	9808526-01	9809235-01	9809581-01	9810042-01
DATE SAMPLED		22-Jul-98	17-Aug-98	08-Sep-98	18-Sep-99	01-Oct-98
LABORATORY ANALYSES	Units					
TAL Metals & Cyanide						
Silver (SW-846 Method 6010B)	mg/Kg	<0.7	<0.7	<0.7	<0.7	<0.7
Aluminum (SW-846 Method 6010B)	mg/Kg	10700	17700	12700	11300	10800
Arsenic (SW-846 Method 7080A)	mg/Kg	3.41	7.27	10.4	11.4	5.77
Barium (SW-846 Method 6010B)	mg/Kg	60.4	115	107	66	85
Beryllium (SW-846 Method 6010B)	mg/Kg	0.687	0.53	0.502	0.485	0.468
Calcium (SW-846 Method 6010B)	mg/Kg	1180	1940	1090	756	1250
Cadmium (SW-846 Method 6010B)	mg/Kg	<0.4	<0.4	<0.4	<0.4	<0.4
Cobalt (SW-846 Method 6010B)	mg/Kg	4.93	8.94	7.1	9.61	7.14
Chromium (SW-846 Method 6010B)	mg/Kg	22.5	20	15.9	15.7	16.5
Copper (SW-846 Method 6010B)	mg/Kg	9.76	12.7	17.3	15.9	12.1
Iron (SW-846 Method 6010B)	mg/Kg	16200	17800	21900	22200	16400
Mercury (SW-846 Method 7471A)	mg/Kg	0.024	0.021	0.026	0.047	0.025
Potassium (SW-846 Method 6010B)	mg/Kg	415	1530	916	905	643
Magnesium (SW-846 Method 6010B)	mg/Kg	1380	1960	2690	2310	1960
Manganese (SW-846 Method 6010B)	mg/Kg	208	720	570	575	582
Sodium (SW-846 Method 6010B)	mg/Kg	252	81.5	227	58.3	253
Nickel (SW-846 Method 6010B)	mg/Kg	11.9	14.6	16.7	14.1	15
Lead (SW-846 Method 7421)	mg/Kg	6.99	16.2	11	17.9	7.6
Antimony (SW-846 Method 6010B)	mg/Kg	<3.2	<3.2	<3.2	6.05	<3.2
Selenium (SW-846 Method 7740)	mg/Kg	<0.2	0.794	<0.2	0.32	<0.2
Thallium (SW-846 Method 7841)	mg/Kg	<0.1	0.242	0.222	0.261	0.172
Vanadium (SW-846 Method 6010B)	mg/Kg	21	31.1	24.3	24.7	22.7
Zinc (SW-846 Method 6010B)	mg/Kg	28	55.5	57.3	51.5	41.2
Cyanide (SW-846 Method 9010A)	mg/Kg	<1	<1	<1	<1	<1

NOTES

mg/Kg - milligrams per kilogram
 ug/Kg - micrograms per kilogram
 mg/L - milligrams per liter
 ug/L - micrograms per liter

EQ = Equipment Blank
 J = Estimated value based on data evaluation - data is acceptable
 TCL = Target compound list
 TAL = Target analyte list

PCB - polychlorinated biphenyl
 PAH - polynuclear aromatic hydrocarbon
 NA - not analyzed

Table No. 9: Disposal Characterization Analytical Results
Family Housing Area
Memphis Depot, TN

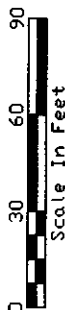
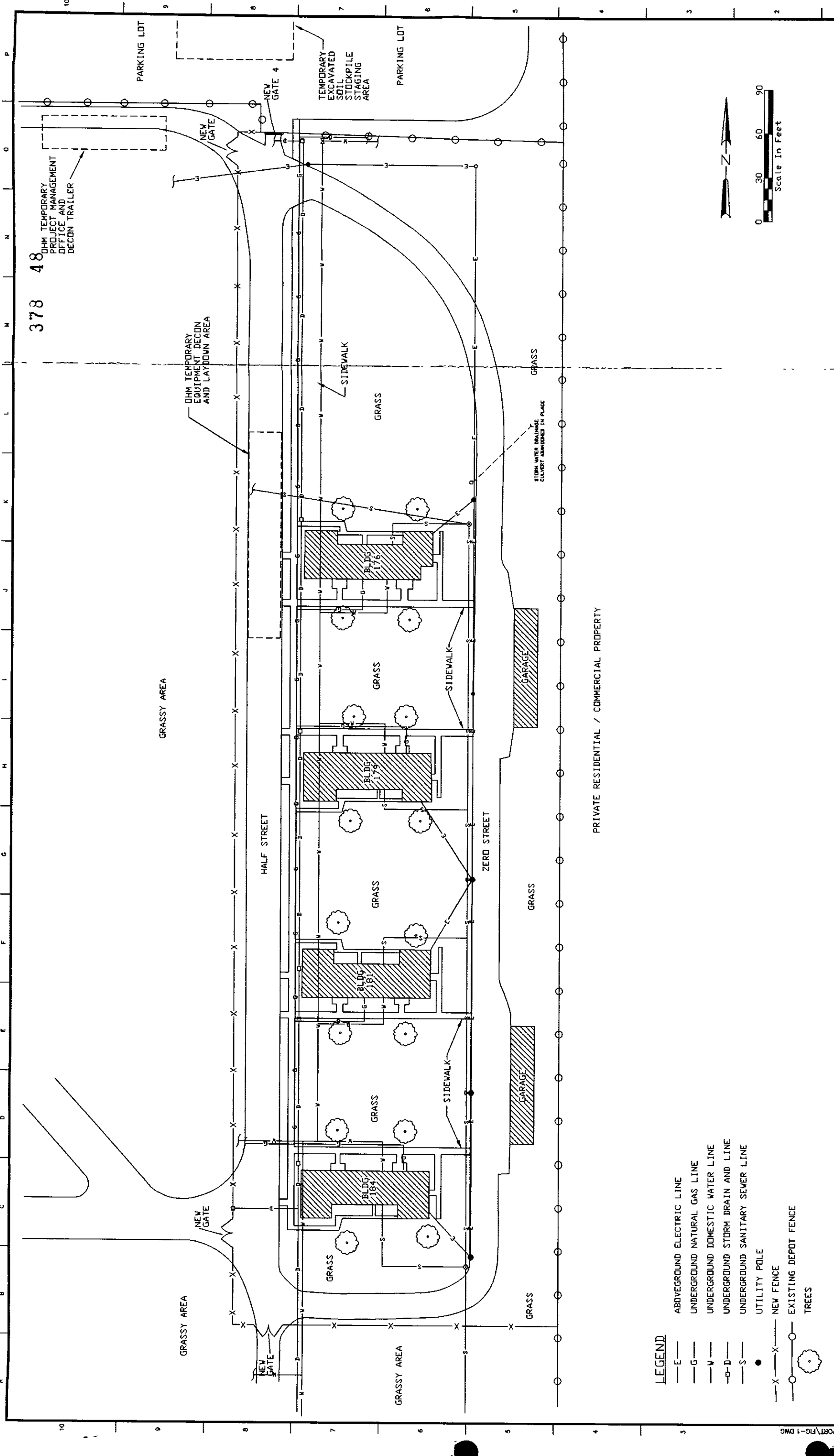
SAMPLE DESIGNATION		RA-A-031-DS	RA-A-032-DS	RA-A-033-DS	RA-A-034-DS	RA-A-035-DS	RA-A-036-DS	RA-A-037-DS
LABORATORY ID NO.		9807092-01	9807092-02	9807092-03	9808589-01	9809154-01	9809154-02	9809154-03
DATE SAMPLED		02-Jul-98	02-Jul-98	02-Jul-98	19-Aug-98	03-Sep-98	03-Sep-98	03-Sep-98
LABORATORY ANALYSES		Units						
TCLP Metals								
Silver (Method 1311/6010B)	mg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Arsenic (Method 1311/6010B)	mg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Barium (Method 1311/6010B)	mg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Cadmium (Method 1311/6010B)	mg/L	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Chromium (Method 1311/6010B)	mg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Mercury (Method 1311/7470B)	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Lead (Method 1311/6010B)	mg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Selenium (Method 1311/6010B)	mg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
TCLP Volatiles (SW-846 Method 1311/8260B)								
Benzene	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon Tetrachloride	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chlorobenzene	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,4-Dichlorobenzene	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,2-Dichloroethane	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethene	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methyl Ethyl Ketone	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Tetrachloroethene	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Trichloroethene	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
TCLP Semi-Volatiles (SW-846 Method 1311/8270C)								
o-Cresol	mg/L	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
m-Cresol	mg/L	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
p-Cresol	mg/L	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
Cresol (Total)	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Pentachlorophenol	mg/L	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
2,4,5-Trichlorophenol	mg/L	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
2,4,6-Trichlorophenol	mg/L	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
1,4-Dichlorobenzene	mg/L	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
2,4-Dinitrotoluene	mg/L	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
Hexachlorobenzene	mg/L	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
Hexachlorobutadiene	mg/L	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
Nitrobenzene	mg/L	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
Pyridine	mg/L	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
TCLP Pesticides (SW-846 Method 1311/8081A)								
Chlordane	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Gamma-BHC	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Endrin	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Methoxychlor	mg/L	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Toxaphene	mg/L	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
TCLP Herbicides (SW-846 Method 1311/851A)								
2,4-Dinitrotoluene	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sivex	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

NOTES

mg/L - milligrams per liter

TAB

Figures



- LEGEND**
- E— ABOVEGROUND ELECTRIC LINE
 - G— UNDERGROUND NATURAL GAS LINE
 - W— UNDERGROUND DOMESTIC WATER LINE
 - D— UNDERGROUND STORM DRAIN AND LINE
 - S— UNDERGROUND SANITARY SEWER LINE
 - UTILITY POLE
 - X— NEW FENCE
 - EXISTING DEPOT FENCE
 - TREES

OHM Remediation Services Corp.
Norcross, Georgia
A Member of The IT Group

REVISIONS	
ZONE	REV.
	1
	2

DATE	BY	APP
4/22/98	LS	
3/13/99	LS	

DESCRIPTION
REVISED BASED ON NEW SURVEY
SITE LAYOUT

AT FULL SCALE
(OR NOT 1"=SCALE APPROXIMATE)

CADD FILE
DRAWN: L. SHULMAN
DESIGNED: S. OFFNER
CHECKED: S. OFFNER

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT

CONTRACT NO. DACW45-96-D-0014
OHM PROJECT No 920660

DELIVERY ORDER NO 0010
MEMPHIS, SHELBY COUNTY, TENNESSEE

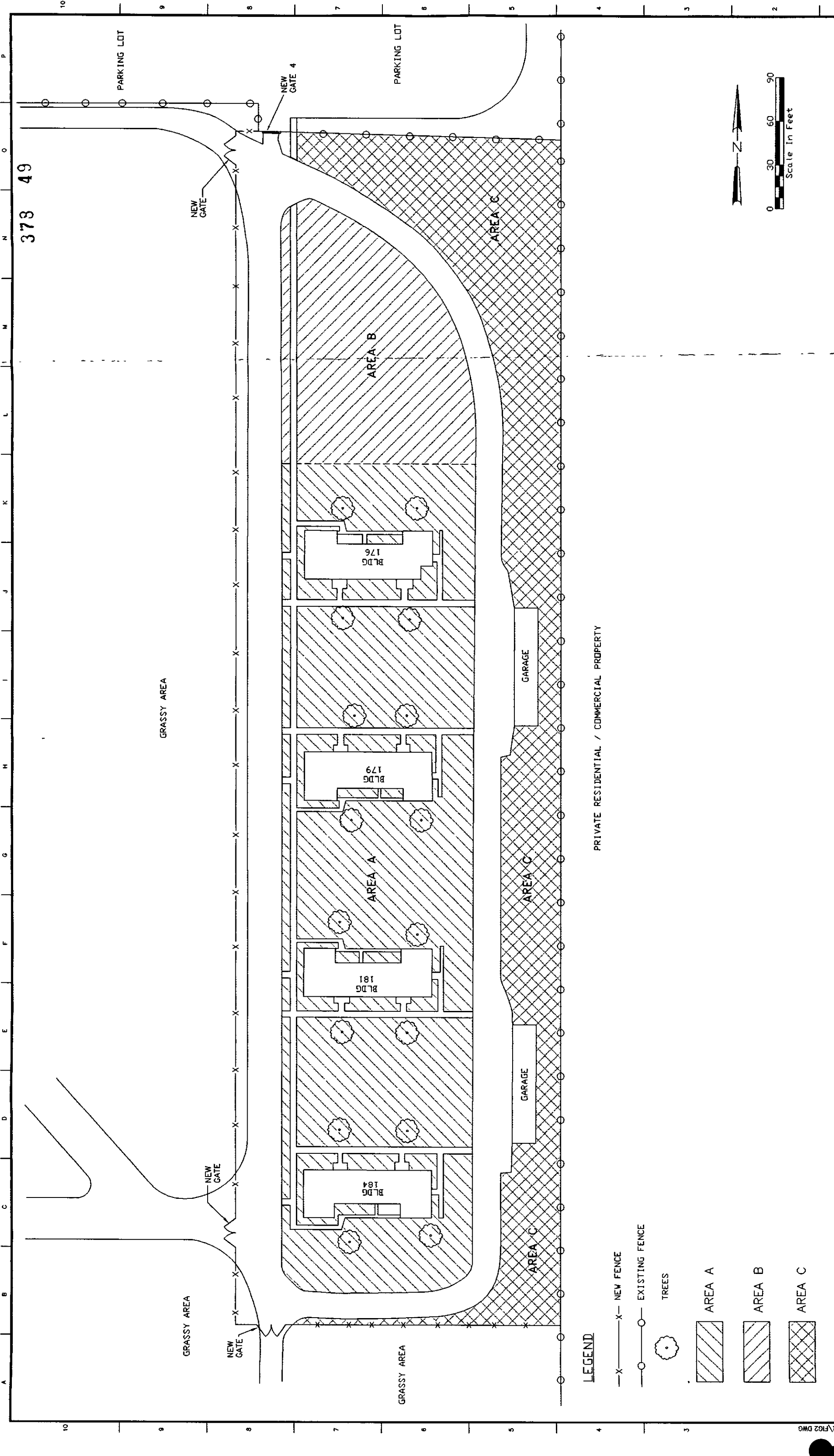
FIG. 1

SITE LAYOUT
FAMILY HOUSING AREA

MEMPHIS DEPOT, TENNESSEE

SHEET NUMBER
1 of 1

DATE:
3/13/99



OHM Remediation Services Corp.
Norcross, Georgia
A Member of The IT Group

ZONE	REV	DESCRIPTION	BY	DATE	APP
	1	REVISED BASED ON NEW SURVEY	LS	6/23/98	
	2	AREAS A, B AND C	LS	3/13/99	

AT FULL SCALE
(IF NOT 1"=SCALE ACCORDINGLY)

CAAD FILE: _____

DRAWN: L. SHULMAN

DESIGNED: S. OFFNER

CHECKED: S. OFFNER

CHECKED: _____

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT

CONTRACT NO. DACA45-96-D-0014
O&M PROJECT NO. 920680

DELIVERY ORDER NO. 0010
MEMPHIS, SHELBY COUNTY, TENNESSEE

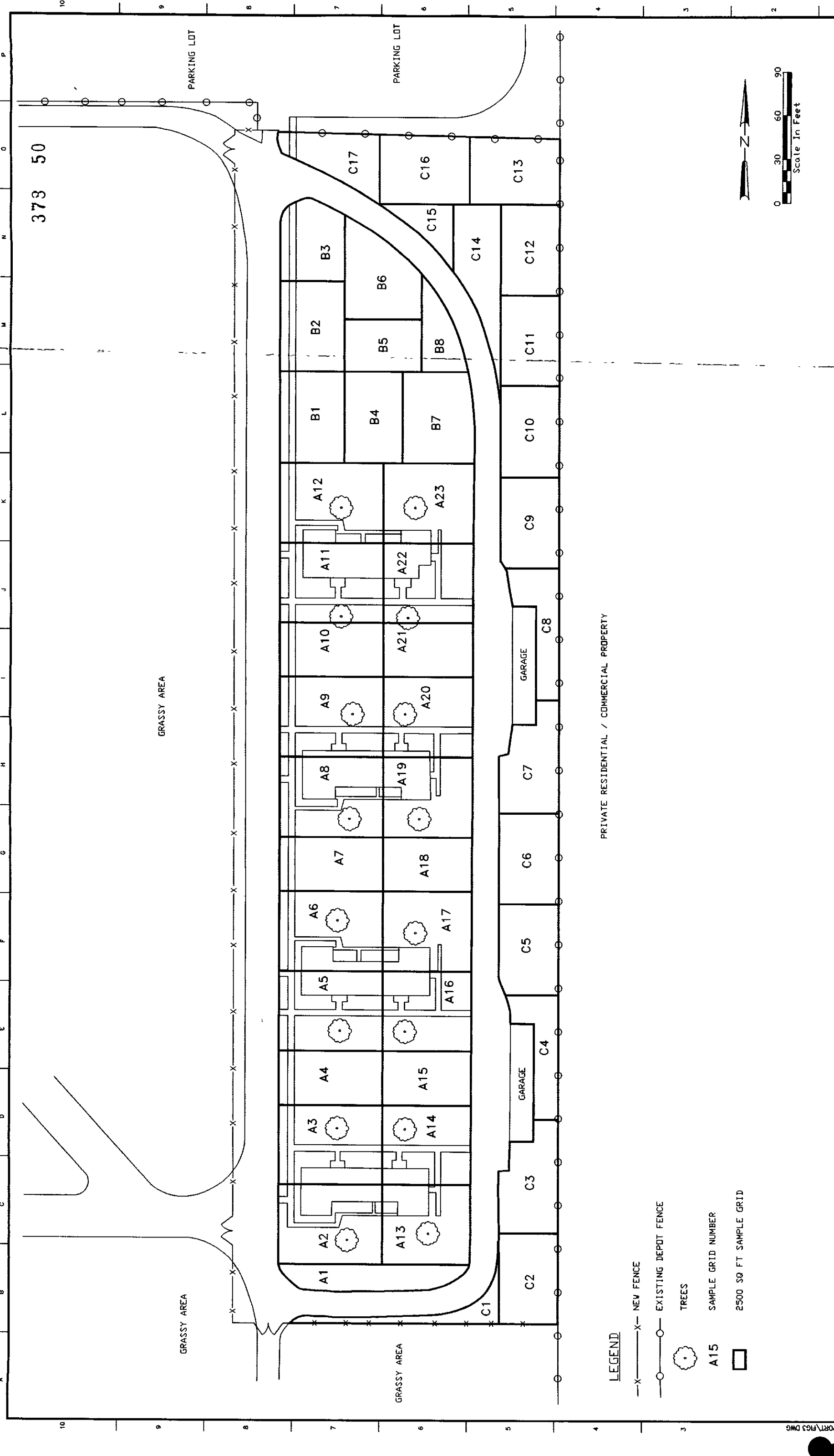
FAMILY HOUSING
AREAS A, B AND C

MEMPHIS DEPOT, TENNESSEE

DRAWING NUMBER
FIG. 2

SHEET NUMBER
1 of 1

DATE:
3/13/99



PRIVATE RESIDENTIAL / COMMERCIAL PROPERTY

LEGEND

- X- NEW FENCE
- O- EXISTING DEPOT FENCE
- TREES
- A15 SAMPLE GRID NUMBER
- 2500 SQ FT SAMPLE GRID

OHM Remediation Services Corp.
Norcross, Georgia
A Member of The IT Group

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT

CONTRACT NO. DACA45-96-D-0014
OHM PROJECT No 920580

MEMPHIS, SHELBY COUNTY, TENNESSEE

REVISIONS

ZONE	REV	DESCRIPTION	BY	DATE	APP
	1	REVISED BASED ON NEW SURVEY	LS	6/23/98	
	2	SAMPLE GRID LOCATIONS	LS	3/13/99	

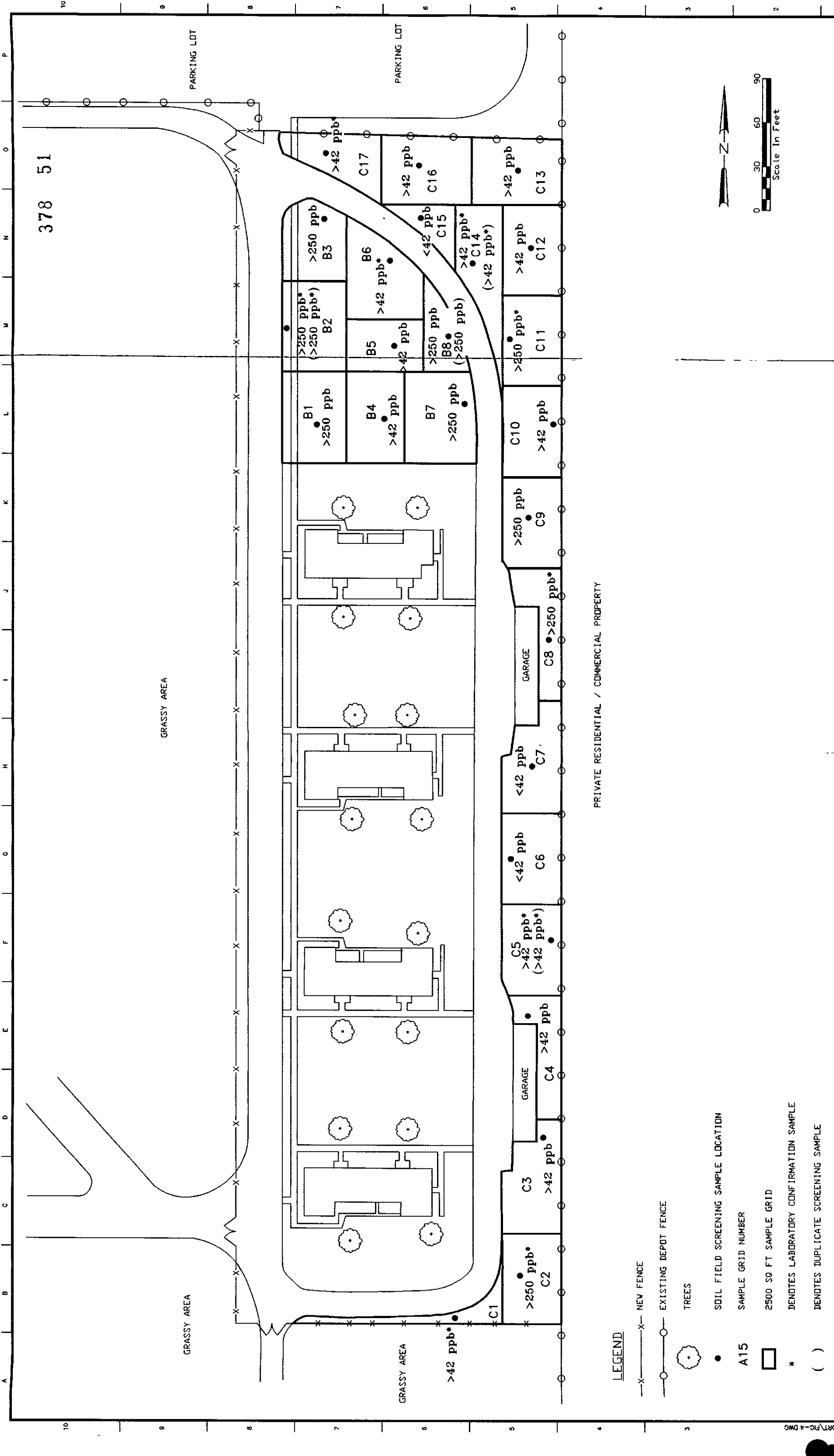
DRAWING NUMBER:
FIG. 3

SHEET NUMBER:
1 of 1

DATE:
3/13/99

SAMPLE GRID LOCATIONS
FAMILY HOUSING AREA

MEMPHIS DEPOT, TENNESSEE



OHM Remediation
Services Corp.
Norcross, Georgia
A Member of The n Group

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT

CONTRACT NO. DAC445-98-D-0014
OHM PROJECT No. 920590

DELIVERY ORDER NO. 0010
MEMPHIS, SEELY COUNTY, TENNESSEE

IMMUNOASSAY SOIL SCREENING
LOCATIONS AND RESULTS (0-6" bls)
FAMILY HOUSING AREA
MEMPHIS DEPOT, TENNESSEE

DRAWING NUMBER
FIG. 4

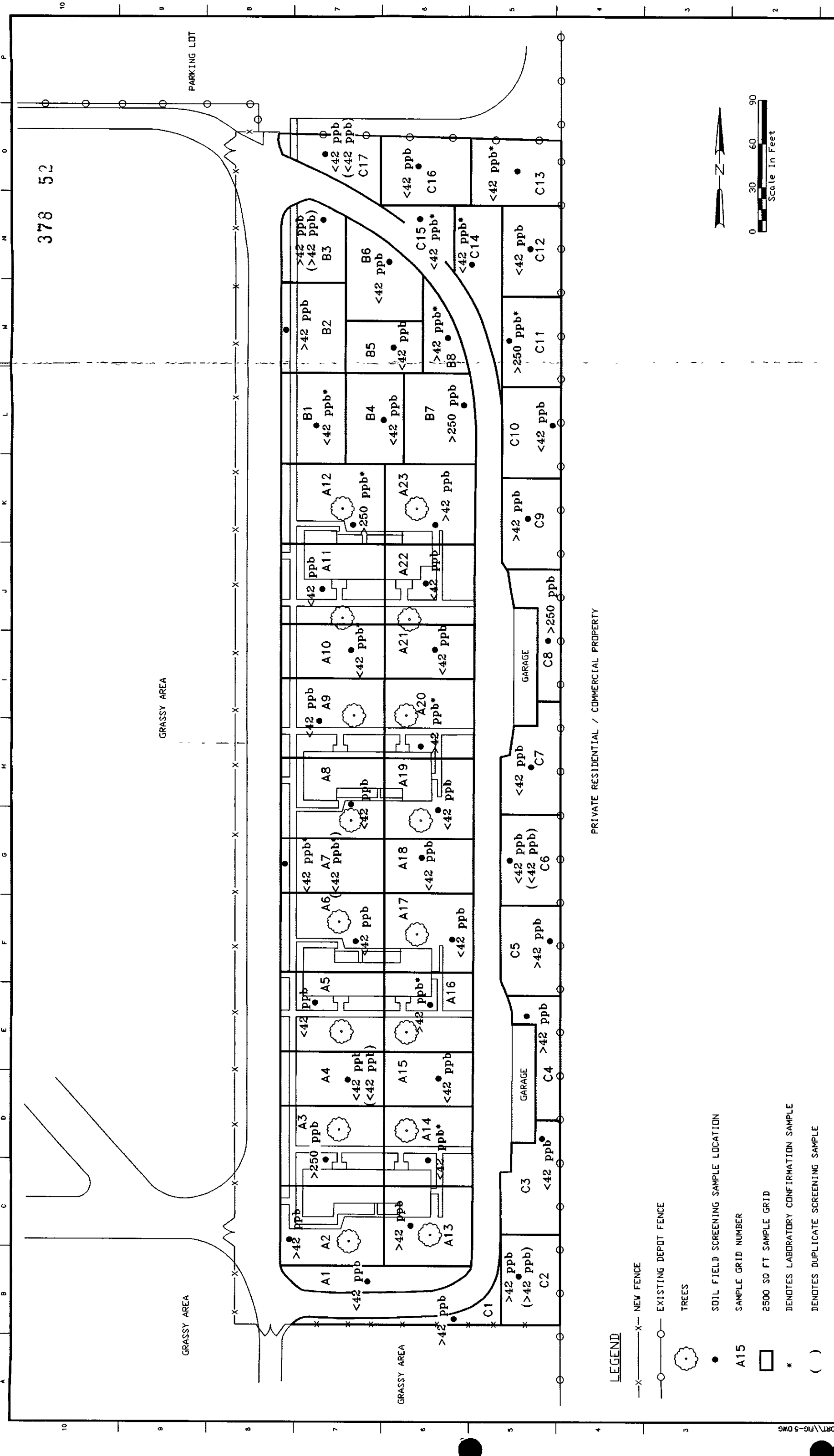
SHEET NUMBER
1 of 1

DATE
3/13/99

REVISIONS					
ZONE	REV	DESCRIPTION	BY	DATE	APP
	1	REVISED BASED ON NEW SURVEY	LS	6/23/98	
	2	IMMUNOASSAY SOIL SCREENING (0-6")	LS	3/13/99	

AT FULL SCALE
(IF NOT 1'-SCALE ACCORDING)

CADD FILE
DRAWN L. SHULMAN
DESIGNED S. OFFNER
CHECKED S. OFFNER
CHECKED



LEGEND

- X- NEW FENCE
- O- EXISTING DEPOT FENCE
- TREES

- SOIL FIELD SCREENING SAMPLE LOCATION
- A15 SAMPLE GRID NUMBER
- 2500 SQ FT SAMPLE GRID
- * DENOTES LABORATORY CONFIRMATION SAMPLE
- () DENOTES DUPLICATE SCREENING SAMPLE

OHM Remediation Services Corp.
Norcross, Georgia
A Member of The M Group

AT FULL SCALE	DATE	APP.
CADD FILE	LS	9/23/98
DRAWN	L. SHULMAN	
DESIGNED	S. OFFNER	
CHECKED	S. OFFNER	
CHECKED		

REVISIONS

ZONE	REV	DESCRIPTION	BY	DATE	APP.
	1	REVISED BASED ON NEW SURVEY	LS	9/23/98	
	2	IMMUNOASSAY SOIL SCREENING (6-12")	LS	3/13/99	

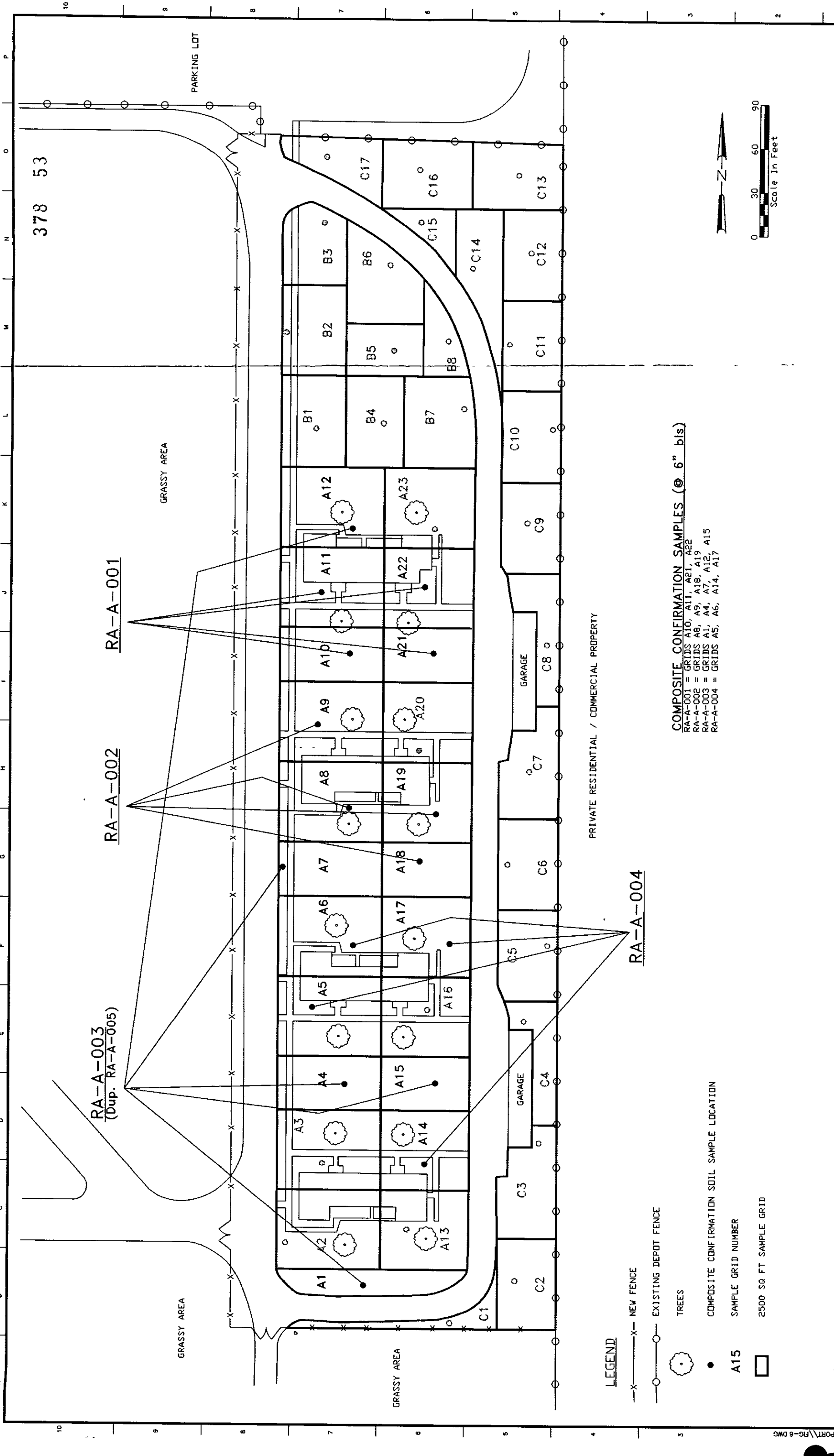
U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT

CONTRACT NO. DAC45-96-D-0014
OEM PROJECT No. 920560
MEMPHIS, SHELBY COUNTY, TENNESSEE
DELIVERY ORDER NO. 0010

IMMUNOASSAY SOIL SCREENING
LOCATIONS AND RESULTS (6-12")
FAMILY HOUSING AREA

MEMPHIS DEPOT, TENNESSEE

DRAWING NUMBER	FIG. 5
SHEET NUMBER	1 of 1
DATE	3/13/99



RA-A-003
(Dup. RA-A-005)

RA-A-002

RA-A-001

RA-A-004

LEGEND

-X- NEW FENCE

-O- EXISTING DEPOT FENCE

TREES

COMPOSITE CONFIRMATION SOIL SAMPLE LOCATION

A15 SAMPLE GRID NUMBER

2500 S0 FT SAMPLE GRID

COMPOSITE CONFIRMATION SAMPLES (@ 6" bls)

RA-A-001 = GRIDS A10, A11, A21, A22
RA-A-002 = GRIDS A8, A9, A18, A19
RA-A-003 = GRIDS A1, A4, A7, A12, A15
RA-A-004 = GRIDS A5, A6, A14, A17



OHM Remediation Services Corp.
Norcross, Georgia
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ZONE	REV	DESCRIPTION	BY	DATE	APP
	1	REVISED BASED ON NEW SURVEY	LS	6/23/98	
	2	AREA A-CONF SAMPLES @ 6"	LS	3/13/99	

DESIGNED S. OFFNER
CHECKED S. OFFNER

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT

CONTRACT NO. DACA46-98-D-0014
OHM PROJECT No. 920560

MEMPHIS, SHELBY COUNTY, TENNESSEE

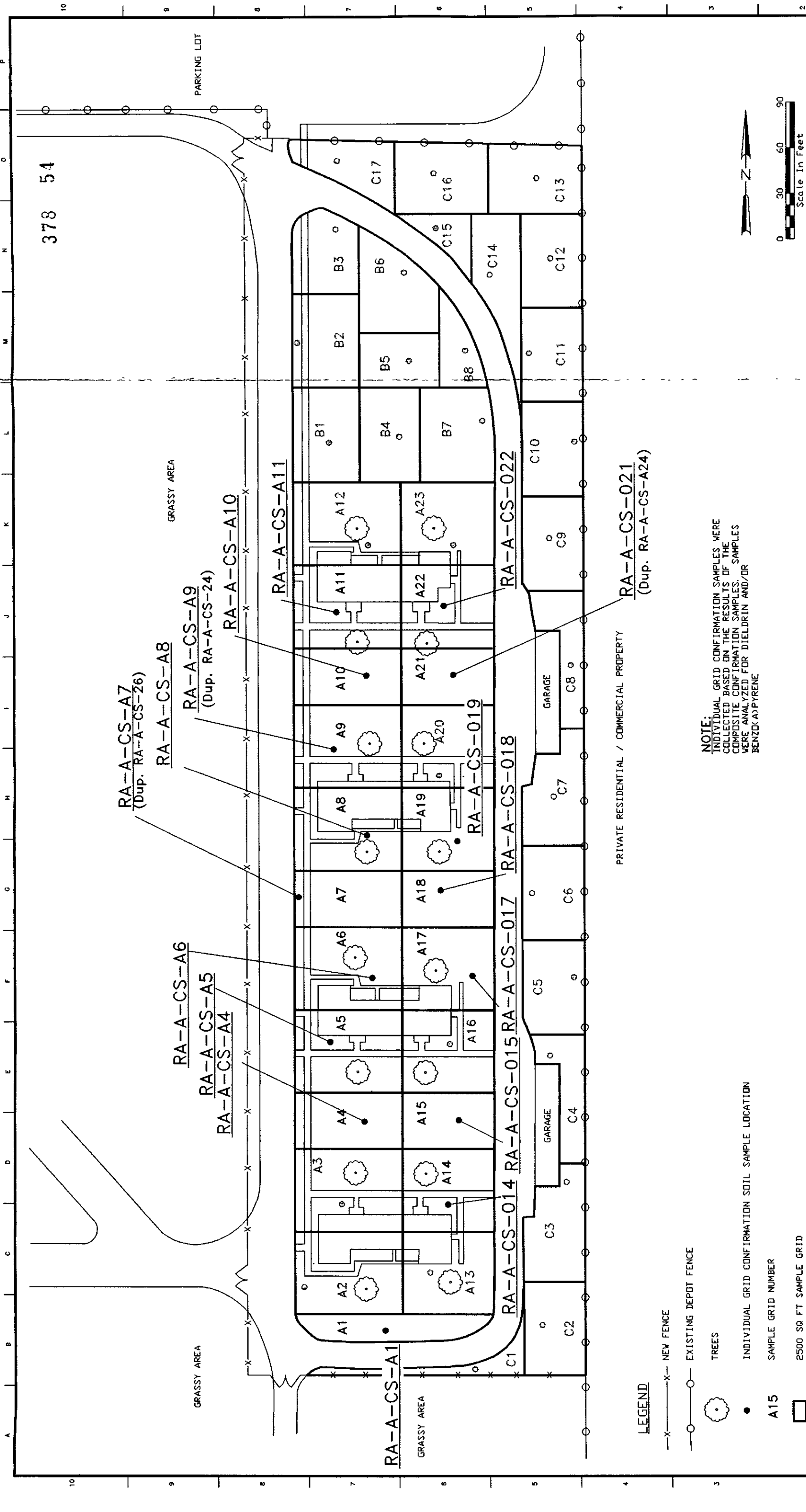
AREA A-CONFIRMATION SOIL SAMPLES
FOLLOWING 6-INCH EXCAVATION
FAMILY HOUSING AREA

MEMPHIS DEPOT, TENNESSEE

DRAWING NUMBER
FIG. 6

SHEET NUMBER
1 of 1

DATE
3/13/99



NOTE:
INDIVIDUAL GRID CONFIRMATION SAMPLES WERE
COLLECTED BASED ON THE RESULTS OF THE
COMPOSITE CONFIRMATION SAMPLES. SAMPLES
WERE ANALYZED FOR DIELDRIN AND/OR
BENZOC(A)PYRENE

LEGEND

- X- NEW FENCE
- O- EXISTING DEPOT FENCE
- TREES
- INDIVIDUAL GRID CONFIRMATION SOIL SAMPLE LOCATION
- A15 SAMPLE GRID NUMBER
- 2500 SQ FT SAMPLE GRID

OHM Remediation Services Corp.
Norcross, Georgia
A Member of The IT Group

AT FULL SCALE
(IF NOT 1"=SCALE ACCORDING)

DATE	BY	DATE	APP
LS 6/23/98	LS	LS 6/23/98	LS

CADD FILE: L. SHULMAN
DRAWN: L. SHULMAN
DESIGNED: S. OFFNER
CHECKED: S. OFFNER

REVISIONS

ZONE	REV	DESCRIPTION	BY	DATE	APP
1	1	REVISED BASED ON NEW SURVEY	LS	6/23/98	LS
2	2	AREA A-IND GRID SAMPLES 6"	LS	9/19/98	LS

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT

CONTRACT NO. DAC445-98-D-0014
OHM PROJECT No. 920560

DELIVERY ORDER NO. 0010
MEMPHIS, SHELBY COUNTY, TENNESSEE

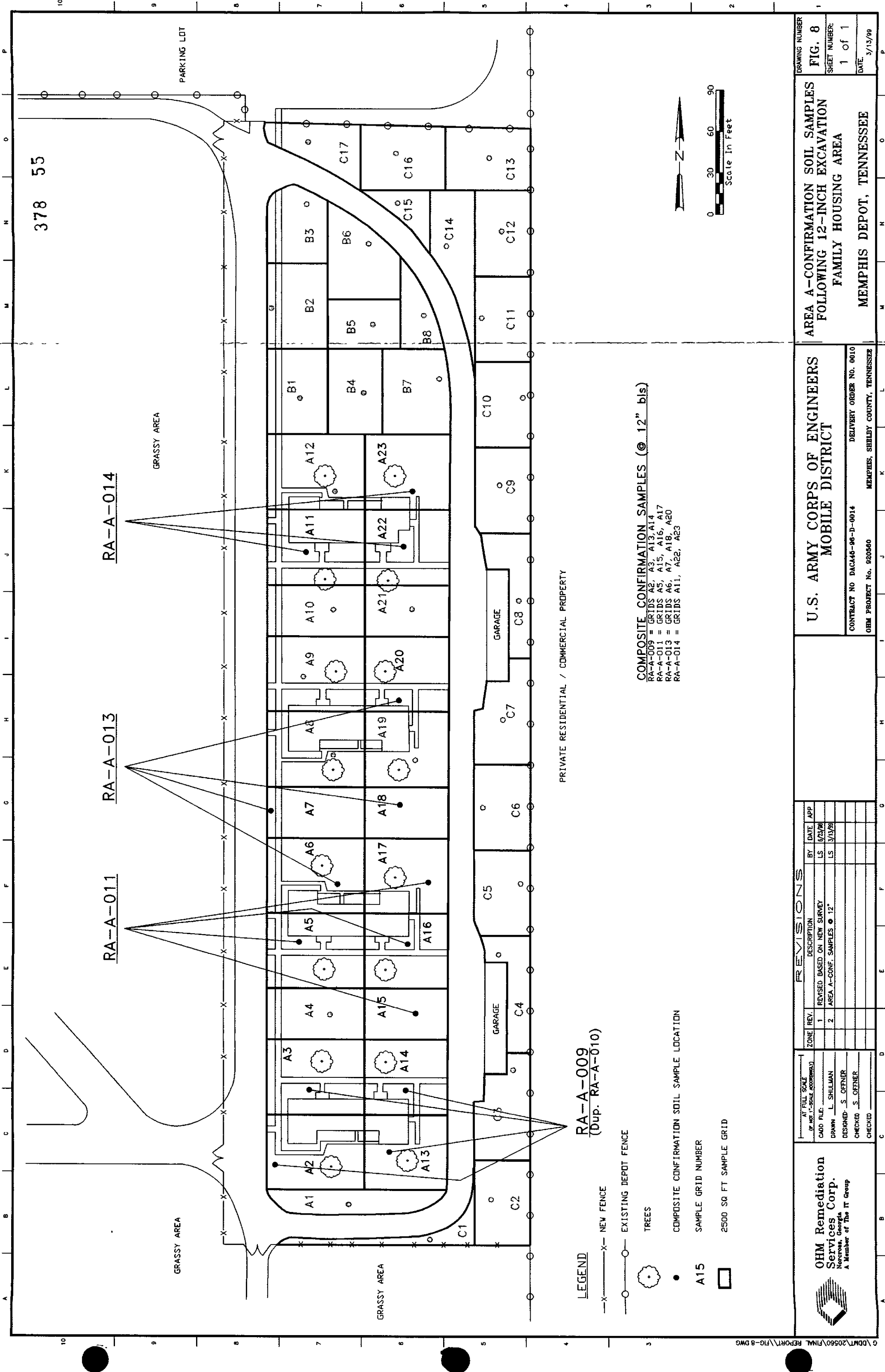
AREA A-INDIVIDUAL GRID SOIL SAMPLES
FOLLOWING 6-INCH EXCAVATION
FAMILY HOUSING AREA

MEMPHIS DEPOT, TENNESSEE

DRAWING NUMBER
FIG. 7

SHEET NUMBER
1 of 1

DATE
3/13/99



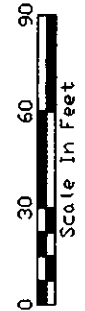
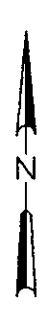
PRIVATE RESIDENTIAL / COMMERCIAL PROPERTY

RA-A-009
(Dup. RA-A-010)

LEGEND

- X- NEW FENCE
- O- EXISTING DEPOT FENCE
- TREES
- COMPOSITE CONFIRMATION SOIL SAMPLE LOCATION
- A15 SAMPLE GRID NUMBER
- 2500 SQ FT SAMPLE GRID

COMPOSITE CONFIRMATION SAMPLES (@ 12" bls)
RA-A-009 = GRIDS A2, A3, A13, A14
RA-A-011 = GRIDS A5, A15, A16, A17
RA-A-013 = GRIDS A6, A7, A18, A20
RA-A-014 = GRIDS A11, A22, A23



OHM Remediation Services Corp.
Norcross, Georgia
A Member of The IT Group

REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	1	REVISED BASED ON NEW SURVEY	LS	6/23/04	
	2	AREA A-CONF. SAMPLES @ 12"	LS	3/13/99	

AT FULL SCALE
(IF NOT 1"=SCALE ACCORDING)

CAUD FILE:	
DRAWN	L. SHULMAN
DESIGNED	S. OFFNER
CHECKED	S. OFFNER
CHECKED	

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT

CONTRACT NO. DACA45-96-D-0014
OHM PROJECT No. 920560

DELIVERY ORDER NO. 0010
MEMPHIS, SHELBY COUNTY, TENNESSEE

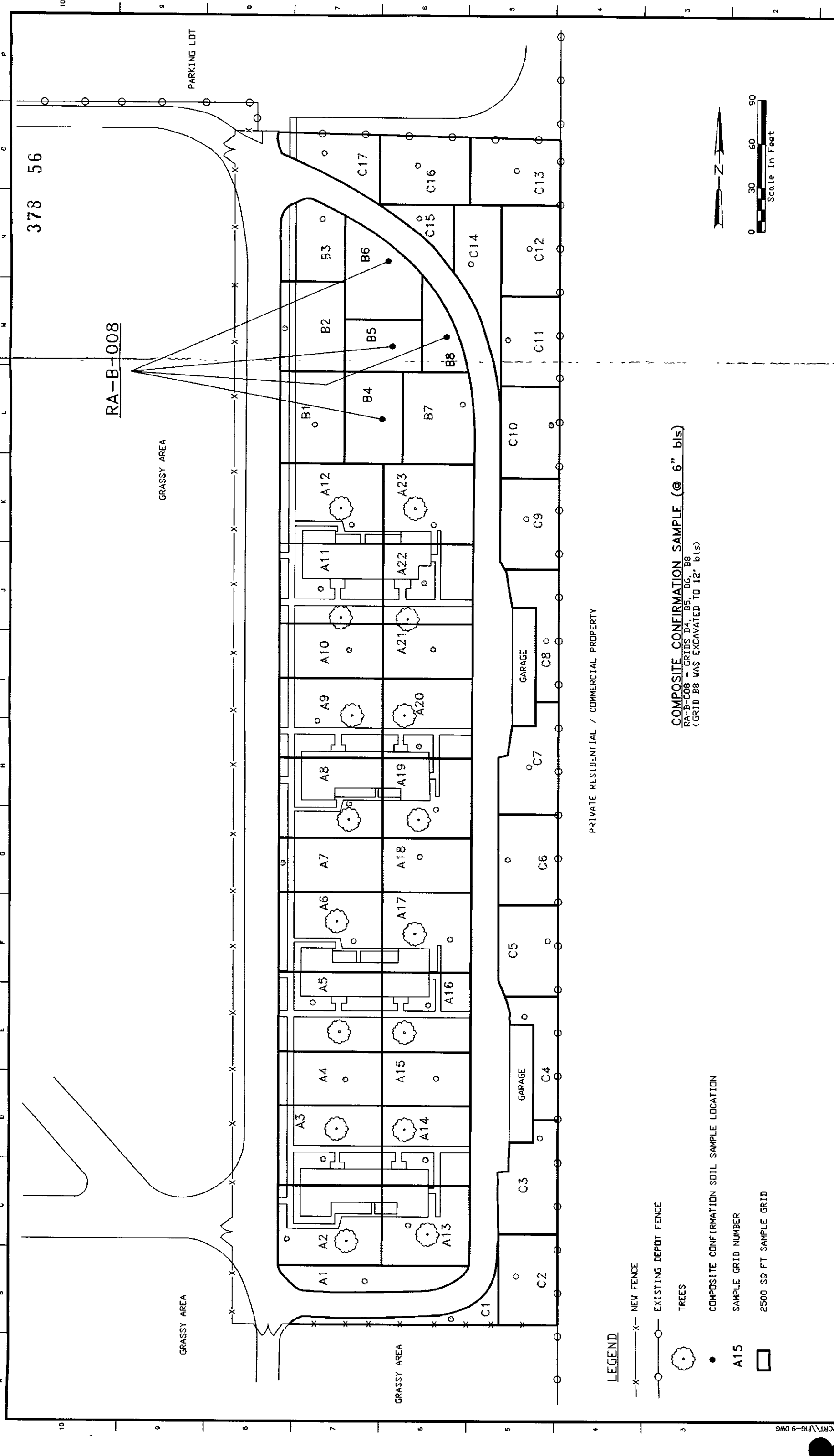
AREA A-CONFIRMATION SOIL SAMPLES
FOLLOWING 12-INCH EXCAVATION
FAMILY HOUSING AREA

MEMPHIS DEPOT, TENNESSEE

DRAWING NUMBER
FIG. 8

SHEET NUMBER:
1 of 1

DATE:
3/13/99



LEGEND

- X- NEW FENCE
- O- EXISTING DEPOT FENCE
- TREES
- COMPOSITE CONFIRMATION SOIL SAMPLE LOCATION
- A15 SAMPLE GRID NUMBER
- 2500 SQ FT SAMPLE GRID

COMPOSITE CONFIRMATION SAMPLE (@ 6" b/s)
RA-B-008 = GRIDS B4, B5, B6, B8
(GRID B8 WAS EXCAVATED TO 12" b/s)

PRIVATE RESIDENTIAL / COMMERCIAL PROPERTY

OHM Remediation Services Corp.
Norcross, Georgia
A Member of The IT Group

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT

CONTRACT NO. DACA45-98-D-0014
OIRM PROJECT NO. 980360

MEMPHIS, SHELBY COUNTY, TENNESSEE

AREA B-CONFIRMATION SOIL SAMPLE
FOLLOWING 6-INCH EXCAVATION
FAMILY HOUSING AREA

MEMPHIS DEPOT, TENNESSEE

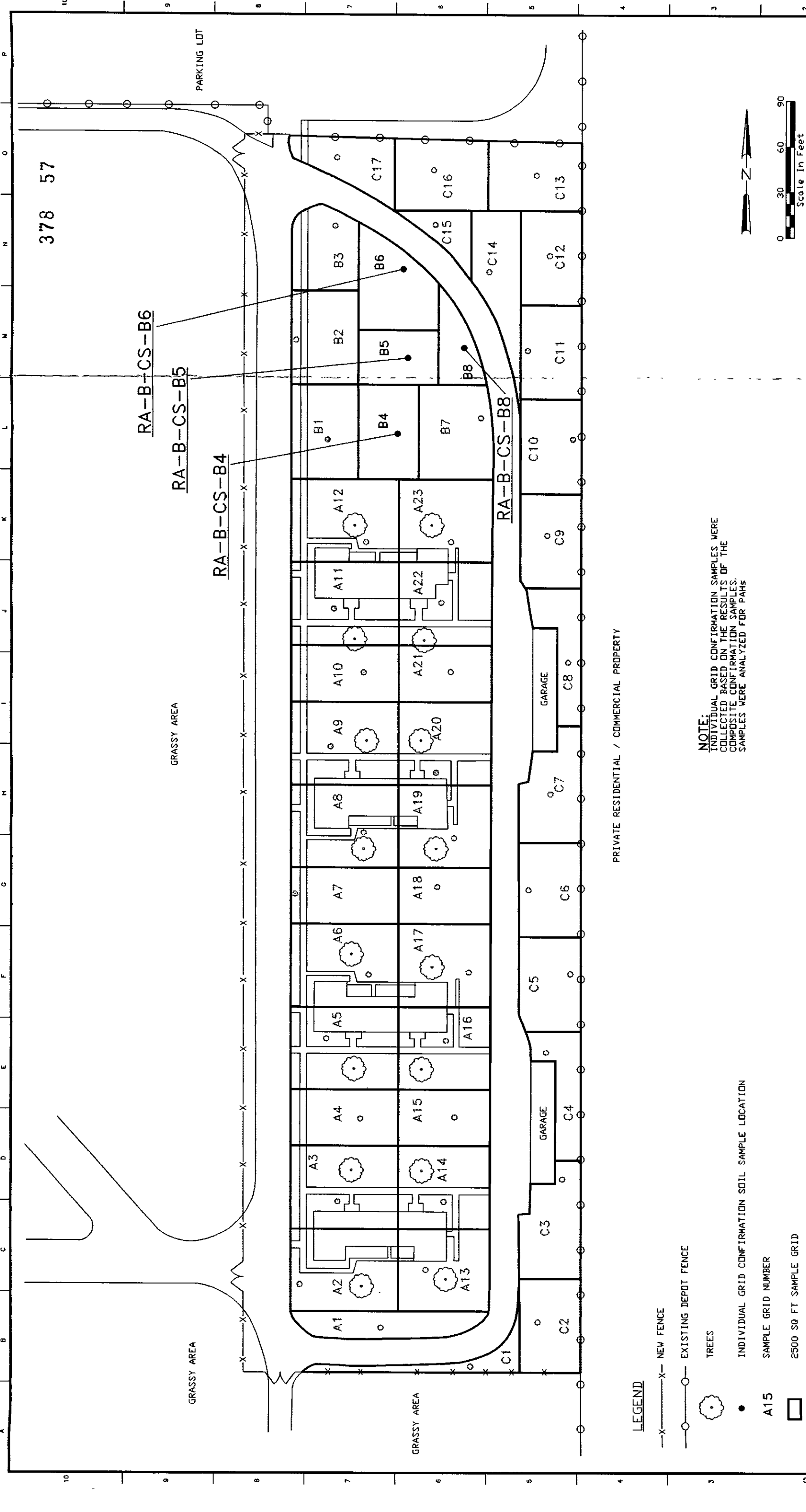
DRAWING NUMBER
FIG. 9

SHEET NUMBER
1 of 1

DATE
3/13/99

REVISIONS					
ZONE	REV	DESCRIPTION	BY	DATE	APP
	1	REVISED BASED ON NEW SURVEY	LS	9/23/98	
	2	AREA B-CONF SAMPLE @ 6"	LS	3/13/99	

AT FULL SCALE (IF NOT 1"=SCALE ACCORDINGLY)	
CADD FILE	
DRAWN	L. SHULMAN
DESIGNED	S. OFFNER
CHECKED	S. OFFNER



PRIVATE RESIDENTIAL / COMMERCIAL PROPERTY

NOTE:
INDIVIDUAL GRID CONFIRMATION SAMPLES WERE
COLLECTED BASED ON THE RESULTS OF THE
COMPOSITE CONFIRMATION SAMPLES.
SAMPLES WERE ANALYZED FOR PAHs

LEGEND

- X- NEW FENCE
- O- EXISTING DEPOT FENCE
- TREES
- INDIVIDUAL GRID CONFIRMATION SOIL SAMPLE LOCATION
- A15
- SAMPLE GRID NUMBER
- 2500 SQ FT SAMPLE GRID

INDIVIDUAL GRID CONFIRMATION SOIL SAMPLE LOCATION

SAMPLE GRID NUMBER

2500 SQ FT SAMPLE GRID

OHM Remediation Services Corp.
Nashville, Tennessee
A Member of The IT Group

ZONE	REV	DESCRIPTION	BY	DATE	APP
	1	REVISED BASED ON NEW SURVEY	LS	6/23/98	
	2	AREA B-IND. GRID SAMPLES @ 6"	LS	3/13/99	

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT

CONTRACT NO. DACA45-96-D-0014
OHM PROJECT No. 920560

MEMPHIS, SHELBY COUNTY, TENNESSEE

DELIVERY ORDER NO. 0010

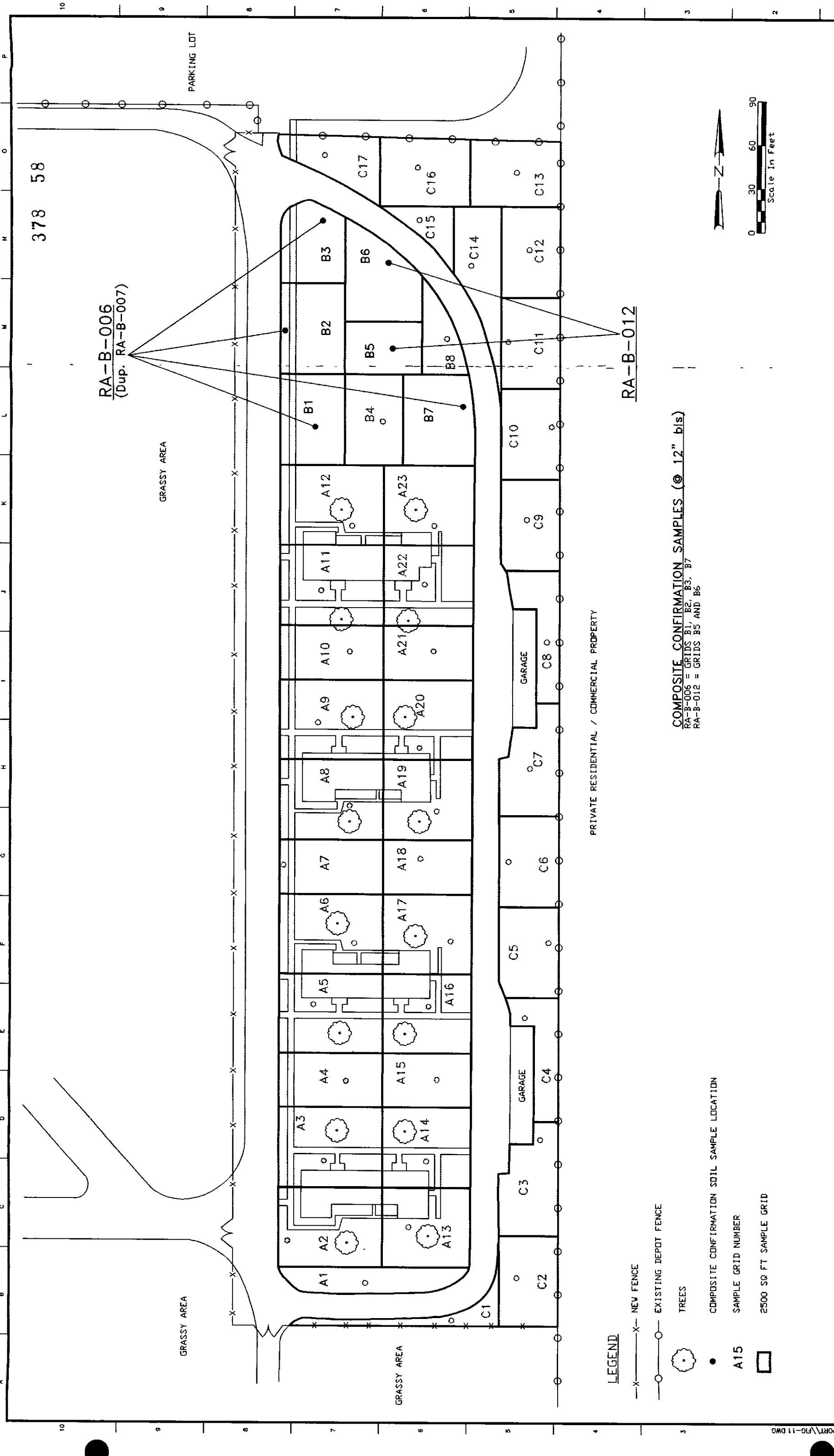
AREA B-INDIVIDUAL GRID SOIL SAMPLE
FOLLOWING 6-INCH EXCAVATION
FAMILY HOUSING AREA

MEMPHIS DEPOT, TENNESSEE

DRAWING NUMBER
FIG. 10

SHEET NUMBER
1 of 1

DATE
3/13/99



RA-B-006
(Dup. RA-B-007)

RA-B-012

COMPOSITE CONFIRMATION SAMPLES (ø 12" b/s)
RA-B-006 = GRIDS B1, B2, B3, B7
RA-B-012 = GRIDS B5 AND B6

PRIVATE RESIDENTIAL / COMMERCIAL PROPERTY

LEGEND

- X- NEW FENCE
- O- EXISTING DEPOT FENCE
- TREES
- COMPOSITE CONFIRMATION SOIL SAMPLE LOCATION
- A15 SAMPLE GRID NUMBER
- 2500 SQ FT SAMPLE GRID

OHM Remediation Services Corp.
Norcross, Georgia
A Member of The IT Group

REVISIONS

ZONE	REV	DESCRIPTION	BY	DATE	APP.
	1	REVISED BASED ON NEW SURVEY	LS	6/23/98	
	2	AREA B-CONF SAMPLES ø 12"	LS	3/13/99	

CADD FILE	DRAWN	DESIGNED	CHECKED	CHECKED
(IF NOT 1'-SCALE, APPROX.)	L. SHULMAN	S. OFFNER	S. OFFNER	

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT

CONTRACT NO. DACA45-98-D-0014
OHM PROJECT No. 920860

DELIVERY ORDER NO. 0010
MEMPHIS, SHELBY COUNTY, TENNESSEE

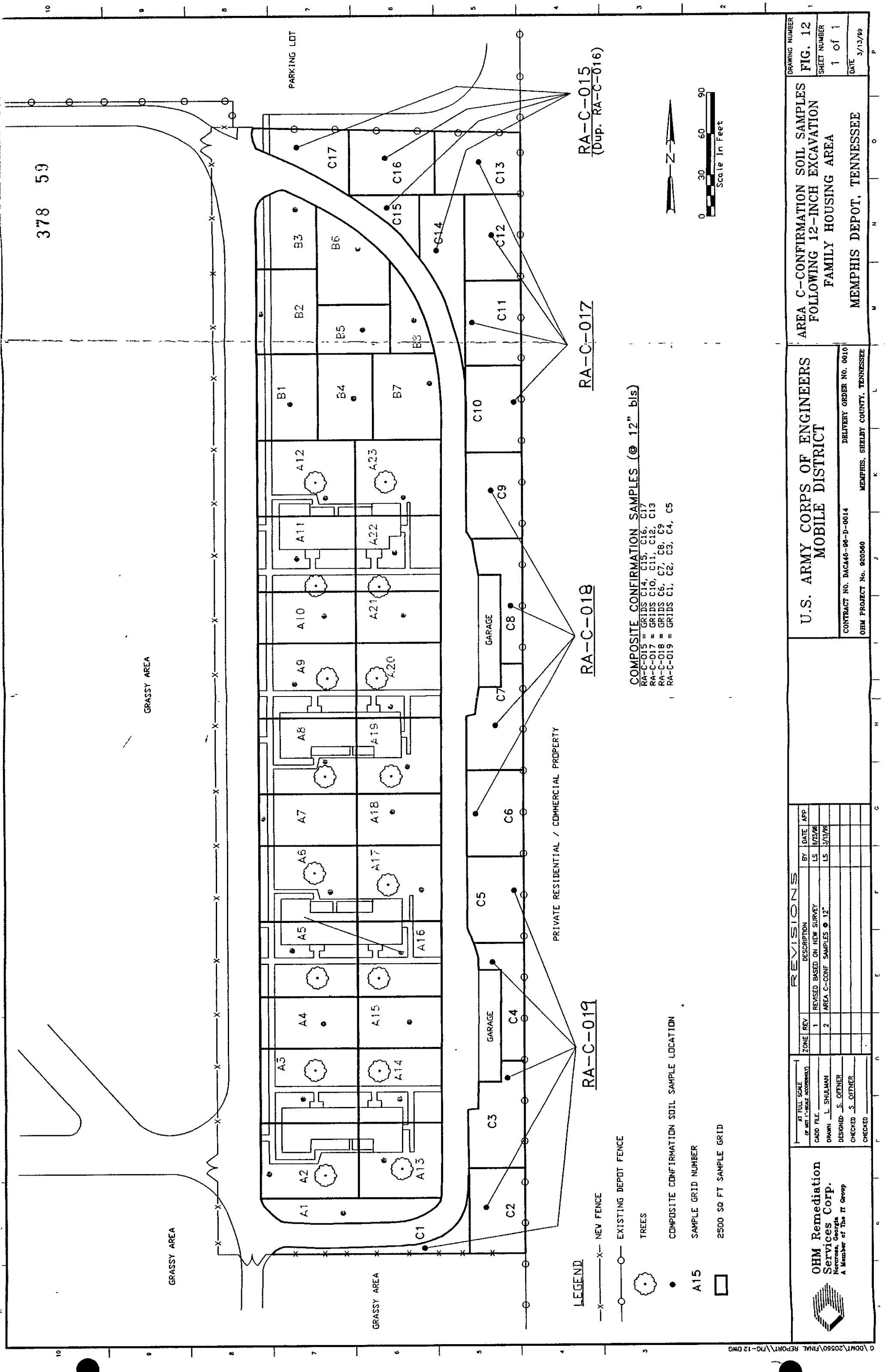
AREA B-CONFIRMATION SOIL SAMPLES
FOLLOWING 12-INCH EXCAVATION
FAMILY HOUSING AREA

MEMPHIS DEPOT, TENNESSEE

DRAWING NUMBER
FIG. 11

SHEET NUMBER
1 of 1

DATE
3/13/99



RA-C-015
(Dup. RA-C-016)

RA-C-017

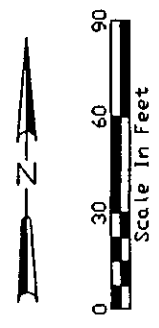
RA-C-018

RA-C-019

COMPOSITE CONFIRMATION SAMPLES (@ 12" bls)
RA-C-015 = GRIDS C14, C15, C16, C17
RA-C-017 = GRIDS C10, C11, C12, C13
RA-C-018 = GRIDS C6, C7, C8, C9
RA-C-019 = GRIDS C1, C2, C3, C4, C5

LEGEND

- X- NEW FENCE
- O- EXISTING DEPOT FENCE
- TREES
- COMPOSITE CONFIRMATION SOIL SAMPLE LOCATION
- A15 SAMPLE GRID NUMBER
- 2500 SQ FT SAMPLE GRID



OHM Remediation Services Corp.
Norcross, Georgia
A Member of The IT Group

AT FULL SCALE
(IF NOT 1"=SCALE ACCORDINGLY)

CADD FILE	REVISIONS	BY	DATE	APP
DRAWN L. SHULMAN	1 REVISED BASED ON NEW SURVEY	LS	8/23/98	
DESIGNED S. OFFNER	2 AREA C-CONF SAMPLES @ 12"	LS	3/13/99	
CHECKED S. OFFNER				
CHECKED				

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT

CONTRACT NO. D4CA46-98-D-0014
OHM PROJECT NO. 920560

MEMPHIS, SHELBY COUNTY, TENNESSEE

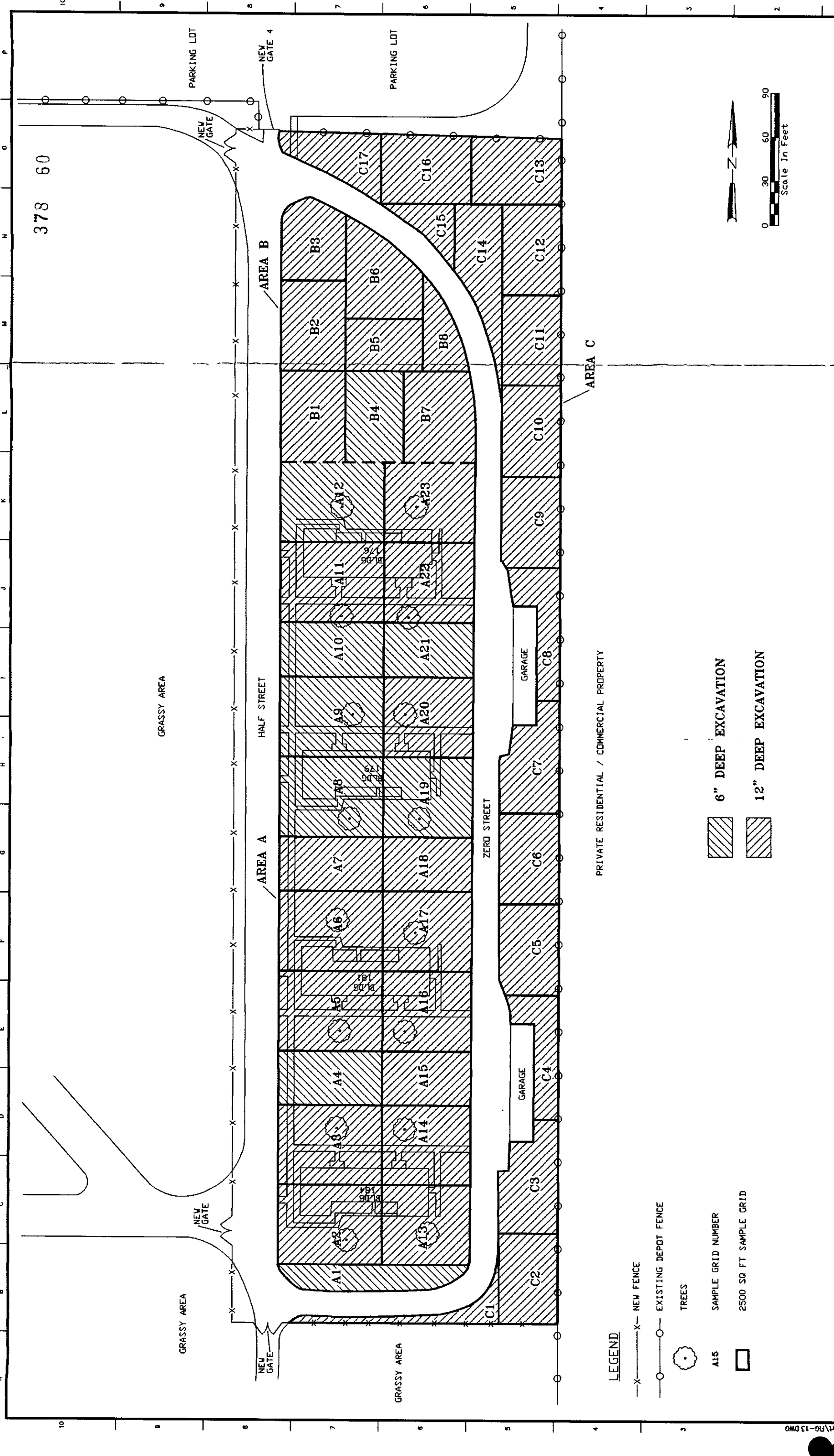
AREA C-CONFIRMATION SOIL SAMPLES
FOLLOWING 12-INCH EXCAVATION
FAMILY HOUSING AREA

MEMPHIS DEPOT, TENNESSEE

DRAWING NUMBER
FIG. 12

SHEET NUMBER
1 of 1

DATE
3/13/99



OHM Remediation
Services Corp.
Norcross, Georgia
A Member of The IT Group

REVISIONS

ZONE	REV	DESCRIPTION	BY	DATE	APP
1	1	REVISED PER 9/15/08 EXCAV PROGRESS	LS	9/15/08	
	2	FINAL EXCAVATIONS	LS	3/13/09	

AT FULL SCALE
(IF NOT 1"=50' OR OTHERWISE)
CADD FILE: L. SHULMAN
DRAWN: L. SHULMAN
DESIGNED: S. OFFNER
CHECKED: S. OFFNER

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT

CONTRACT NO. DACA45-06-D-0014
OEM PROJECT No. 920560

DELIVERY ORDER NO. 0010
MEMPHIS, SHELBY COUNTY, TENNESSEE

FINAL EXCAVATION DEPTHS
FAMILY HOUSING AREA

MEMPHIS DEPOT, TENNESSEE

DRAWING NUMBER
FIG. 13

SHEET NUMBER
1 of 1

DATE
3/13/09

G:\D0M7\20560\final report\Fig-13 DWG

TAB

Appendix A

APPENDIX A

USEPA Region 3 Risk-Based Concentrations

Sources: I = IRIS H = HEAST A = HEAST alternate W = Withdrawn from IRIS or HEAST E = EPA-NCEA Regional Support provisional value O = Other EPA documents										Basis: C = carcinogenic effects N = non-carcinogenic effects									
Contaminant	CAS	RfD _h mg/kg/d	RfD _i mg/kg/d	CPS _h kg/dmg	CPS _i kg/dmg	V	O	C	R	Risk-Based Concentrations					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
										Tap Water	Ambient Air	Fish	Industrial	Residential					
Acetophenone	30560191	4.00E-03	2.57E-03	8.70E-03	7.70E-03	I				7.7 C	0.72 C	0.36 C	660 C	73 C					
Acetaldehyde	75070	2.00E-02	2.00E-02							94 N	0.81 C	0	0	0					
Acetochlor	34256821	1.00E-01	1.00E-01							730 N	73 N	27 N	41000 N	1600 N					
Acetone	67641	8.00E-04	2.86E-03							3700 N	370 N	140 N	200000 N	7800 N					
**Acetone cyanohydrin	75865	6.00E-03	1.43E-02							29 N	10 N	1.1 N	1600 N	63 N					
Acetonitrile	75078	1.00E-01	5.71E-06							220 N	52 N	8.1 N	12000 N	470 N					
Acetophenone	98862	1.00E-01	5.71E-06							0.042 N	0.021 N	140 N	200000 N	7800 N					
Acetofluorene	62476599	1.30E-02	5.71E-06							470 N	47 N	18 N	27000 N	1000 N					
Acrolein	107028	2.00E-02	5.71E-06							730 N	0.021 N	27 N	41000 N	1600 N					
Acrylamide	79061	2.00E-04	2.86E-04							0.015 C	0.0014 C	0.0007 C	1.3 C	0.14 C					
Acrylic acid	79107	5.00E-01	2.86E-04							18000 N	1 N	680 N	100000 N	39000 N					
Acrylonitrile	107131	1.00E-03	5.71E-04							0.12 C	0.026 C	0.0038 C	11 C	1.2 C					
Alachlor	15972608	1.00E-02								0.84 C	0.078 C	0.039 C	72 C	8 C					
Alar	1596845	1.50E-01								5500 N	550 N	200 N	310000 N	12000 N					
Aldicarb	116063	1.00E-03								37 N	3.7 N	1.4 N	2000 N	78 N					
Aldicarb sulfone	1646884	1.00E-03								37 N	3.7 N	1.4 N	2000 N	78 N					
Aldrin	309002	3.00E-05								0.004 C	0.00037 C	0.00019 C	0.34 C	0.038 C					
Allyl	74223646	2.50E-01								9100 N	910 N	340 N	510000 N	20000 N					
Allyl alcohol	107186	5.00E-03								180 N	18 N	6.8 N	10000 N	390 N					
Allyl chloride	107051	5.00E-02								1800 N	1 N	68 N	100000 N	3900 N					
**Aluminum	7429905	1.00E+00								37000 N	3.7 N	1400 N	1000000 N	78000 N					
Aluminum phosphide	20859738	4.00E-04								15 N	1.5 N	0.54 N	820 N	31 N					
Amdro	67485294	3.00E-04								11 N	1.1 N	0.41 N	610 N	23 N					
Ametryn	834128	9.00E-03								330 N	33 N	12 N	18000 N	700 N					
**Aminodinitrotoluenes	0	6.00E-05								2.2 N	0.22 N	0.081 N	120 N	4.7 N					
m-Aminophenol	591275	7.00E-02								2600 N	260 N	95 N	140000 N	5500 N					
4-Aminopyridine	504245	2.00E-05								0.73 N	0.073 N	0.027 N	41 N	1.6 N					
Amitraz	33089611	2.50E-03								91 N	9.1 N	3.4 N	5100 N	200 N					
Ammonia	7664417	2.00E-01								1000 N	100 N	0	0	0					
Ammonium sulfamate	7773060	2.00E-01								7300 N	730 N	270 N	410000 N	16000 N					
Aniline	62533	4.00E-04								10 N	1 N	0.55 C	1000 C	110 C					
Antimony and compounds	7440360	5.00E-04								15 N	1.5 N	0.54 N	820 N	31 N					
Antimony pentoxide	1314609	9.00E-04								18 N	1.8 N	0.68 N	1000 N	39 N					
Antimony potassium tartrate	304610	4.00E-04								33 N	3.3 N	1.2 N	1800 N	70 N					
Antimony tetroxide	1332316	4.00E-04								15 N	1.5 N	0.54 N	820 N	31 N					
**Antimony trioxide	1309644	4.00E-04								15 N	0.21 N	0.54 N	820 N	31 N					
Apollo	74115245	1.30E-02								470 N	47 N	18 N	27000 N	1000 N					
Aramite	140578	5.00E-02								2.7 C	0.25 C	0.13 C	230 C	26 C					
Arsenic	7440382	3.00E-04								11 N	1.1 N	0.41 N	610 N	23 N					
Arsenic (as carcinogen)	7440382									0.045 C	0.00041 C	0.0021 C	3.8 C	0.43 C					
Arsine	7784421	9.00E-03								0.52 N	0.052 N	0	0	0					
Assure	76578148	5.00E-02								330 N	33 N	12 N	18000 N	700 N					
Asulam	3337711	3.50E-02								1800 N	180 N	68 N	100000 N	3900 N					
Atrazine	1912249	4.00E-04								0.3 C	0.028 C	0.014 C	26 C	2.9 C					
Avermectin B1	65195553	4.00E-04								15 N	1.5 N	0.54 N	820 N	31 N					
Azobenzene	103333	7.00E-02								0.61 C	0.058 C	0.029 C	52 C	5.8 C					
Barium and compounds	7440393									2600 N	0.52 N	95 N	140000 N	5500 N					

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Contaminant	CAS	RfD mg/kg/d	RDX mg/kg/d	CPSO kg/d/mg	CPSI kg/d/mg	Y	O	C	Risk-Based Concentrations					
									Tap Water mg/L	Ambient Air µg/m ³	Fish mg/kg	Industrial mg/kg	Residential mg/kg	
Baygon	114261	4.00E-03	I						150 N	15 N	5.4 N	8200 N	310 N	
Bayleton	43121433	3.00E-02	I						1100 N	110 N	41 N	61000 N	2300 N	
Baythroid	68359375	2.50E-02	I						910 N	91 N	34 N	51000 N	2000 N	
Benefin	1861401	3.00E-01	I						11000 N	1100 N	410 N	610000 N	23000 N	
Benomyl	17804352	5.00E-02	I						1800 N	180 N	68 N	100000 N	3900 N	
Bentazon	25057890	2.50E-03	I						91 N	9.1 N	3.4 N	5100 N	200 N	
Benzaldehyde	100527	1.00E-01	I			☒			610 N	370 N	140 N	200000 N	7800 N	
Benzene	71432	3.00E-03	B	1.71E-03	I	☒			0.36 C	0.22 C	0.11 C	200 C	22 C	
Benzenethiol	108985	1.00E-05	H						0.37 N	0.037 N	0.014 N	20 N	0.78 N	
Benzidine	92875	3.00E-03	I						0.00029 C	0.000027 C	0.000014 C	0.025 C	0.0028 C	
Benzoic acid	65850	4.00E+00	I						150000 N	15000 N	5400 N	1000000 N	310000 N	
Benzotrichloride	98077								0.0052 C	0.00048 C	0.00024 C	0.44 C	0.049 C	
Benzyl alcohol	100516	3.00E-01	H						11000 N	1100 N	410 N	610000 N	23000 N	
Benzyl chloride	100447					☒			0.062 C	0.037 C	0.019 C	34 C	3.8 C	
Beryllium and compounds	7440417	5.00E-03	I						0.016 C	0.00075 C	0.00073 C	1.3 C	0.15 C	
Bidrin	141662	1.00E-04	I						3.7 N	0.37 N	0.14 N	200 N	7.8 N	
Biphenyl (Talstar)	82657043	1.50E-02	I						550 N	55 N	20 N	31000 N	1200 N	
1,1-Biphenyl	92524	5.00E-02	I						1800 N	180 N	68 N	100000 N	3900 N	
Bis(2-chloroethyl)ether	111444					☒			0.0092 C	0.0054 C	0.0029 C	5.2 C	0.58 C	
Bis(2-chloroisopropyl)ether	39638329	4.00E-02	I			☒			0.26 C	0.18 C	0.045 C	82 C	9.1 C	
Bis(chloromethyl)ether	542881					☒			0.000049 C	0.000029 C	0.000014 C	0.026 C	0.0029 C	
**Bis(2-chloro-1-methylethyl)ether	0					☒			0.96 C	0.18 C	0.045 C	82 C	9.1 C	
Bis(2-ethylhexyl)phthalate (DEHP)	117817	2.00E-02	I						4.8 C	0.45 C	0.23 C	410 C	46 C	
Bisphenol A	80057	5.00E-02	I						1800 N	180 N	68 N	100000 N	3900 N	
Boron (and borates)	7440428	9.00E-02	I						3300 N	21 N	120 N	180000 N	7000 N	
Boron trifluoride	7637072					☒			7.3 N	0.73 N	0	0	0	
Bromodichloromethane	75274	2.00E-02	I			☒			0.17 C	0.1 C	0.051 C	92 C	10 C	
Bromoethene	593602					☒			0.096 C	0.057 C	0	0	0	
Bromoform (tribromomethane)	75252	2.00E-02	I			☒			2.4 C	1.6 C	0.4 C	720 C	81 C	
Bromomethane	74839	1.40E-03	I			☒			8.7 N	5.2 N	1.9 N	2900 N	110 N	
4-Bromophenyl phenyl ether	101553	5.80E-02	O			☒			2100 N	210 N	78 N	120000 N	4500 N	
Bromophos	2104963	5.00E-03	H						180 N	18 N	6.8 N	10000 N	390 N	
Bromoxynil	1689845	2.00E-02	I						730 N	73 N	27 N	41000 N	1600 N	
Bromoxynil octanoate	1689992	2.00E-02	I						730 N	73 N	27 N	41000 N	1600 N	
1,3-Butadiene	106990					☒			0.011 C	0.0064 C	0	0	0	
1-Butanol	71363	1.00E-01	I						3700 N	370 N	140 N	200000 N	7800 N	
Butyl benzyl phthalate	85687	2.00E-01	I						7300 N	730 N	270 N	410000 N	16000 N	
Butylate	2008415	5.00E-02	I						1800 N	180 N	68 N	100000 N	3900 N	
**n-Butylbenzene	104518	1.00E-02	B			☒			61 N	37 N	14 N	20000 N	780 N	
sec-Butylbenzene	135988	1.00E-02	B			☒			61 N	37 N	14 N	20000 N	780 N	
tert-Butylbenzene	104518	1.00E-02	H			☒			61 N	37 N	14 N	20000 N	780 N	
Butylphthalyl butylglycolate	85701	1.00E+00	I						37000 N	3700 N	1400 N	1000000 N	78000 N	
Caproic acid	75605	3.00E-03	H						110 N	11 N	4.1 N	6100 N	230 N	
Cadmium and compounds	7440439	5.00E-04	I						18 N	0.00099 C	0.68 N	1000 N	39 N	
Caprolactam	105602	5.00E-01	I						18000 N	1800 N	680 N	1000000 N	39000 N	
Captafol	2425061	2.00E-03	I						7.8 C	0.73 C	0.37 C	670 C	74 C	
Captan	133062	1.30E-01	I						19 C	1.8 C	0.9 C	1600 C	180 C	

378

64

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Contaminant	CAS	RfD mg/kg/d	RfD mg/kg/d	RfD mg/kg/d	CPS6 kg/dmg	CPS1 kg/dmg	V	O	C	Risk-Based Concentrations					Risk-Based Concentrations				
										Tap Water mg/L	Ambient Air pgm3	Fish mg/kg	Industrial mg/kg	Residential mg/kg	Tap Water mg/L	Ambient Air pgm3	Fish mg/kg	Industrial mg/kg	Residential mg/kg
Carbaryl	63252	1.00E-01	I							3700 N	370 N	140 N	20000 N	7800 N	180 N	18 N	6.8 N	10000 N	390 N
Carbofuran	1563662	5.00E-03	I							1000 N	730 N	140 N	20000 N	7800 N	0.16 C	0.12 C	0.024 C	44 C	4.9 C
Carbon disulfide	75150	1.00E-01	I	2.00E-01	I														
Carbon tetrachloride	56235	7.00E-04	I	5.71E-04	I														
Carbosulfan	55285148	1.00E-02	I							370 N	37 N	14 N	20000 N	780 N					
Carboxin	5234684	1.00E-01	I							3700 N	370 N	140 N	20000 N	7800 N					
Chloral	75876	2.00E-03	I							73 N	7.3 N	2.7 N	4100 N	160 N					
Chloramben	133904	1.50E-02	I							550 N	55 N	20 N	31000 N	1200 N					
Chloranil	118752									0.17 C	0.016 C	0.0078 C	14 C	1.6 C					
**Chlordane	57749	5.00E-04	I							0.19 C	0.018 C	0.009 C	16 C	1.8 C					
Chlorimuron-ethyl	90982324	2.00E-02	I							730 N	73 N	27 N	41000 N	1600 N					
Chlorine	7782505	1.00E-01	I							3700 N	370 N	140 N	20000 N	7800 N					
Chlorine dioxide	10049044			5.71E-05	I					2.1 N	0.21 N	0	0	0					
Chloroacetaldehyde	107200	6.90E-03	O							250 N	25 N	9.3 N	14000 N	540 N					
Chloroacetic acid	79118	2.00E-03	H							73 N	7.3 N	2.7 N	4100 N	160 N					
2-Chloroacetophenone	532274	4.00E-03	I							0.31 N	0.031 N	0	0	0					
4-Chloroaniline	106478	4.00E-03	I							150 N	15 N	5.4 N	8200 N	310 N					
Chlorobenzene	108907	2.00E-02	I	5.71E-03	A					39 N	21 N	27 N	41000 N	1600 N					
Chlorobenzilate	510156	2.00E-02	I							0.25 C	0.023 C	0.012 C	21 C	2.4 C					
p-Chlorobenzoic acid	74113	2.00E-01	H							7300 N	730 N	270 N	41000 N	16000 N					
4-Chlorobenzotrifluoride	98566	2.00E-02	H							730 N	73 N	27 N	41000 N	1600 N					
2-Chloro-1,3-butadiene (chloroprene)	126998	2.00E-02	A	2.00E-03	H					14 N	7.3 N	27 N	41000 N	1600 N					
1-Chlorobutane	109693	4.00E-01	H							2400 N	1500 N	540 N	82000 N	31000 N					
Chlorodibromomethane	124481	2.00E-02	I							0.13 C	0.075 C	0.038 C	68 C	7.6 C					
1-Chloro-1,1-difluoroethane	75683			1.43E+01	I					87000 N	52000 N	0	0	0					
Chlorodifluoromethane	75456			1.43E+01	I					87000 N	52000 N	0	0	0					
**Chloroethane	75003	4.00E-01	B	2.86E+00	I					3.6 C	2.2 C	1.1 C	2000 C	220 C					
2-Chloroethyl vinyl ether	110758	2.50E-02	O							150 N	91 N	34 N	51000 N	2000 N					
Chloroform	67663	1.00E-02	I							0.15 C	0.078 C	0.52 C	940 C	100 C					
Chloromethane	74873									1.4 C	0.99 C	0.24 C	440 C	49 C					
4-Chloro-2-methylamine hydrochloride	3165933									0.15 C	0.014 C	0.0069 C	12 C	1.4 C					
4-Chloro-2-methylamine	95692									0.12 C	0.011 C	0.0054 C	9.9 C	1.1 C					
beta-Chloronaphthalene	91587	8.00E-02	I							2900 N	290 N	110 N	16000 N	6300 N					
o-Chloronitrobenzene	88733									0.42 C	0.25 C	0.13 C	230 C	26 C					
p-Chloronitrobenzene	100005									0.59 C	0.35 C	0.18 C	320 C	35 C					
2-Chlorophenol	95578	5.00E-03	I							180 N	18 N	6.8 N	10000 N	390 N					
2-Chloropropane	75296									170 N	100 N	0	0	0					
Chlorothalonil	1897456	1.50E-02	I	2.86E-02	H					6.1 C	0.57 C	0.29 C	520 C	58 C					
o-Chlorotoluene	95498	2.00E-02	I							120 N	73 N	27 N	41000 N	1600 N					
Chlorpropham	101213	2.00E-01	I							7300 N	730 N	270 N	41000 N	16000 N					
Chlorpyrifos	2921882	3.00E-03	I							110 N	11 N	4.1 N	6100 N	230 N					
Chlorpyrifos-methyl	5598130	1.00E-02	H							370 N	37 N	14 N	20000 N	780 N					
Chlorsulfuron	64902723	5.00E-02	I							1800 N	180 N	68 N	100000 N	3900 N					
Chlorthiophos	60238564	8.00E-04	H							29 N	2.9 N	1.1 N	1600 N	63 N					
Chromium III and compounds	16065831	1.00E+00	I	5.71E-07	W					37000 N	0.0021 N	1400 N	100000 N	78000 N					
Chromium VI and compounds	18540299	5.00E-03	I							180 N	0.00015 C	6.8 N	10000 N	390 N					
Coal tar	8001589									0	0.0028 C	0	0	0					

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Contaminant	CAS	RFD ₆ mg/kg-d	RFD ₁ mg/kg-d	CPS ₆ kg-d/mg	CPS ₁ kg-d/mg	Y	Risk-Based Concentrations					mg/kg						
							Tap Water µg/L	Ambient Air µg/m ³	Fish mg/kg	Industrial mg/kg	Residential mg/kg							
Cobalt	7440484	6.00E-02	B				2200 N	220 N	81 N	120000 N	4700 N	0						
Coke Oven Emissions	8007452	4.00E-02	B		2.17E+00 I		0	0.0029 C	0	0	0	0						
**Copper and compounds	7440508	4.00E-02	B				1500 N	150 N	54 N	82000 N	3100 N	0						
Crotonaldehyde	123739	1.00E-02	W		1.90E+00 H		0.035 C	0.0033 C	0.0017 C	3 C	0.34 C	0						
**Cumene	98828	1.00E-01	I	1.14E-01 I			3700 N	420 N	140 N	200000 N	7800 N	0						
Cyanides	0						0	0	0	0	0	0						
Barium cyanide	542621	1.00E-01	W				3700 N	370 N	140 N	200000 N	7800 N	0						
Calcium cyanide	592018	4.00E-02	I				1500 N	150 N	54 N	82000 N	3100 N	0						
Chlorine cyanide	506774	5.00E-02	I				1800 N	180 N	68 N	100000 N	3900 N	0						
Copper cyanide	544923	5.00E-03	I		8.40E-01 H		180 N	18 N	6.8 N	10000 N	390 N	0						
Cyanazine	21725462	2.00E-03	B				0.08 C	0.0075 C	0.0038 C	6.8 C	0.76 C	0						
Cyanogen	460195	4.00E-02	I				1500 N	150 N	54 N	82000 N	3100 N	0						
Cyanogen bromide	506683	9.00E-02	I				3300 N	330 N	120 N	180000 N	7000 N	0						
Cyanogen chloride	506774	5.00E-02	I				1800 N	180 N	68 N	100000 N	3900 N	0						
Free cyanide	57125	2.00E-02	I				730 N	73 N	27 N	41000 N	1600 N	0						
Hydrogen cyanide	74908	2.00E-02	I	8.57E-04 I			730 N	3.1 N	27 N	41000 N	1600 N	0						
Potassium cyanide	151508	5.00E-02	I				1800 N	180 N	68 N	100000 N	3900 N	0						
Potassium silver cyanide	506616	2.00E-01	I				7300 N	730 N	270 N	410000 N	16000 N	0						
Silver cyanide	506649	1.00E-01	I				3700 N	370 N	140 N	200000 N	7800 N	0						
Sodium cyanide	143339	4.00E-02	I				1500 N	150 N	54 N	82000 N	3100 N	0						
**Thiocyanate	0	1.00E-01	B				3700 N	370 N	140 N	200000 N	7800 N	0						
Zinc cyanide	557211	5.00E-02	I				1800 N	180 N	68 N	100000 N	3900 N	0						
Cyclohexanone	108941	5.00E+00	I				30000 N	18000 N	6800 N	1000000 N	3900000 N	0						
Cyclohexylamine	108918	2.00E-01	I				7300 N	730 N	270 N	410000 N	16000 N	0						
Cyhalothrin/Karate	68085858	5.00E-03	I				180 N	18 N	6.8 N	10000 N	390 N	0						
Cypermethrin	52315078	1.00E-02	I				370 N	37 N	14 N	20000 N	780 N	0						
Cyromazine	66215278	7.50E-03	I				270 N	27 N	10 N	15000 N	590 N	0						
Dacthal	1861321	1.00E-02	I				370 N	37 N	14 N	20000 N	780 N	0						
Dalapon	75990	3.00E-02	I				1100 N	110 N	41 N	61000 N	2300 N	0						
Danitol	39515418	2.50E-02	I				910 N	91 N	34 N	51000 N	2000 N	0						
DDD	72548			2.40E-01 I			0.28 C	0.026 C	0.013 C	24 C	2.7 C	0						
DDE	72559			3.40E-01 I			0.2 C	0.018 C	0.0093 C	17 C	1.9 C	0						
DDT	50293	5.00E-04	I	3.40E-01 I			0.2 C	0.018 C	0.0093 C	17 C	1.9 C	0						
Decabromodiphenyl ether	1163195	1.00E-02	I				61 N	37 N	14 N	20000 N	780 N	0						
Demeton	8065483	4.00E-05	I				1.5 N	0.15 N	0.054 N	82 N	3.1 N	0						
Diallate	2303164			6.10E-02 H			0.17 C	0.1 C	0.052 C	94 C	10 C	0						
Diazinon	333415	9.00E-04	B				33 N	3.3 N	1.2 N	1800 N	70 N	0						
Dibenzofuran	132649	4.00E-03	B				150 N	15 N	5.4 N	8200 N	310 N	0						
1,4-Dibromobenzene	106376	1.00E-02	I				61 N	37 N	14 N	20000 N	780 N	0						
1,2-Dibromo-3-chloropropane	96128			5.71E-05 I	1.40E+00 H		0.048 C	0.21 N	0.0023 C	4.1 C	0.46 C	0						
1,2-Dibromoethane	106934			5.71E-05 I	8.50E+01 I		0.00075 C	0.0081 C	0.000037 C	0.067 C	0.0075 C	0						
Dibutyl phthalate	84742	1.00E-01	I				3700 N	370 N	140 N	200000 N	7800 N	0						
Dicamba	1918009	3.00E-02	I				1100 N	110 N	41 N	61000 N	2300 N	0						
**1,2-Dichlorobenzene	95501	9.00E-02	I	9.00E-03 B			64 N	33 N	120 N	180000 N	7000 N	0						
1,3-Dichlorobenzene	541731	8.90E-02	O				540 N	320 N	120 N	180000 N	7000 N	0						
1,4-Dichlorobenzene	106467			2.29E-01 I	2.40E-02 H		0.44 C	0.26 C	0.13 C	240 C	27 C	0						
3,3'-Dichlorobenzidine	91941			4.50E-01 I	4.50E-01 I		0.15 C	0.014 C	0.007 C	13 C	1.4 C	0						

378

66

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Contaminant	CAS	REL _h mg/kg/d	REL _h mg/kg/d	REL _h mg/kg/d	CPSO kg/dmg	CPSO kg/dmg	CPSO kg/dmg	Y	Q	Water mg/L	Ambient Air µg/m ³	Fish mg/kg	Industrial mg/kg	Residential mg/kg
1,4-Dichloro-2-butene	764410									0.0011 c	0.0067 c	0	0	0
Dichlorodifluoromethane	75718	2.00E-01	1	5.71E-02						390 N	210 N	270 N	410000 N	16000 N
1,1-Dichloroethane	75343	1.00E-01	A	1.43E-01						810 N	520 N	140 N	200000 N	7800 N
1,2-Dichloroethane (EDC)	107062	3.00E-02	B	1.40E-03						0.12 c	0.069 c	0.035 c	63 c	7 c
1,1-Dichloroethylene	75354	9.00E-03	I							0.044 c	0.036 c	0.0053 c	9.5 c	1.1 c
1,2-Dichloroethylene (cis)	156592	1.00E-02	H							61 N	37 N	14 N	20000 N	780 N
1,2-Dichloroethylene (trans)	156605	2.00E-02	I							120 N	73 N	27 N	41000 N	1600 N
1,2-Dichloroethylene (mixture)	540590	9.00E-03	H							55 N	33 N	12 N	18000 N	700 N
2,4-Dichlorophenol	120832	3.00E-03	I							110 N	11 N	4.1 N	6100 N	230 N
2,4-Dichlorophenoxyacetic Acid (2,4-D)	94757	1.00E-02	I							61 N	37 N	14 N	20000 N	780 N
4-(2,4-Dichlorophenoxy)butyric Acid	94826	8.00E-03	I	1.14E-03						290 N	29 N	11 N	16000 N	630 N
1,2-Dichloropropane	78875									0.16 c	0.092 c	0.046 c	84 c	9.4 c
2,3-Dichloropropanol	616239	3.00E-03	I							110 N	11 N	4.1 N	6100 N	230 N
1,3-Dichloropropene	542756	3.00E-04	I	5.71E-03						0.077 c	0.048 c	0.018 c	32 c	3.5 c
Dichlorvos	62737	5.00E-04	I	1.43E-04						0.23 c	0.022 c	0.011 c	20 c	2.2 c
Dicofol	115322									0.15 c	0.014 c	0.0072 c	13 c	1.5 c
Dicyclopentadiene	77736	3.00E-02	H	5.71E-05						0.42 N	0.21 N	41 N	61000 N	2300 N
Dieldrin	60571	5.00E-05	I	1.43E-03						0.0042 c	0.00039 c	0.0002 c	0.36 c	0.04 c
Diesel emissions	0									52 N	5.2 N	0	0	0
Diethyl phthalate	84662	8.00E-01	I							2900 N	2900 N	1100 N	100000 N	63000 N
Diethylene glycol, monobutyl ether	112345			5.71E-03						210 N	21 N	0	0	0
Diethylene glycol, monoethyl ether	111900	2.00E+00	H							73000 N	7300 N	2700 N	100000 N	160000 N
Diethylformamide	617845	1.10E-02	H							400 N	40 N	15 N	22000 N	860 N
Di(2-ethylhexyl)adipate	103231	6.00E-01	I							56 c	5.2 c	2.6 c	4800 c	530 c
Diethylstilbestrol	56531									0.000014 c	0.0000013 c	0.0000007 c	0.0012 c	0.00014 c
Difenzoquat (Avenge)	43222486	8.00E-02	I							2900 N	290 N	110 N	16000 N	6300 N
Diflubenzuron	35367385	2.00E-02	I							730 N	73 N	27 N	41000 N	1600 N
1,1-Difluoroethane	75376			1.14E+01						69000 N	42000 N	0	0	0
Disopropyl methylphosphonate (DIMP)	1445756	8.00E-02	I							2900 N	290 N	110 N	16000 N	6300 N
Dimethipin	55290647	2.00E-02	I							730 N	73 N	27 N	41000 N	1600 N
Dimethoate	60515	2.00E-04	I							7.3 N	0.73 N	0.27 N	410 N	16 N
3,3'-Dimethoxybenzidine	119904									4.8 c	0.45 c	0.23 c	410 c	46 c
Dimethylamine	124403			5.71E-06						0.21 N	0.021 N	0	0	0
2,4-Dimethylaniline hydrochloride	21436964									0.12 c	0.011 c	0.0054 c	9.9 c	1.1 c
2,4-Dimethylaniline	95681									0.09 c	0.0083 c	0.0042 c	7.6 c	0.85 c
N,N-Dimethylaniline	121697	2.00E-03	I							73 N	7.3 N	2.7 N	4100 N	160 N
3,3'-Dimethylbenzidine	119937									0.0073 c	0.00068 c	0.00034 c	0.62 c	0.069 c
N,N-Dimethylformamide	68122	1.00E-01	H	8.57E-03						3700 N	31 N	140 N	200000 N	7800 N
1,1-Dimethylhydrazine	57147									0.026 c	0.0018 c	0.0012 c	2.2 c	0.25 c
1,2-Dimethylhydrazine	540738									0.0018 c	0.00017 c	0.000085 c	0.15 c	0.017 c
2,4-Dimethylphenol	105679	2.00E-02	I							730 N	73 N	27 N	41000 N	1600 N
2,6-Dimethylphenol	576261	6.00E-04	I							22 N	2.2 N	0.81 N	1200 N	47 N
3,4-Dimethylphenol	95658	1.00E-03	I							37 N	3.7 N	1.4 N	2000 N	78 N
Dimethyl phthalate	131113	1.00E+01	W							37000 N	37000 N	14000 N	1000000 N	780000 N
Dimethyl terephthalate	120616	1.00E-01	I							3700 N	370 N	140 N	200000 N	7800 N
1,2-Dinitrobenzene	528290	4.00E-04	H							15 N	1.5 N	0.54 N	820 N	31 N
1,3-Dinitrobenzene	99650	1.00E-04	I							3.7 N	0.37 N	0.14 N	200 N	7.8 N

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Contaminant	CAS	RfD mg/kg/d	RED mg/kg/d	CPSO kg-d/mg	CPSI kg-d/mg	V	Risk-Based Concentrations									
							Tap Water µg/L	Ambient Air µg/m ³	Fish mg/kg	Industrial mg/kg	Residential mg/kg	Soil Ingestion				
1,4-Dinitrobenzene	100254	4.00E-04	H				15 N	1.5 N	0.54 N	820 N	4100 N	31 N				
4,6-Dinitro-o-cyclohexyl phenol	131895	2.00E-03	I				73 N	7.3 N	2.7 N			160 N				
4,6-Dinitro-2-methylphenol	534521	1.00E-04	E				3.7 N	0.37 N	0.14 N	200 N	200 N	78 N				
2,4-Dinitrophenol	51285	2.00E-03	I				73 N	7.3 N	2.7 N	4100 N	4100 N	160 N				
Dinitrotoluene mixture	0			6.80E-01	I		0.099 C	0.0092 C	0.0046 C	8.4 C		0.94 C				
2,4-Dinitrotoluene	121142	2.00E-03	I				73 N	7.3 N	2.7 N	4100 N	4100 N	160 N				
2,6-Dinitrotoluene	606202	1.00E-03	H				37 N	3.7 N	1.4 N	2000 N	2000 N	78 N				
Dinoseb	88857	1.00E-03	I				37 N	3.7 N	1.4 N	2000 N	2000 N	78 N				
di-n-Octyl phthalate	117840	2.00E-02	H				730 N	73 N	27 N	41000 N	41000 N	1600 N				
1,4-Dioxane	123911	1.00E-03	H				6.1 C	0.57 C	0.29 C	520 C		58 C				
Diphenamid	957517	3.00E-02	I				1100 N	110 N	41 N	61000 N	61000 N	2300 N				
Diphenylamine	122394	2.50E-02	I				910 N	91 N	34 N	51000 N	51000 N	2000 N				
1,2-Diphenylhydrazine	122667	2.50E-02	I				0.084 C	0.0081 C	0.0039 C	7.2 C		0.8 C				
Diquat	85007	2.20E-03	I				80 N	8 N	3 N	4500 N	4500 N	170 N				
Direct black 38	1937377						0.0078 C	0.00073 C	0.00037 C	0.67 C		0.074 C				
Direct blue 6	2602462						0.0083 C	0.00077 C	0.00039 C	0.71 C		0.079 C				
Direct brown 95	16071866						0.0072 C	0.00067 C	0.00034 C	0.62 C		0.069 C				
Disulfoton	298044	4.00E-05	I				1.5 N	0.15 N	0.054 N	82 N		31 N				
1,4-Dithuane	505293	1.00E-02	I				370 N	37 N	14 N	20000 N	20000 N	780 N				
Diuron	330541	2.00E-03	I				73 N	7.3 N	2.7 N	4100 N	4100 N	160 N				
Dodecane	2439103	4.00E-03	I				150 N	15 N	5.4 N	8200 N	8200 N	310 N				
Endosulfan	115297	6.00E-03	I				220 N	22 N	8.1 N	12000 N	12000 N	470 N				
Endothall	145733	2.00E-02	I				730 N	73 N	27 N	41000 N	41000 N	1600 N				
Endrin	72208	3.00E-04	I				11 N	1.1 N	0.41 N	610 N	610 N	23 N				
Epichlorohydrin	106898	2.00E-03	H				6.8 C	1 N	0.32 C	580 C		65 C				
1,2-Epoxybutane	106887						210 N	21 N	0	0		0				
Ethephon (2-chloroethyl phosphonic acid)	16672870	5.00E-03	I				180 N	18 N	6.8 N	10000 N	10000 N	390 N				
Ethion	563122	5.00E-04	I				18 N	1.8 N	0.68 N	1000 N	1000 N	39 N				
2-Ethoxyethanol acetate	111159	3.00E-01	A				11000 N	1100 N	410 N	61000 N	61000 N	23000 N				
2-Ethoxyethanol	110805	4.00E-01	H				15000 N	210 N	540 N	82000 N	82000 N	31000 N				
Ethyl acrylate	140885	2.50E-02	I				1.4 C	0.13 C	0.066 C	120 C		13 C				
EPIC (S-Ethyl dipropylthiocarbamate)	759944						910 N	91 N	34 N	51000 N	51000 N	2000 N				
Ethyl acetate	141786	9.00E-01	I				33000 N	3300 N	1200 N	100000 N	100000 N	70000 N				
Ethylbenzene	100414	1.00E-01	I			☒	1300 N	1000 N	140 N	200000 N	200000 N	7800 N				
Ethylene cyanohydrin	109784	3.00E-01	H				11000 N	1100 N	410 N	61000 N	61000 N	23000 N				
Ethylene diamine	107153	2.00E-02	H				730 N	73 N	27 N	41000 N	41000 N	1600 N				
Ethylene glycol	107211	2.00E+00	I				73000 N	7300 N	2700 N	1000000 N	1000000 N	160000 N				
Ethylene glycol, monobutyl ether	111762						210 N	21 N	0	0		0				
Ethylene oxide	75218	8.00E-05	I				0.066 C	0.018 C	0.0031 C	5.6 C		0.63 C				
Ethylene thiourea (ETU)	96457	2.00E-01	H				0.57 C	0.053 C	0.027 C	48 C		5.4 C				
Ethyl ether	60297					☒	1200 N	730 N	270 N	41000 N	41000 N	16000 N				
Ethyl methacrylate	97632	9.00E-02	H				3300 N	330 N	120 N	18000 N	18000 N	7000 N				
Ethyl p-nitrophenyl phenylphosphorothioate	2104645	1.00E-05	I				0.37 N	0.037 N	0.014 N	20 N		0.78 N				
Ethylphthalyl ethyl glycolate	84720	3.00E+00	I				110000 N	11000 N	4100 N	1000000 N	1000000 N	230000 N				
Express	10120	8.00E-03	I				290 N	29 N	11 N	16000 N	16000 N	630 N				
Fenamphos	22224926	2.50E-04	I				9.1 N	0.91 N	0.34 N	510 N		20 N				
Fluometuron	2164172	1.30E-02	I				470 N	47 N	18 N	27000 N	27000 N	1000 N				

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Contaminant	CAS	RfD mg/kg/d	RfD mg/kg/d	RfD mg/kg/d	CPSO kg/dmg	CPSI kg/dmg	Y	O	C	Risk-Based Concentrations				
										Tap Water µg/L	Ambient Air µg/m ³	Fish mg/kg	Industrial mg/kg	Residential mg/kg
Fluoride	7782414	6.00E-02	I							2200 N	220 N	81 N	120000 N	4700 N
Fluorodone	59756604	8.00E-02	I							2900 N	290 N	110 N	160000 N	6300 N
Flurprimidol	56425913	2.00E-02	I							730 N	73 N	27 N	41000 N	1600 N
Flutolanil	66332965	6.00E-02	I							2200 N	220 N	81 N	120000 N	4700 N
Fluvalinate	69409945	1.00E-02	I							370 N	37 N	14 N	20000 N	780 N
Folpet	133073	1.00E-01	I		3.50E-03	I				19 C	1.8 C	0.9 C	1600 C	180 C
Fomesafen	72178020				1.90E-01	I				0.35 C	0.033 C	0.017 C	30 C	3.4 C
Fonofos	944229	2.00E-03	I							73 N	7.3 N	2.7 N	4100 N	160 N
Formaldehyde	50000	2.00E-01	I			4.55E-02	I			7300 N	0.14 C	270 N	410000 N	16000 N
Formic Acid	64186	2.00E+00	H							73000 N	7300 N	2700 N	100000 N	160000 N
Fosetyl-al	39148248	3.00E+00	I							110000 N	11000 N	4100 N	100000 N	230000 N
Furan	110009	1.00E-03	I							37 N	3.7 N	1.4 N	2000 N	78 N
Furazolidone	67458				3.80E+00	H				0.018 C	0.0016 C	0.00083 C	1.5 C	0.17 C
Furfural	98011	3.00E-03	I	1.43E-02	A					110 N	52 N	4.1 N	6100 N	230 N
Furium	531828				5.00E+01	H				0.0013 C	0.00013 C	0.000063 C	0.11 C	0.013 C
Furmecycloz	60568050				3.00E-02	I				2.2 C	0.21 C	0.11 C	190 C	21 C
Glufosinate-ammonium	77182822	4.00E-04	I							15 N	1.5 N	0.54 N	820 N	31 N
Glycidaldehyde	765344	4.00E-04	I	2.86E-04	H					15 N	1 N	0.54 N	820 N	31 N
Glyphosate	1071836	1.00E-01	I							3700 N	370 N	140 N	200000 N	7800 N
Haloxypop-methyl	69806402	5.00E-05	I							1.8 N	0.18 N	0.068 N	100 N	3.9 N
Harmony	79277273	1.30E-02	I							470 N	47 N	18 N	27000 N	1000 N
HCH (alpha)	319846				6.30E+00	I				0.011 C	0.00099 C	0.0005 C	0.91 C	0.1 C
HCH (beta)	319857				1.80E+00	I				0.037 C	0.0035 C	0.0018 C	3.2 C	0.35 C
HCH (gamma) Lindane	58899	3.00E-04	I		1.30E+00	H				0.052 C	0.0048 C	0.0024 C	4.4 C	0.49 C
HCH-technical	608731				1.80E+00	I				0.037 C	0.0035 C	0.0018 C	3.2 C	0.35 C
Heptachlor	76448	5.00E-04	I		4.50E+00	I				0.0023 C	0.0014 C	0.0007 C	1.3 C	0.14 C
Heptachlor epoxide	1024573	1.30E-05	I		9.10E+00	I				0.0012 C	0.00069 C	0.00035 C	0.63 C	0.07 C
Hexabromobenzene	87821	2.00E-03	I							12 N	7.3 N	2.7 N	4100 N	160 N
Hexachlorobenzene	118741	8.00E-04	I		1.60E+00	I				0.0066 C	0.0039 C	0.002 C	3.6 C	0.4 C
Hexachlorobutadiene	87683	2.00E-04	H		7.80E-02	I				0.14 C	0.081 C	0.04 C	73 C	8.2 C
Hexachlorocyclopentadiene	77474	7.00E-03	I	2.00E-05	H					0.15 N	0.073 N	9.5 N	14000 N	550 N
Hexachlorodibenzo-p-dioxin mixture	19408743				6.20E+03	I				0.000011 C	0.0000014 C	0.0000005 C	0.00092 C	0.0001 C
Hexachloroethane	67721	1.00E-03	I		1.40E-02	I				0.75 C	0.45 C	0.23 C	410 C	46 C
Hexachlorophene	70304	3.00E-04	I							11 N	1.1 N	0.41 N	610 N	23 N
Hexahydro-1,3,5-trinitro-1,3,5-triazine	121824	3.00E-03	I		1.10E-01	I				0.61 C	0.057 C	0.029 C	52 C	5.8 C
1,6-Hexamethylene diisocyanate	822060			2.86E-06	I					0.1 N	0.01 N	0	0	0
n-Hexane	110543	6.00E-02	H	5.71E-02	I					350 N	210 N	81 N	120000 N	4700 N
**2-Hexanone	73663715	4.00E-02	I							1500 N	150 N	54 N	82000 N	3100 N
Hexazinone	51235042	3.30E-02	I							1200 N	120 N	45 N	67000 N	2600 N
Hydrazine, hydrazine sulfate	302012				3.00E+00	I				0.022 C	0.00037 C	0.0011 C	1.9 C	0.21 C
Hydrogen chloride	7647010			5.71E-03	I					210 N	21 N	0	0	0
Hydrogen sulfide	7783064	3.00E-03	I	2.85E-04	I					110 N	1 N	4.1 N	6100 N	230 N
Hydroquinone	123319	4.00E-02	H							1500 N	150 N	54 N	82000 N	3100 N
Imazalil	35554440	1.30E-02	I							470 N	47 N	18 N	27000 N	1000 N
mazaquin	81335377	2.50E-01	I							9100 N	910 N	340 N	51000 N	20000 N
Iprodione	36734197	4.00E-02	I							1500 N	150 N	54 N	82000 N	3100 N
Iron	7439896	3.00E-01	H							11000 N	1100 N	410 N	61000 N	23000 N

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Contaminant	CAS	RfD mg/kg/d	RfD mg/kg/d	CPSO kg/dng	CPSO kg/dng	V	O	C	mg/kg	Risk-Based Concentrations				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
										Tap Water	Ambient Air	Fish	Soil Ingestion						
Isobutanol	78831	3.00E-01	2.00E-01		9.50E-04					1800 N	1100 N	410 N	61000 N	23000 N					
Isophorone	78591	2.00E-01	2.00E-01							71 C	6.6 C	3.3 C	6000 C	670 C					
Isopropalin	33820530	1.50E-02	1.50E-02							550 N	55 N	20 N	31000 N	1200 N					
Isopropyl methyl phosphonic acid	1832548	1.00E-01	1.00E-01							3700 N	370 N	140 N	200000 N	7800 N					
Isosaben	82558507	5.00E-02	5.00E-02		1.80E+01					1800 N	180 N	68 N	100000 N	3900 N					
Kepone	143500									0.0037 C	0.00035 C	0.00018 C	0.32 C	0.035 C					
Lactofen	77501634	2.00E-03	2.00E-03							73 N	7.3 N	2.7 N	4100 N	160 N					
Linuron	330552	2.00E-03	2.00E-03							73 N	7.3 N	2.7 N	4100 N	160 N					
Lithium	7439932	2.00E-02	2.00E-02							730 N	73 N	27 N	41000 N	1600 N					
Londax	83056996	2.00E-01	2.00E-01							7300 N	730 N	270 N	410000 N	16000 N					
Malathion	121755	2.00E-02	2.00E-02							730 N	73 N	27 N	41000 N	1600 N					
Maleic anhydride	108316	1.00E-01	1.00E-01							3700 N	370 N	140 N	200000 N	7800 N					
Maleic hydrazide	123331	5.00E-01	5.00E-01							18000 N	1800 N	680 N	1000000 N	39000 N					
Malononitrile	109773	2.00E-05	2.00E-05		1.43E-05					0.73 N	0.073 N	0.027 N	41 N	1.6 N					
Mancozeb	8018017	5.00E-02	5.00E-02							1100 N	110 N	41 N	61000 N	2300 N					
Maneb	12427382	3.00E-03	3.00E-03							180 N	18 N	6.8 N	10000 N	390 N					
Manganese and compounds	7439965	2.30E-02	2.30E-02							840 N	0.052 N	31 N	47000 N	1800 N					
Mephosfolan	950107	9.00E-05	9.00E-05							3.3 N	0.33 N	0.12 N	180 N	7 N					
Mepiquat chloride	24307264	3.00E-02	3.00E-02							1100 N	110 N	41 N	61000 N	2300 N					
Mercuric chloride	7487947	3.00E-04	3.00E-04		8.57E-05					11 N	1.1 N	0.41 N	610 N	23 N					
Mercury (inorganic)	7439976	3.00E-04	3.00E-04							11 N	0.31 N	0.41 N	610 N	23 N					
Mercury (methyl)	22967926	1.00E-04	1.00E-04							3.7 N	0.37 N	0.14 N	200 N	7.8 N					
Merphos	150505	3.00E-05	3.00E-05							1.1 N	0.11 N	0.041 N	61 N	2.3 N					
Merphos oxide	78488	3.00E-05	3.00E-05							1.1 N	0.11 N	0.041 N	61 N	2.3 N					
Metalaxyl	57837191	6.00E-02	6.00E-02							2200 N	220 N	81 N	120000 N	4700 N					
Methacrylonitrile	126987	1.00E-04	1.00E-04		2.00E-04					3.7 N	0.73 N	0.14 N	200 N	7.8 N					
Methamidophos	10265926	5.00E-05	5.00E-05							1.8 N	0.18 N	0.068 N	100 N	3.9 N					
Methanol	67561	5.00E-01	5.00E-01							18000 N	1800 N	680 N	1000000 N	39000 N					
Methidathion	950378	1.00E-03	1.00E-03							37 N	3.7 N	1.4 N	2000 N	78 N					
Methomyl	16752775	2.50E-02	2.50E-02							910 N	91 N	34 N	51000 N	2000 N					
Methoxychlor	72435	5.00E-03	5.00E-03							180 N	18 N	6.8 N	10000 N	390 N					
2-Methoxyethanol acetate	110496	2.00E-03	2.00E-03		5.71E-03					73 N	7.3 N	2.7 N	4100 N	160 N					
2-Methoxyethanol	109864	1.00E-03	1.00E-03							37 N	21 N	1.4 N	2000 N	78 N					
2-Methoxy-5-nitroaniline	99592				4.60E-02					1.5 C	0.14 C	0.069 C	120 C	14 C					
Methyl acetate	79209	1.00E+00	1.00E+00							37000 N	3700 N	1400 N	1000000 N	78000 N					
Methyl acrylate	96333	3.00E-02	3.00E-02							1100 N	110 N	41 N	61000 N	2300 N					
2-Methylamine hydrochloride	636215				1.80E-01					0.37 C	0.035 C	0.018 C	32 C	3.5 C					
2-Methylamine	95534	1.00E+00	1.00E+00							0.28 C	0.026 C	0.013 C	24 C	2.7 C					
Methyl chlorocarbonate	79221	1.00E+00	1.00E+00							37000 N	3700 N	1400 N	1000000 N	78000 N					
4-(2-Methyl-4-chlorophenoxy) butyric acid	94815	1.00E-02	1.00E-02							370 N	37 N	14 N	20000 N	780 N					
2-Methyl-4-chlorophenoxyacetic acid	94746	5.00E-04	5.00E-04							18 N	1.8 N	0.68 N	1000 N	39 N					
2-(2-Methyl-14-chlorophenoxy)propionic acid	93652	1.00E-03	1.00E-03							37 N	3.7 N	1.4 N	2000 N	78 N					
Methylcyclohexane	108872				8.57E-01					31000 N	3100 N	0	0	0					
Methylene bromide	74953	1.00E-02	1.00E-02							61 N	37 N	14 N	20000 N	780 N					
Methylene chloride	75092	6.00E-02	6.00E-02		8.57E-01					4.1 C	3.8 C	0.42 C	760 C	85 C					
4,4'-Methylene bis(2-chloroaniline)	101144	7.00E-04	7.00E-04		1.30E-01					0.52 C	0.048 C	0.024 C	44 C	4.9 C					
4,4'-Methylenebisbenzencamine	101779				2.50E-01					0.27 C	0.025 C	0.013 C	23 C	2.6 C					

Sources: I=IRIS H=HEAST A=HEAST alternate W=Withdrawn from IRIS or HEAST E=EPA-NCEA Regional Support provisional value O=Other EPA documents.										Basis: C=carcinogenic effects N=non-carcinogenic effects				
Contaminant	CAS	RfD ₀ mg/kg/d	RfD ₁ mg/kg/d	CFS ₀ kg/ding	CFS ₁ kg/ding	CPSI kg/ding	V	Risk-Based Concentrations					mg/kg	mg/kg
								Tap Water	Ambient Air	Fish	Industrial	Residential		
4,4'-Methylene bis(N,N'-dimethyl)aniline	101611				4.60E-02			1.5 c	0.14 c	0.069 c	120 c	14 c		
4,4'-Methylenediphenyl isocyanate	101688		5.71E-06					0.035 N	0.021 N	0	0	0		
Methyl ethyl ketone	78933	6.00E-01	2.86E-01					1900 N	1000 N	810 N	100000 N	47000 N		
Methyl hydrazine	60344			1.10E+00				0.061 c	0.0057 c	0.0029 c	5.2 c	0.58 c		
Methyl isobutyl ketone	108101	8.00E-02	2.29E-02					2900 N	84 N	110 N	160000 N	6300 N		
Methyl methacrylate	80626	8.00E-02						2900 N	290 N	110 N	160000 N	6300 N		
2-Methyl-5-nitroaniline	99558				3.30E-02			2 c	0.19 c	0.096 c	170 c	19 c		
Methyl parathion	298000	2.50E-04						9.1 N	0.91 N	0.34 N	510 N	20 N		
2-Methylphenol (o-cresol)	95487	5.00E-02						1800 N	180 N	68 N	100000 N	3900 N		
3-Methylphenol (m-cresol)	103394	5.00E-02						1800 N	180 N	68 N	100000 N	3900 N		
4-Methylphenol (p-cresol)	106445	5.00E-03						180 N	18 N	6.8 N	10000 N	390 N		
Methyl styrene (mixture)	25013154	6.00E-03	1.14E-02					60 N	42 N	8.1 N	12000 N	470 N		
Methyl styrene (alpha)	98839	7.00E-02						430 N	260 N	95 N	140000 N	5500 N		
Methyl tertbutyl ether (MTBE)	1634044	5.00E-03	8.57E-01					180 N	3100 N	6.8 N	10000 N	390 N		
Metolacolor (Dual)	51218452	1.50E-01						5500 N	550 N	200 N	310000 N	12000 N		
Metribuzin	21087649	2.50E-02						910 N	91 N	34 N	51000 N	2000 N		
Murex	2385855	2.00E-04		1.80E+00				0.037 c	0.0035 c	0.0018 c	3.2 c	0.35 c		
Molinate	2212671	2.00E-03						73 N	7.3 N	2.7 N	4100 N	160 N		
Molybdenum	7439987	5.00E-03						180 N	18 N	6.8 N	10000 N	390 N		
Monochloramine	10599903	1.00E-01						3700 N	370 N	140 N	200000 N	7800 N		
Naled	300765	2.00E-03						73 N	7.3 N	2.7 N	4100 N	160 N		
2-Naphthylamine	91598			1.30E+02				0.00052 c	0.000048 c	0.000024 c	0.044 c	0.0049 c		
Napropamide	15299997	1.00E-01						3700 N	370 N	140 N	200000 N	7800 N		
Nickel refinery dust	0					8.40E-01		0	0.0075 c	0	0	0		
Nickel and compounds	7440020	2.00E-02				1.70E+00		730 N	73 N	27 N	41000 N	1600 N		
Nickel subsulfide	12035722							0	0.0037 c	0	0	0		
Nitrapyrin	1929824	1.50E-03						55 N	5.5 N	2 N	3100 N	120 N		
Nitrate	14797558	1.60E+00						58000 N	5800 N	2200 N	100000 N	130000 N		
Nitric oxide	10102439	1.00E-01						3700 N	370 N	140 N	200000 N	7800 N		
Nitrite	14797650	1.00E-01						3700 N	370 N	140 N	200000 N	7800 N		
2-Nitroaniline	88744	6.00E-05	5.71E-05					2.2 N	0.21 N	0.081 N	120 N	4.7 N		
3-Nitroaniline	99092	3.00E-03						110 N	11 N	4.1 N	6100 N	230 N		
4-Nitroaniline	100016	3.00E-03						110 N	11 N	4.1 N	6100 N	230 N		
Nitrobenzene	98953	5.00E-04	5.71E-04					2600 N	260 N	95 N	140000 N	5500 N		
Nitrofurantoin	67209	7.00E-02						0.045 c	0.00067 c	0.0021 c	3.8 c	0.43 c		
Nitrofurazone	59870							37000 N	3700 N	1400 N	100000 N	78000 N		
Nitrogen dioxide	10102440	1.00E+00						3700 N	370 N	140 N	200000 N	7800 N		
Nitroguanidine	556887	1.00E-01						290 N	29 N	11 N	16000 N	630 N		
**4-Nitrophenol	100027	8.00E-03						210 N	0.00067 c	0	0	0		
2-Nitropropane	79469							0.012 c	0.0011 c	0.00058 c	1.1 c	0.12 c		
N-Nitrosodi-n-butylamine	924163							0.024 c	0.0022 c	0.0011 c	2 c	0.23 c		
N-Nitrosodimethylamine	1116547							0.00045 c	0.000041 c	0.000021 c	0.038 c	0.0043 c		
N-Nitrosodimethylamine	55185							0.0013 c	0.00013 c	0.000062 c	0.11 c	0.013 c		
N-Nitrosodiphenylamine	62759							14 c	1.3 c	0.64 c	1200 c	130 c		
N-Nitroso di-n-propylamine	86306							0.0096 c	0.00089 c	0.00045 c	0.82 c	0.091 c		
N-Nitroso-N-ethylurea	621647							0.00048 c	0.000045 c	0.000023 c	0.041 c	0.0046 c		
N-Nitroso-N-ethylurea	759739													

Basis : C=carcinogenic effects
N=non-carcinogenic effects

Contaminant	CAS	RfD mg/kg/d	RfD mg/kg/d	CPSo kg/d/mg	CPSi kg/d/mg	V	O	C	Risk-Based Concentrations									
									Tap Water µg/L	Ambient Air µg/m3	Fish mg/kg	Industrial mg/kg	Residential mg/kg					
N-Nitroso-N-methylamine	10595956								0.0031	C	0.00028	C	0.00014	C	0.26	C	0.029	C
N-Nitrosopyrrolidine	930552								0.032	C	0.0029	C	0.0015	C	2.7	C	0.3	C
m-Nitrotoluene	99081	2.00E-02	H						120	N	73	N	27	N	4100	N	1600	N
o-Nitrotoluene	88722	1.00E-02	H						61	N	37	N	14	N	20000	N	780	N
p-Nitrotoluene	99990	1.00E-02	H						61	N	37	N	14	N	20000	N	780	N
Norflurazon	27314132	4.00E-02	I						1500	N	150	N	54	N	82000	N	3100	N
NuSiar	85509199	7.00E-04	I						26	N	2.6	N	0.95	N	1400	N	55	N
Octabromodiphenyl ether	32536520	3.00E-03	I						110	N	11	N	4.1	N	6100	N	230	N
Octahydro-1357-tetranitro-1357-tetrazocine	2691410	5.00E-02	I						1800	N	180	N	68	N	100000	N	3900	N
Octamethylpyrophosphoramide	152169	2.00E-03	H						73	N	7.3	N	2.7	N	4100	N	160	N
Oryzalin	19044883	5.00E-02	I						1800	N	180	N	68	N	100000	N	3900	N
Oxadiazon	19666309	5.00E-03	I						180	N	18	N	6.8	N	10000	N	390	N
Oxamyl	23135220	2.50E-02	I						910	N	91	N	34	N	51000	N	2000	N
Oxyfluorfen	42874033	3.00E-03	I						110	N	11	N	4.1	N	6100	N	230	N
Paclobutrazol	76738620	1.30E-02	I						470	N	47	N	18	N	27000	N	1000	N
Paraquat	1910425	4.50E-03	I						160	N	16	N	6.1	N	9200	N	350	N
Parathion	56382	6.00E-03	H						220	N	22	N	8.1	N	12000	N	470	N
Pebulate	1114712	5.00E-02	H						1800	N	180	N	68	N	100000	N	3900	N
Pendimethalin	40487421	4.00E-02	I						1500	N	150	N	54	N	82000	N	3100	N
Pentabromo-6-chlorocyclohexane	87843	2.00E-03	I						2.30E-02	H			0.14	C	250	C	28	C
Pentabromodiphenyl ether	32534819	2.00E-03	I										2.7	N	4100	N	160	N
Pentachlorobenzene	608935	8.00E-04	I										1.1	N	1600	N	63	N
Pentachloronitrobenzene	82688	3.00E-03	I						2.60E-01	H			0.012	C	22	C	2.5	C
Pentachlorophenol	87865	3.00E-02	I						1.20E-01	I			0.026	C	48	C	5.3	C
Permethrin	52645531	5.00E-02	I															
Phenmedipham	13684634	2.50E-01	I						1800	N	180	N	68	N	100000	N	3900	N
Phenol	108952	6.00E-01	I						9100	N	910	N	340	N	510000	N	20000	N
n-Phenylenediamine	108452	6.00E-03	I						22000	N	2200	N	810	N	1000000	N	47000	N
**o-Phenylenediamine	95545	6.00E-03	H						220	N	22	N	8.1	N	12000	N	470	N
p-Phenylenediamine	106503	1.90E-01	H						1.4	C	0.13	C	0.067	C	120	C	14	C
Phenylmercuric acetate	62384	8.00E-05	I						6900	N	690	N	260	N	390000	N	15000	N
2-Phenylphenol	90437	2.00E-04	H						2.9	N	0.29	N	0.11	N	160	N	6.3	N
Phorate	298022	2.00E-04	H						35	C	3.2	C	1.6	C	3000	C	330	C
Phosmet	732116	2.00E-02	I						7.3	N	0.73	N	0.27	N	410	N	16	N
Phosphone	7803512	3.00E-04	I						730	N	73	N	27	N	41000	N	1600	N
Phosphoric acid	7664382								11	N	0.31	N	0.41	N	610	N	23	N
Phosphorus (white)	7723140	2.00E-05	I						100	N	10	N	0		0		0	
p-Phthalic acid	100210	1.00E+00	H						37000	N	3700	N	1400	N	1000000	N	78000	N
Phthalic anhydride	85449	2.00E+00	I						73000	N	130	N	2700	N	1000000	N	160000	N
Picloram	1918021	7.00E-02	I						2600	N	260	N	95	N	140000	N	5500	N
Primphos-methyl	29232937	1.00E-02	I						370	N	37	N	14	N	20000	N	780	N
Polybrominated biphenyls	0	7.00E-06	H						0.0076	C	0.0007	C	0.00035	C	0.64	C	0.072	C
**Polychlorinated biphenyls (PCBs)	1336363								0.034	C	0.016	C	0.0016	C	2.9	C	0.32	C
Aroclor 1016	12674112	7.00E-05	I						2.6	N	0.26	N	0.095	N	140	N	5.5	N
Aroclor 1254	11097691	2.00E-05	I						0.73	N	0.073	N	0.027	N	41	N	1.6	N
Polychlorinated terphenyls (PCTs)									0.015	C	0.0014	C	0.0007	C	1.3	C	0.14	C
Polynuclear aromatic hydrocarbons									4.50E+00	H								

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Contaminant	CAS	RFD ₀ mg/kg/d	RFD ₁ mg/kg/d	RFD ₂ mg/kg/d	RFD ₃ mg/kg/d	CPS ₀ kg/d/kg	CPS ₁ kg/d/kg	CPS ₂ kg/d/kg	CPS ₃ kg/d/kg	Risk-Based Concentrations				
										Tap Water mg/L	Ambient Air µg/m ³	Fish mg/kg	Industrial mg/kg	Residential mg/kg
Acenaphthene	83329	6.00E-02	I							2200 N	220 N	81 N	12000 N	4700 N
Anthracene	120127	3.00E-01	I							11000 N	1100 N	410 N	61000 N	23000 N
**Benz[a]anthracene	56553									0.092 C	0.02 C	0.0043 C	7.8 C	0.88 C
**Benz[b]fluoranthene	205992									0.092 C	0.02 C	0.0043 C	7.8 C	0.88 C
**Benz[k]fluoranthene	207089									0.92 C	0.2 C	0.043 C	78 C	8.8 C
**Benzofluorene	50328									0.0092 C	0.002 C	0.00043 C	0.78 C	0.088 C
Carbazole	86748									3.4 C	0.31 C	0.16 C	290 C	32 C
**Chrysene	218019									9.2 C	2 C	0.43 C	780 C	88 C
**Dibenz[ah]anthracene	53703									0.0092 C	0.002 C	0.00043 C	0.78 C	0.088 C
Fluoranthene	206440									1500 N	150 N	54 N	82000 N	3100 N
Fluorene	86737									1500 N	150 N	54 N	82000 N	3100 N
**Indeno[1,2,3-cd]pyrene	193395									0.092 C	0.02 C	0.0043 C	7.8 C	0.88 C
**2-Methylnaphthalene	91576									1500 N	150 N	54 N	82000 N	3100 N
Naphthalene	91203									1500 N	150 N	54 N	82000 N	3100 N
Pyrene	129000									1100 N	110 N	41 N	61000 N	2300 N
Prochloraz	67747095									0.45 C	0.042 C	0.021 C	38 C	4.3 C
Profluralin	26399360									220 N	22 N	8.1 N	12000 N	470 N
Prometon	1610180									550 N	55 N	20 N	31000 N	1200 N
Prometryn	7287196									150 N	15 N	5.4 N	8200 N	310 N
Pronamide	23950585									2700 N	270 N	100 N	150000 N	5900 N
Propachlor	1918167									470 N	47 N	18 N	27000 N	1000 N
Propanil	709988									180 N	18 N	6.8 N	10000 N	390 N
Propargite	2312358									730 N	73 N	27 N	41000 N	1600 N
Propargyl alcohol	107197									73 N	7.3 N	2.7 N	4100 N	160 N
Propazine	139402									730 N	73 N	27 N	41000 N	1600 N
Propam	122429									730 N	73 N	27 N	41000 N	1600 N
Propiconazole	60207901									470 N	47 N	18 N	27000 N	1000 N
**n-Propylbenzene	98066									61 N	37 N	14 N	20000 N	780 N
Propylene glycol	57556									73000 N	7300 N	2700 N	100000 N	100000 N
Propylene glycol, monoethyl ether	52125538									26000 N	2600 N	950 N	100000 N	55000 N
Propylene glycol, monomethyl ether	107982									26000 N	2100 N	950 N	100000 N	55000 N
Propylene oxide	75569									0.28 C	0.49 C	0.013 C	24 C	2.7 C
Pursuit	81335775									9100 N	910 N	340 N	51000 N	20000 N
Pyridin	51630581									910 N	91 N	34 N	51000 N	2000 N
Pyridine	110861									37 N	3.7 N	1.4 N	2000 N	78 N
Quinalphos	13593038									18 N	1.8 N	0.68 N	1000 N	39 N
Quinoline	91225									0.0056 C	0.00052 C	0.00026 C	0.48 C	0.053 C
Resmethrin	10463868									1100 N	110 N	41 N	61000 N	2300 N
Ronnel	299843									1800 N	180 N	68 N	100000 N	3900 N
Rotenone	83794									150 N	15 N	5.4 N	8200 N	310 N
Savay	78587050									910 N	91 N	34 N	51000 N	2000 N
Selenious Acid	7783008									180 N	18 N	6.8 N	10000 N	390 N
Selenium	7782492									180 N	18 N	6.8 N	10000 N	390 N
Selenourea	630104									180 N	18 N	6.8 N	10000 N	390 N
Sethoxydim	74051802									3300 N	330 N	120 N	180000 N	7000 N
Silver and compounds	7440224									180 N	18 N	6.8 N	10000 N	390 N
Simazine	122349									0.56 C	0.052 C	0.026 C	48 C	5.3 C

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Contaminant	CAS	REF ₀ mg/kg/d	REF ₁ mg/kg/d	CPSO kg/dmg	CPSI kg/dmg	Y	Y	Y	Y	Tap Water mg/L	Ambient Air pg/m ³	Fish mg/kg	Industrial mg/kg	Residential mg/kg
Sodium azide	26628228	4.00E-03	I							150 N	15 N	5.4 N	8200 N	310 N
Sodium diethyldithiocarbamate	148185	3.00E-02	I		2.70E-01	H				0.25 C	0.023 C	0.012 C	21 C	2.4 C
Sodium fluoroacetate	62748	3.00E-05	I							0.73 N	0.073 N	0.027 N	41 N	1.6 N
Sodium metavanadate	13718268	1.00E-03	H							37 N	3.7 N	1.4 N	2000 N	78 N
Strontium, stable	7440246	6.00E-01	I							22000 N	2200 N	810 N	100000 N	47000 N
Strychnine	57249	3.00E-04	I							11 N	1.1 N	0.41 N	610 N	23 N
Styrene	100425	2.00E-01	I							1600 N	1000 N	270 N	410000 N	16000 N
Systhane	88671890	2.50E-02	I							910 N	91 N	34 N	51000 N	2000 N
**2,3,7,8-TCDD (dioxin)	1746016				1.50E+05	H				0.0000045 C	4.2E-08 C	0 C	0.00038 C	0.0000043 C
Tebuthiuron	34014181	7.00E-02	I							2600 N	260 N	95 N	140000 N	5500 N
Temephos	3383968	2.00E-02	H							730 N	73 N	27 N	41000 N	1600 N
Terbacil	5902512	1.30E-02	I							470 N	47 N	18 N	27000 N	1000 N
Terbufos	13071799	2.50E-05	H							0.91 N	0.091 N	0.034 N	51 N	2 N
Terbutryn	886500	1.00E-03	I							37 N	3.7 N	1.4 N	2000 N	78 N
1,2,4,5-Tetrachlorobenzene	95943	3.00E-04	I							1.8 N	1.1 N	0.41 N	610 N	23 N
1,1,1,2-Tetrachloroethane	630206	3.00E-02	I							0.41 C	0.24 C	0.12 C	220 C	25 C
1,1,2,2-Tetrachloroethane	79345	3.00E-02	I							0.052 C	0.031 C	0.016 C	29 C	3.2 C
Tetrachloroethylene (PCE)	127184	1.00E-02	I							1.1 C	3.1 C	0.061 C	110 C	12 C
2,3,4,6-Tetrachlorophenol	58902	3.00E-02	I							1100 N	110 N	41 N	61000 N	2300 N
p,p',a,a'-Tetrachlorotoluene	5216251				2.00E+01	H				0.00053 C	0.00031 C	0.00016 C	0.29 C	0.032 C
Tetrachlorovinylphos	961115	3.00E-02	I							2.8 C	0.26 C	0.13 C	240 C	27 C
Tetraethyldithiopyrophosphate	3689245	5.00E-04	I							18 N	1.8 N	0.68 N	1000 N	39 N
Tetraethyl lead	78002	1.00E-07	I							0.0037 N	0.00037 N	0.00014 N	0.2 N	0.0078 N
1,1,1,2-Tetrafluoroethane	811972				2.29E+01	I				140000 N	84000 N	0	0	0
Thallic oxide	1314325	7.00E-05	W							2.6 N	0.26 N	0.095 N	140 N	5.5 N
Thallium	0									0	0	0	0	0
Thallium acetate	563688	9.00E-05	I							3.3 N	0.33 N	0.12 N	180 N	7 N
Thallium carbonate	6533739	8.00E-05	I							2.9 N	0.29 N	0.11 N	160 N	6.3 N
Thallium chloride	7791120	8.00E-05	I							2.9 N	0.29 N	0.11 N	160 N	6.3 N
Thallium nitrate	10102451	9.00E-05	I							3.3 N	0.33 N	0.12 N	180 N	7 N
Thallium selenite	12039520	9.00E-05	W							3.3 N	0.33 N	0.12 N	180 N	7 N
Thallium sulfate	7446186	8.00E-05	I							2.9 N	0.29 N	0.11 N	160 N	6.3 N
Thiobencarb	28249776	1.00E-02	I							370 N	37 N	14 N	20000 N	780 N
2-(Thioxyanomethylthio)-benzothiazole	21564170	3.00E-02	H							1100 N	110 N	41 N	61000 N	2300 N
Thiofanox	39196184	3.00E-04	H							11 N	1.1 N	0.41 N	610 N	23 N
Thiophanate-methyl	23564058	8.00E-02	I							2900 N	290 N	110 N	16000 N	6300 N
Thiram	137268	5.00E-03	I							180 N	18 N	6.8 N	10000 N	390 N
Tin and compounds	0	6.00E-01	H							22000 N	2200 N	810 N	100000 N	47000 N
**Titanium	7440326	4.00E+00	B							150000 N	31 N	5400 N	100000 N	31000 N
**Titanium dioxide	13643677	4.00E+00	B							150000 N	31 N	5400 N	100000 N	31000 N
Toluene	108883	2.00E-01	I							750 N	420 N	270 N	41000 N	16000 N
Toluene-2,4-diamine	95807				3.20E+00	H				0.021 C	0.002 C	0.00099 C	1.8 C	0.2 C
Toluene-2,5-diamine	95705	6.00E-01	H							22000 N	2200 N	810 N	100000 N	47000 N
Toluene-2,6-diamine	823405	2.00E-01	H							7300 N	730 N	270 N	41000 N	16000 N
p-Toluidine	106490									0.35 C	0.033 C	0.017 C	30 C	3.4 C
Toxaphene	8001352				1.10E+00	I				0.061 C	0.0056 C	0.0029 C	5.2 C	0.58 C
Tralometrin	66841256	7.50E-03	I							270 N	27 N	10 N	15000 N	590 N

Sources: I = IRIS H = HEAST A = HEAST alternate W = Withdrawn from IRIS or HEAST E = EPA-NCEA Regional Support provisional value O = Other EPA documents.										Basis: C = carcinogenic effects N = non-carcinogenic effects				
Contaminant	CAS	RFD _h mg/kg/d	RFD _w mg/kg/d	RFD _i mg/kg/d	CPS _h kg/d/mg	CPS _w kg/d/mg	CPS _i kg/d/mg	V	O	Risk-Based Concentrations				
										Tap Water µg/L	Ambient Air µg/m ³	Fish mg/kg	Industrial mg/kg	Residential mg/kg
Triallate	2303175	1.30E-02	I							470 N	47 N	18 N	27000 N	1000 N
Thiarsulfuron	82097505	1.00E-02	I							370 N	37 N	14 N	20000 N	780 N
1,2,4-Trichlorobenzene	615543	5.00E-03	I							30 N	18 N	6.8 N	10000 N	390 N
Tributyltin oxide (TBTO)	56359	3.00E-04	I							11 N	1.1 N	0.41 N	610 N	23 N
2,4,6-Trichloroaniline hydrochloride	33663502					2.90E-02 H				2.3 C	0.22 C	0.11 C	200 C	22 C
2,4,6-Trichloroaniline	634935					3.40E-02 H				2 C	0.18 C	0.093 C	170 C	19 C
1,2,4-Trichlorobenzene	120821	1.00E-02	I	5.71E-02 H						190 N	210 N	14 N	20000 N	780 N
**1,1,1-Trichloroethane	71556	2.00E-02	B	2.86E-01 W						540 N	1000 N	27 N	41000 N	1600 N
1,1,2-Trichloroethane	79005	4.00E-03	I			5.70E-02 I	5.60E-02 I			0.19 C	0.11 C	0.055 C	100 C	11 C
Trichloroethylene (TCE)	79016	6.00E-03	B			1.10E-02 W	6.00E-03 B			1.6 C	1 C	0.29 C	520 C	58 C
Trichlorofluoromethane	75694	3.00E-01	I	2.00E-01 A						1300 N	730 N	410 N	61000 N	23000 N
2,4,5-Trichlorophenol	95954	1.00E-01	I							3700 N	370 N	140 N	200000 N	7800 N
2,4,6-Trichlorophenol	88062					1.10E-02 I	1.09E-02 I			6.1 C	0.57 C	0.29 C	520 C	58 C
2,4,5-Trichlorophenoxyacetic acid	93765	1.00E-02	I							370 N	37 N	14 N	20000 N	780 N
2-(2,4,5-Trichlorophenoxy)propionic acid	93721	8.00E-03	I							290 N	29 N	11 N	16000 N	630 N
1,1,2-Trichloropropane	598776	5.00E-03	I							30 N	18 N	6.8 N	10000 N	390 N
1,2,3-Trichloropropane	96184	6.00E-03	I			7.00E+00 H				0.0015 C	0.00089 C	0.00045 C	0.82 C	0.091 C
1,2,3-Trichloropropene	96195	5.00E-03	H							30 N	18 N	6.8 N	10000 N	390 N
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	3.00E+01	I	8.57E+00 H						59000 N	31000 N	41000 N	1000000 N	1000000 N
Tridiphenylamine	58138082	3.00E-03	I	2.00E-03 I						110 N	11 N	4.1 N	6100 N	230 N
Triethylamine	121448									73 N	7.3 N	0	0	0
Trifluralin	1582098	7.50E-03	I			7.70E-03 I				8.7 C	0.81 C	0.41 C	740 C	83 C
**1,2,4-Trimethylbenzene	95636	5.00E-02	B	1.70E-03 B						12 N	6.2 N	68 N	100000 N	3900 N
**1,3,5-Trimethylbenzene	108678	5.00E-02	B	1.70E-03 B						12 N	6.2 N	68 N	100000 N	3900 N
Trimethyl phosphate	512561					3.70E-02 H				1.8 C	0.17 C	0.085 C	150 C	17 C
**1,3,5-Trinitrobenzene	99354	3.00E-02	B							1100 N	110 N	41 N	61000 N	2300 N
Trinitrophenylmethylnitramine	479458	1.00E-02	H							370 N	37 N	14 N	20000 N	780 N
2,4,6-Trinitrotoluene	118967	5.00E-04	I			3.00E-02 I				2.2 C	0.21 C	0.11 C	190 C	21 C
Uranium (soluble salts)	7440611	3.00E-03	I							110 N	11 N	4.1 N	6100 N	230 N
Vanadium	7440622	7.00E-03	H							260 N	26 N	9.5 N	14000 N	550 N
Vanadium pentoxide	1314621	9.00E-03	I							330 N	33 N	12 N	18000 N	700 N
Vanadium sulfate	36907423	2.00E-02	H							730 N	73 N	27 N	41000 N	1600 N
Vernam	1929777	1.00E-03	I							37 N	3.7 N	1.4 N	2000 N	78 N
Vinclozolin	50471448	2.50E-02	I							910 N	91 N	34 N	51000 N	2000 N
Vinyl acetate	108054	1.00E+00	H	5.71E-02 I						37000 N	210 N	1400 N	1000000 N	78000 N
Vinyl bromide	593602			8.57E-04 I						5.2 N	3.1 N	0	0	0
Vinyl chloride	75014					1.90E+00 H	3.00E-01 H			0.019 C	0.021 C	0.0017 C	3 C	0.34 C
Warfarin	81812	3.00E-04	I							11 N	1.1 N	0.41 N	610 N	23 N
m-Xylene	108323	2.00E+00	H							12000 N	7300 N	2700 N	100000 N	16000 N
o-Xylene	95476	2.00E+00	H							12000 N	7300 N	2700 N	100000 N	16000 N
p-Xylene	106423	2.00E+00	I							0	0	0	0	0
Xylene (mixed)	1330207	2.00E+00	I							12000 N	7300 N	2700 N	100000 N	16000 N
Zinc	7440666	3.00E-01	I							11000 N	1100 N	410 N	61000 N	23000 N
Zinc phosphide	1314847	3.00E-04	I							11 N	1.1 N	0.41 N	610 N	23 N
Zincb	12122677	5.00E-02	I							1800 N	180 N	68 N	100000 N	3900 N

270

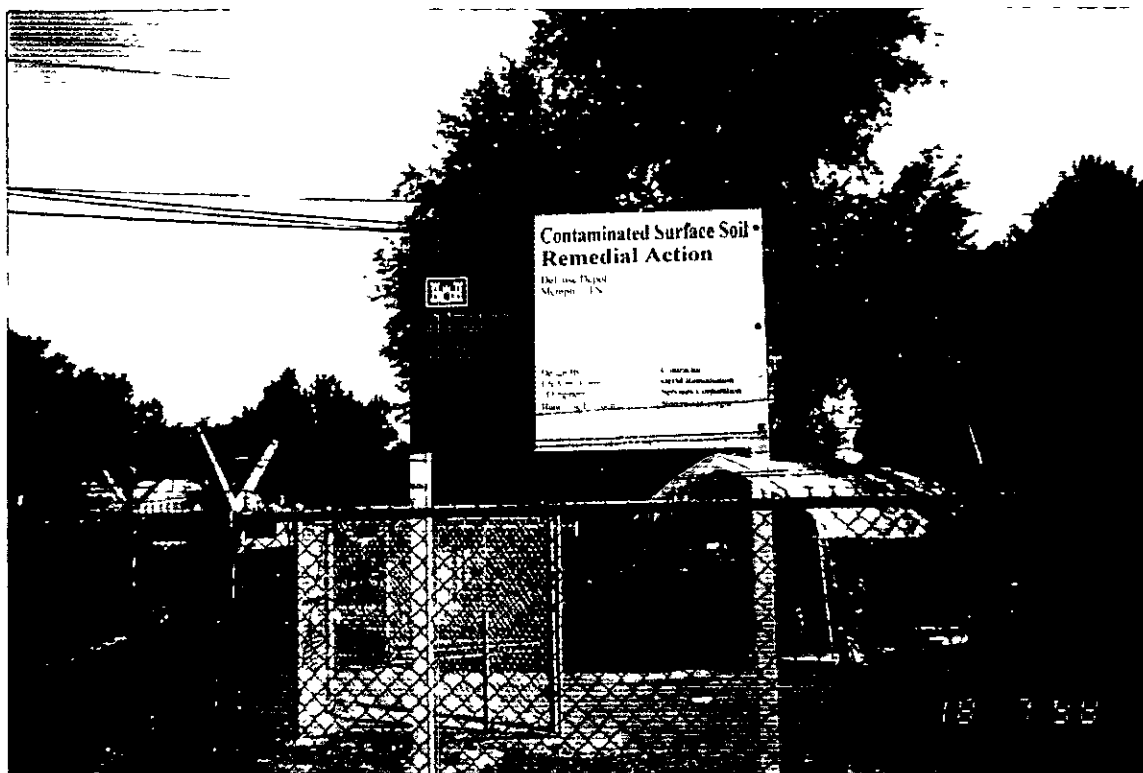
23

TAB

Appendix B

APPENDIX B

Photographic Documentation of Soil Removal Action



Date: 07/02/98
Description: SITE IDENTIFICATION SIGN
View Direction: SOUTH



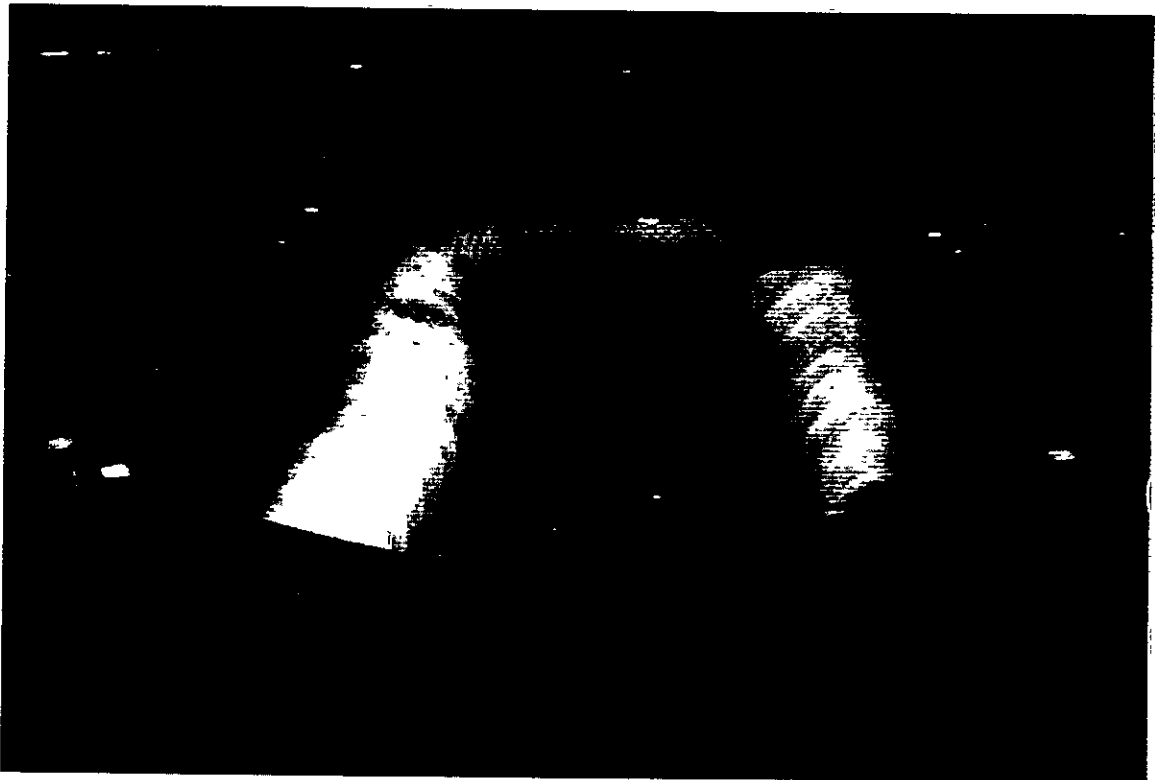
Date: 06/26/98
Description: SOIL SCREENING SAMPLING
View Direction: EAST

FAMILY HOUSING AREA, SOIL REMOVAL ACTION

373 79



Date: 07/01/98
Description: INSTALLATION OF PERMANENT FENCE
View Direction: NORTH



Date: 07/02/98
Description: STORMWATER SYSTEM EROSION CONTROL
View Direction: WEST

FAMILY HOUSING AREA, SOIL REMOVAL ACTION

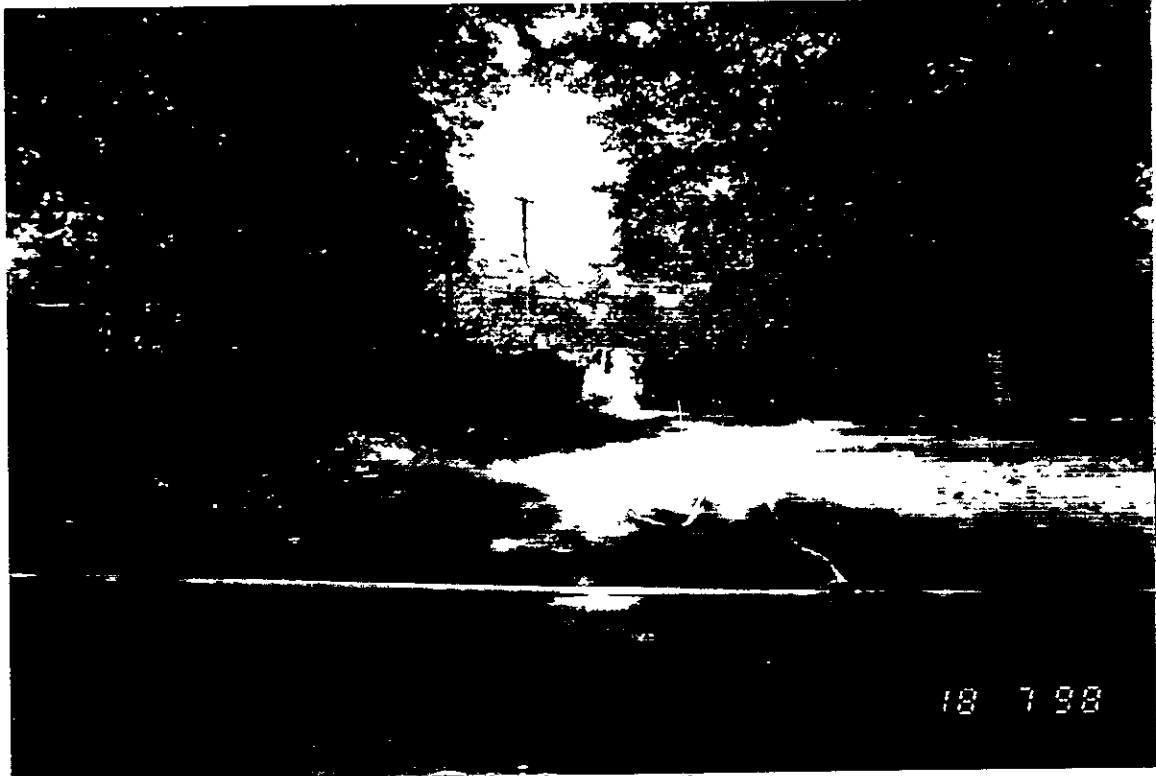
373 80



Date: 07/02/98
Description: EROSION CONTROL MEASURES
View Direction: EAST



Date: 07/08/98
Description: CLEARING & GRUBING OF HOUSING AREA
View Direction: SOUTH



Date: 07/18/98
Description: PRE-EXCAVATION/DUST CONTROL EQUIPMENT
View Direction: EAST



Date: 07/17/98
Description: EXCAVATING AREA A
View Direction: WEST

FAMILY HOUSING AREA, SOIL REMOVAL ACTION

373

82



Date: 7/18/98
Description: LOADING CONTAMINATED SOIL FOR TRANSPORT TO
TEMPORARY STAGING AREA
View Direction: SOUTH



Date: 08/05/98
Description: AREA A AFTER EXCAVATION ACTIVITIES
View Direction: NORTH



Date: 08/06/98
Description: EXCAVATING AREA A
View Direction: SOUTH



Date: 09/08/98
Description: BACKFILL AREA A
View Direction: NORTHEAST



Date: 09/17/98
Description: LAYING SOD IN AREA A
View Direction: EAST



Date: 09/29/98
Description: FOLLOWING SITE RESTORATION ACTIVITIES IN AREA A
View Direction: EAST

FAMILY HOUSING AREA, SOIL REMOVAL ACTION

373

85



Date: 09/29/98
Description: FOLLOWING SITE RESTORATION ACTIVITIES IN AREA A
View Direction: SOUTH



Date: 09/29/98
Description: FOLLOWING SITE RESTORATION ACTIVITIES IN AREA A
View Direction: SOUTH

FAMILY HOUSING AREA, SOIL REMOVAL ACTION

378 86



Date: 08/15/98
Description: EXCAVATING AREA B
View Direction: SOUTH



Date: 09/02/98
Description: BACKFILL OF AREA B
View Direction: EAST



Date: 09/29/98
Description: FOLLOWING SITE RESTORATION ACTIVITIES IN AREA B
View Direction: SOUTH



Date: 09/19/98
Description: EXCAVATING AREA C
View Direction: EAST



Date: 09/24/98
Description: BACKFILL OF AREA C
View Direction: SOUTH



Date: 09/30/98
Description: FOLLOWING SITE RESTORATION ACTIVITIES IN AREA C
View Direction: NORTH

FAMILY HOUSING AREA, SOIL REMOVAL ACTION

378 89



Date: 09/21/98
Description: CONTAMINATED SOIL TEMPORARY STAGING AREA
View Direction: NORTH



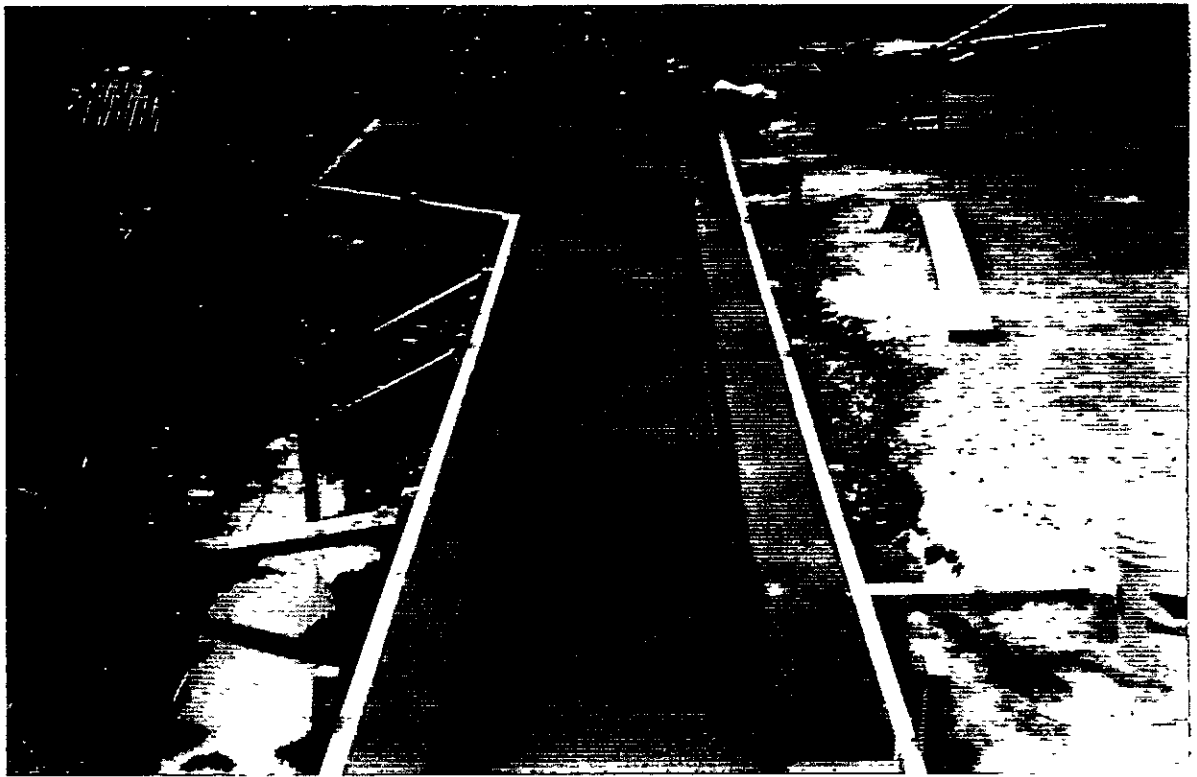
Date: 09/21/98
Description: LOAD OUT OF CONTAMINATED SOIL FOR OFF-SITE DISPOSAL
View Direction: NORTHEAST

FAMILY HOUSING AREA, SOIL REMOVAL ACTION

378 90



Date: 10/15/98
Description: CONTAMINATED SOIL TEMPORARY STAGING AREA
AFTER SITE RESTORATION
View Direction: NORTHEAST



Date: 10/17/98
Description: STORMWATER SYSTEM RETROFIT
View Direction: NORTH

TAB

Appendix C

APPENDIX C**Laboratory Analytical Reports with Chemical Analytical Data Evaluation
Checklists and Chain of Custody Documentation**



July 8, 1998

Ms. Elena Rodriguez
OHM Remediation Services
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

Ref: Analytical Testing
ETC Order # 9806960
Project Description DDMT

OHM Project # 20560

Defense Depot - Memphis, TN

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th/18th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136.

The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'N. Pera', is written over the typed name.

Nathan A. Pera, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT

Chemical Analytical Data
Review/Evaluation/Validation

SOUTHERN REGION

Report Type: ☐ Preliminary ☒ Final Date Received: _____ Project Number: 20560

Project Name: DDMT Analysis/Method: 8081A / Pest

Laboratory: ETC Lab Project/Case Number: 9806960

Sample Number(s): RA-B-001-6-12", 002-0-6", 003-0-6", 004-0-6", 005-RB1

Evaluated By: S. Paeonjape Date Evaluated: 7/27/98

Data Package Deliverables Requirement: ☐ OHM Minimum ☒ OHM Standard ☐ OHM Maximum

☐ Other, please describe _____

Quality Control Deliverables	Required	Received	Passed	Failed
PQL, MDL, RL, etc meets DQOs		✓	✓	
Comment:				
Holding Times			✓	
Comment:				
Sample Condition (preservatives, containers, temperature, etc) / Case Narrative	X	✓	✓	
Comment:				
Surrogate Recoveries	X	✓	✓	
Comment:				
Lab Control Sample Recoveries	X	✓	✓	
Comment:				
Lab Control Sample Duplicate or Other Spike Recoveries	X			
Comment:				
Lab Control Sample Duplicate or Other Laboratory Duplicate RPD	X			
Comment:				
Matrix Spike Recoveries	X	✓	✓	
Comment:				
Matrix Spike Duplicate Recoveries	X	✓	✓	
Comment:				
Matrix Spike / Matrix Spike Duplicate RPD	X	✓	✓	
Comment:				
Laboratory Blanks (daily, method, instrument)	X	✓	✓	
Comment:				
Field Blanks (trip, eqpt rinsate, ambient, matrix)	X			
Comment:				

Quality Control Deliverables	Required	Received	Passed	Failed	
Field Duplicates RPD	X				
Comment:					
Second Source Check					
Comment:					
Second Column Confirmation	✓	✓	✓		
Comment:					
Percent Moisture/Solids	✓	✓			
Comment:					
Initial / Continuing Calibrations	✓	✓	✓		
Comment:					
Internal Standard Areas and Retention Times (Organics Only)					
Comment:					
Chromatograms	✓	✓	✓		
Comment:					
Sample Prep Worksheets					
Comment:					
Raw Data Calculations					
Comment:					
Laboratory Duplicates					
Comment:					
Instrument Performance Checks (Organics Only)					
Comment:					
Tentatively Identified Compounds (TICs)					
Comment:					
Completeness	# Samples	# Analyses	Tot # Analyses	Tot # Accept Analyses	% Complete
Completeness = (Tot # Analyses / Tot # Accepted Analyses) x 100	5	1	5	5	100% / 0

General Comments:

Summary: [] See attached pages

Check Applicable:

- ☐ Lab contacted—Corrective actions in process Date Contacted: _____
☐ Corrective actions received and accepted Date Received/Accepted: _____
☒ The data, as reported by the laboratory, are acceptable.
☐ The data, with qualifiers as described in the "Summary" portion of this report, are acceptable.
☐ The data are unacceptable.
☐ Other _____

S. Pasanape

Evaluator's Signature

7/27/98

Date

Environmental Testing & Consulting, Inc.
Data Qualifiers for Organic Reporting

Within the attached report, some analytical data may be reported as "Qualified Data" as indicated by a "Data Qualifier" next to the result. This table summarizes the possible "Data Qualifiers" that may be associated with this report.

Q	Surrogate Recovery Outside QC Limits
J	Estimated Value. Presence of the compound was confirmed but less than the reported detection limit.
E	Concentration exceeds the established method calibration range but is within the working range of the instrument.
B	Analyte detected in the associated Method Blank.
U	Reported result was unconfirmed. Refer to Case Narrative.
N	Non-Compliance Report associated with this sample or project.
C	Result reported from GC/MS confirmation analysis.
*	QC Data (percent recovery/RPD for a particular analyte was outside QC Limits)

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody



OHM Remediation Services Corp
Subsidiary of OHM Corporation
U.S. Route 224 East • Findlay, Ohio 45840 • (419) 423-3326

CHAIN-OF-CUSTODY RECORD

#98069160

LABORATORY COPY
2178710000
FORM 0019 REV 0997

378

OHM's LAB COORDINATOR: Elena Rodriguez LAB COORDINATOR'S PHONE: 770-734-8060 LAB COORDINATOR'S FAX: 770-453-7716 LABORATORY SERVICE ID: ETC LABORATORY CONTACT: Nathan Pera OHM Remediation Services Corp

PROJECT NAME: DMIT PROJECT LOCATION: Memphis, TN PROJECT PHONE NUMBER: 901-743-1117 PROJECT FAX: 901-743-1048 LABORATORY PHONE: 901-327-2750 LABORATORY FAX: 901-327-6334 RECIPIENT NAME: Elena Rodriguez

PROJECT CONTACT: Steve Offner PROJECT ADDRESS: 1708 Dunn Ave., Memphis, TN 38114 CITY, STATE AND ZIP CODE: Memphis, TN 38111 ADDRESS: 5445 Triangle Pkwy, #400 Norcross, GA 30092

PROJECT MANAGER: Steve Offner PROJECT MANAGER'S PHONE: 770-326-2571 PROJECT MANAGER'S FAX: 770-453-7716

Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont.	QC Level	TAT	Analyses	Comments
1	RA-B-001-0612	Soil	6/15/98	0910	4C	1X 402	OHM Std	7	✓	Please fax results on DUE DATE to SITE and to Lab Coordinator
2	RA-B-002-0-6	Soil	6/12/98	1530	4C	1X 402	OHM Std	7	✓	Area B, B-6, 0-6
3	RA-B-003-0-6	Soil	6/12/98	0920	4C	1X 402	OHM Std	7	✓	Area B, B-2, 0-6
4	RA-B-004-0-6	Soil	6/12/98	0930	4C	1X 402	OHM Std	7	✓	Area B. Duplicate
5	RA-B-005-RB01	Water	6/12/98	0925	4C	1X 402	OHM Std	7	✓	Rinseate for 6/12/98 cleaning.
6										
7										
8										
9										
10										

SAMPLES COLLECTED BY: SP/KB COURIER AND AIR BILL NUMBER: Delivered Personally.

RELINQUISHED BY: S. Paauw DATE: 6/18/98 TIME: 4:00 PM

RECEIVED BY: S. Paauw DATE: 6/18/98 TIME: 4:00 PM

Distribution White - Laboratory (To be returned with Analytical Report), Goldenrod - Project File, Yellow - Project Data Manager

Angela Jones 6/26/98

COOLER RECEIPT FORM

Cooler Receipt Form
9806960 CRF p 1

LIMS # 9806960 Number of Coolers 1
 Date Received 6/26/98
 PROJECT DDMT VDTSR 6/26/98 1300

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS

1 PRELIMINARY EXAMINATION PHASE Date cooler was opened 6/26/98
 by (print) Rebekah Barger (sign) RB Barger

1 Did cooler come with a shipping slip (airbill, etc)? NO
 If YES, enter carrier name & airbill number _____

2a Were custody seals on outside of cooler? NO
 2b Were custody seals on sample containers? NO

3 Were custody seals unbroken and intact at the date and time of arrival? NA

4 Did you screen samples for radioactivity using a Geiger Counter? NO

5 Were custody papers sealed in a plastic bag & taped inside to the lid? NO

6 Were custody papers filled out properly (ink, signed, etc)? YES

7 Did you sign custody papers in the appropriate place? YES

8 Was project identifiable from custody papers? If YES, enter project name at top of this form YES

9 If required, was enough ice used? cooler temp <40 c. Type of ice Bagged YES

10 Have designated person initial here to acknowledge receipt of cooler RB date 6/26/98

B LOG-IN PHASE Date samples were logged-in 6/26/98
 by (print) Rebekah Barger (sign) RB Barger

11 Describe type of packing in cooler Bagged Ice

12 Were all bottles sealed in separate plastic bags? NO

13 Did all bottles arrive unbroken and were labels in good condition? YES

14 Were all bottle labels complete (ID, date, time, signature, preserved, etc)? YES

15 Did all bottle labels agree with custody papers? YES

16 Were correct containers used for the tests indicated? YES

17 Were correct preservatives added to samples? YES

18 Was a sufficient amount of sample sent for tests indicated? YES

19 Were bubbles absent in VOA samples? If NO, list by sample# NA

20 Was the project manager called and status discussed? If YES, give details on the back of this form NO

21 Who was called? NA By whom? NA (date) _____

VDTSR - Validated Date/Time of Sample Receipt (Date sample is logged into LIMS system)

000004

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ANALYTICAL SUMMARY TABLE

378 100

Client Name OHM Remediation Services
Site ID DDMT

<u>ETC Sample ID</u>	<u>Field ID</u>	<u>Matrix</u>	<u>Method</u>	<u>Method Description</u>	<u>QC Batch</u>
980696001	RA-B-001-6-12"	SOIL	8081A	Organochlorine Pest	V10PSS9
980696002	RA-B-002-0-6"	SOIL	8081A	Organochlorine Pest	V10PSS9
980696003	RA-B-003-0-6"	SOIL	8081A	Organochlorine Pest	V10PSS9
980696004	RA-B-004-0-6"	SOIL	8081A	Organochlorine Pest	V10PSS9
980696005	RA-B-005-RB01	AQUEOUS	8081A	Organochlorine Pest	V13PSA14

Environmental Testing & Consulting, Inc.

Sample Reports

ENVIRONMENTAL TESTING & CONSULTING, INC.
Memphis, TN
INORGANIC ANALYSIS DATA SHEET
PERCENT SOLIDS

378 102

Client Name :OHM Remediation Services
Project Name :DDMT

Date Sample Received :06/26/98
Contract Laboratory Order Number :9806-960

<u>Contract Lab</u> <u>Sample No</u>	<u>Field</u> <u>ID</u>	<u>Date</u> <u>Sampled</u>	<u>Result</u> <u>Units : (%)</u>	<u>Date</u> <u>Analyzed</u>	<u>Method</u>	<u>By</u>
9806-960-01	RA-B-001-6-12"	06/25/98	93	06/26/98	160.3	MC
9806-960-02	RA-B-002-0-6"	06/24/98	95	06/26/98	160.3	MC
9806-960-03	RA-B-003-0-6"	06/25/98	90	06/26/98	160.3	MC
9806-960-04	RA-B-004-0-6"	06/25/98	92	06/26/98	160.3	MC


LABORATORY MANAGER

000007

378 103

ENVIRONMENTAL TESTING & CONSULTING, INC.
 2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services** Project **20560**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092
 Site ID **DDMT**

Date Arrived 06/26/98
 ETC Order Number 9806960

ETC Lab ID 9806960-01
Sample ID: RA-B-001-6-12"
QC Batch : V10PSS9

Matrix :SOIL
 Sample Date :06/25/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/27/98	07/01/98	DC	8081A 3550B
Aldrin	ND	ug/Kg	10				
Alpha-BHC	ND	ug/Kg	10				
Beta-BHC	ND	ug/Kg	10				
Delta-BHC	ND	ug/Kg	10				
Gamma-BHC (Lindane)	ND	ug/Kg	10				
alpha-Chlordane	ND	ug/Kg	10				
gamma-Chlordane	ND	ug/Kg	10				
Chlordane (Technical)	ND	ug/Kg	100				
4,4'-DDD	ND	ug/Kg	10				
4,4'-DDE	ND	ug/Kg	10				
4,4'-DDT	ND	ug/Kg	10				
Dieldrin	64.7	ug/Kg	10				
Endosulfan I	ND	ug/Kg	10				
Endosulfan II	ND	ug/Kg	10				
Endosulfan Sulfate	ND	ug/Kg	10				
Endrin	ND	ug/Kg	10				
Endrin Aldehyde	ND	ug/Kg	10				
Endrin Ketone	ND	ug/Kg	10				
Heptachlor	ND	ug/Kg	10				
Heptachlor Epoxide	ND	ug/Kg	10				
Methoxychlor	ND	ug/Kg	10				
Toxaphene	ND	ug/Kg	800				

Surrogate Standard	% Recovery	QC Limits	
S1 - Tetrachloro-m-xylene	108	39	130
S2 - Decachlorobiphenyl	113	64	154

ND - Not Detected


 LABORATORY MANAGER

000008

378 104

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Site ID **DDMT**

Project **20560**

Date Arrived **06/26/98**
ETC Order Number **9806960**

ETC Lab ID **9806960-02**
Sample ID: RA-B-002-0-6"
QC Batch : V10PSS9

Matrix : **SOIL**
Sample Date : **06/24/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/27/98	07/01/98	DC	8081A 3550B
Aldrin	ND	ug/Kg	1.00				
Alpha-BHC	ND	ug/Kg	1.00				
Beta-BHC	ND	ug/Kg	1.00				
Delta-BHC	ND	ug/Kg	1.00				
Gamma-BHC (Lindane)	ND	ug/Kg	1.00				
alpha-Chlordane	ND	ug/Kg	1.00				
gamma-Chlordane	ND	ug/Kg	1.00				
Chlordane (Technical)	ND	ug/Kg	1.0				
4,4'-DDD	ND	ug/Kg	1.00				
4,4'-DDE	3.50	ug/Kg	1.00				
4,4'-DDT	5.94	ug/Kg	1.00				
Dieldrin	70.5	ug/Kg	1.00				
Endosulfan I	ND	ug/Kg	1.00				
Endosulfan II	ND	ug/Kg	1.00				
Endosulfan Sulfate	ND	ug/Kg	1.00				
Endrin	ND	ug/Kg	1.00				
Endrin Aldehyde	ND	ug/Kg	1.00				
Endrin Ketone	ND	ug/Kg	1.00				
Heptachlor	ND	ug/Kg	1.00				
Heptachlor Epoxide	ND	ug/Kg	1.00				
Methoxychlor	ND	ug/Kg	1.00				
Toxaphene	ND	ug/Kg	80				

Surrogate Standard	% Recovery	QC Limits
S1 - Tetrachloro-m-xylene	59	39 130
S2 - Decachlorobiphenyl	66	64 154

ND, - Not Detected


LABORATORY MANAGER

000009

378 105

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Site ID **DDMT**

Project **20560**

Date Arrived 06/26/98
ETC Order Number 9806960

ETC Lab ID **9806960-03**
Sample ID: RA-B-003-0-6
QC Batch : V10PSS9

Matrix :SOIL
Sample Date :06/25/98 09:20:00

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/27/98	07/01/98	DC	8081A 3550B,SW
Aldrin	ND	ug/Kg	10				
Alpha-BHC	ND	ug/Kg	10				
Beta-BHC	ND	ug/Kg	10				
Delta-BHC	ND	ug/Kg	10				
Gamma-BHC (Lindane)	ND	ug/Kg	10				
alpha-Chlordane	ND	ug/Kg	10				
gamma-Chlordane	ND	ug/Kg	10				
Chlordane (Technical)	ND	ug/Kg	100				
4,4'-DDD	31.9	ug/Kg	10				
4,4'-DDE	210	ug/Kg	10				
4,4'-DDT	174	ug/Kg	10				
Dieldrin	700	ug/Kg	10				
Endosulfan I	ND	ug/Kg	10				
Endosulfan II	ND	ug/Kg	10				
Endosulfan Sulfate	ND	ug/Kg	10				
Endrin	ND	ug/Kg	10				
Endrin Aldehyde	ND	ug/Kg	10				
Endrin Ketone	ND	ug/Kg	10				
Heptachlor	ND	ug/Kg	10				
Heptachlor Epoxide	ND	ug/Kg	10				
Methoxychlor	ND	ug/Kg	10				
Toxaphene	ND	ug/Kg	800				

Surrogate Standard	% Recovery	QC Limits
S1 - Tetrachloro-m-xylene	41	39 130
S2 - Decachlorobiphenyl	80	64 154

ND - Not Detected


LABORATORY MANAGER

000010

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 106

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Site ID **DDMT**

Project **20560**

Date Arrived 06/26/98
ETC Order Number 9806960

ETC Lab ID **9806960-04**

Sample ID: RA-B-004-0-6"
QC Batch : V10PSS9

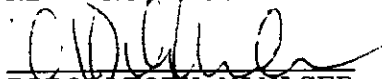
Matrix :SOIL

Sample Date :06/25/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/27/98	07/01/98	DC	8081A 3550B
Aldrin	ND	ug/Kg	10				
Alpha-BHC	ND	ug/Kg	10				
Beta-BHC	ND	ug/Kg	10				
Delta-BHC	ND	ug/Kg	10				
Gamma-BHC (Lindane)	ND	ug/Kg	10				
alpha-Chlordane	ND	ug/Kg	10				
gamma-Chlordane	ND	ug/Kg	10				
Chlordane (Technical)	ND	ug/Kg	100				
4,4'-DDD	ND	ug/Kg	10				
4,4'-DDE	253	ug/Kg	10				
4,4'-DDT	142	ug/Kg	10				
Dieldrin	980	ug/Kg	10				
Endosulfan I	ND	ug/Kg	10				
Endosulfan II	ND	ug/Kg	10				
Endosulfan Sulfate	ND	ug/Kg	10				
Endrin	ND	ug/Kg	10				
Endrin Aldehyde	ND	ug/Kg	10				
Endrin Ketone	ND	ug/Kg	10				
Heptachlor	ND	ug/Kg	10				
Heptachlor Epoxide	ND	ug/Kg	10				
Methoxychlor	ND	ug/Kg	10				
Toxaphene	ND	ug/Kg	800				

Surrogate Standard	% Recovery	QC Limits
S1 - Tetrachloro-m-xylene	70	39 130
S2 - Decachlorobiphenyl	124	64 154

ND - Not Detected


LABORATORY MANAGER

000011

378 107

ENVIRONMENTAL TESTING & CONSULTING, INC.
 2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project **20560**

Site ID **DDMT**

Date Arrived 06/26/98
 ETC Order Number 9806960

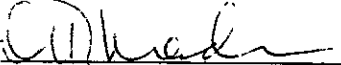
ETC Lab ID 9806960-05
Sample ID: RA-B-005-RB01
QC Batch : V13PSA14

Matrix :AQUEOUS
 Sample Date :06/25/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/30/98	07/01/98	DC	8081A 3510C
Aldrin	ND	ug/L	0.04				
Alpha-BHC	ND	ug/L	0.04				
Beta-BHC	ND	ug/L	0.04				
Delta-BHC	ND	ug/L	0.04				
Gamma-BHC (Lindane)	ND	ug/L	0.04				
alpha-Chlordane	ND	ug/L	0.04				
gamma-Chlordane	ND	ug/L	0.04				
Chlordane (Technical)	ND	ug/L	0.50				
4,4'-DDD	ND	ug/L	0.04				
4,4'-DDE	ND	ug/L	0.04				
4,4'-DDT	ND	ug/L	0.04				
Dieldrin	ND	ug/L	0.04				
Endosulfan I	ND	ug/L	0.04				
Endosulfan II	ND	ug/L	0.04				
Endosulfan Sulfate	ND	ug/L	0.04				
Endrin	ND	ug/L	0.04				
Endrin Aldehyde	ND	ug/L	0.04				
Endrin Ketone	ND	ug/L	0.04				
Heptachlor	ND	ug/L	0.04				
Heptachlor Epoxide	ND	ug/L	0.04				
Methoxychlor	ND	ug/L	0.04				
Toxaphene	ND	ug/L	2.50				

Surrogate Standard	% Recovery	QC Limits
S1 - Tetrachloro-m-xylene	54	31 96
S2 - Decachlorobiphenyl	16 Q	34 115

ND - Not Detected


 LABORATORY MANAGER

000012

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC Pesticides

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot

ETC Order # : 9806-960
Method (SW-846) : 8081A/3550B

HOLDING TIMES

Sample Extraction : All soil samples extracted within 14 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
V10PSS9 0627-3BLK

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
0627-3LCS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9806-960-01 RPD : All analytes within QC limits.*
RA-B-001-6-12" Spike Recovery : All analytes within QC limits.
*

RPD for Dieldrin was flagged as outside QC Limits.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
0627-3BLK

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration	: All criteria met. FORM 6
Daily Calibration	: All criteria met. FORM 7A
Endrin/Breakdown	: All criteria met. FORM 7

Initial Calibrations were performed using the linear regression option (first order) and are evaluated per section 7.5 of Method 8000B (SW-846 Revision 2) :

The correlation coefficient (r) must be 0.99 or greater for each analyte.

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

378 110

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot

ETC Order # : 9806-960
Method (SW-846) : 8081A/3550B

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Daily Calibration : All criteria met. FORM 7A
Endrin/Breakdown : All criteria met. FORM 7

Initial Calibrations were performed using the linear regression option (first order) and are evaluated per section 7.5 of Method 8000B (SW-846 Revision 2) :

The correlation coefficient (r) must be 0.99 or greater for each analyte.

Calibration Verification Standards (CVS) were analyzed at approximately every 10th sample analyzed within the sequence and were evaluated per section 7.7 of Method 8000B (SW-846 Revision 2) :

1. The response for each analyte must be within 15% of expected.
or
2. The average response for all calibrated analytes is within 15%.

Samples for this order were analyzed under two(2) analytical sequences :

Sequence S106301A (Primary Analysis)

A five(5)-point initial calibration was performed for this sequence.

Calibration Verification (S106301A-20R and S106301A-21R)
- All analytes <15% difference.
- Average of %Difference for all analytes was within 15%.

Calibration Verification (S106301A-34R and S106301A-35R)
- 4'4-DDT %Difference >15%.
- Methoxychlor %Difference >15%.
- Average of %difference for all analytes was within 15%.

4'4-DDT was reported for several samples associated with these calibration verifications (CV). The MS/MSD analyzed for this order was also associated with these CVs. Recoveries for DDT were 84% and 72% respectively indicating a slightly low bias. Recoveries for Methoxychlor were 91% and 90% respectively indicated little or no bias.

Sequence S406301A (Primary Analysis)

A five(5)-point initial calibration was performed for this sequence.

Calibration Verification (S406301A-21R)
- Dieldrin %Difference >15%. Slightly low response.
- 4'4-DDT with %Difference >15%. Low response.
- Methoxychlor %Difference >15%. Low response.
- Average of %difference for all analytes was within 15%.

000015

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot

ETC Order # : 9806-960
Method (SW-846) : 8081A/3550B

Calibration Verification (S406301A-36R)

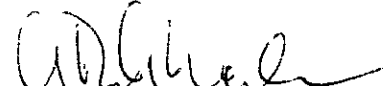
- Alpha-BHC %Difference >15% High response.
- Delta-BHC %Difference >15% High response.
- 4'4-DDT %Difference >15%. Low response.
- Endrin Aldehyde %Difference >15%. High response.
- Methoxychlor %Difference >15%.
- Tetrachloro-m-xylene %Difference >15%. High response.
- Average of %difference for all analytes was within 15%.

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.*
*

<u>Sample ID</u>	<u>Dilutions Applied</u>	<u>Reason for Dilution</u>
9806-960-01	1:10	B
9806-960-02	1:10	B
9806-960-03	1:10,1:100	B
9806-960-04	1:10,1:100	B

A - Levels of Non-Target Analyte interfering compounds.
B - Bring Target Analytes within calibration range.


Laboratory Manager

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - AQUEOUS

378 112

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot

ETC Order # : 9806-960
Method (SW-846) : 8081A/3510C

HOLDING TIMES

Sample Extraction : All aqueous samples extracted within 7 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
V13PSA14 0630-3BLK

System Monitoring Compounds FORM 2

Surrogate recoveries within QC limits.*

*

Surrogate recovery for Decachlorobiphenyl was flagged as outside
QC Limits in sample 9806-960-05(RA-B-005-RB01). Surrogate recovery
for Tetrachloro-m-xylene was within QC Limits in sample 9806-960-05.

Laboratory Control Sample FORM 3
0630-3LCS/LCSD

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3

RPD : NA*

Spike Recovery : NA*

*

Due to the limited amount of sample available, no MS/MSD were
extracted.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
0630-3BLK

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Daily Calibration : All criteria met. FORM 7A
Endrin/Breakdown : All criteria met. FORM 7

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.


Laboratory Manager

000017

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

0627-3BLK

Lab Name: ETC, INC.

Lab Prep Batch: V10PSS9

SDG No.: 9806-960

Lab File ID: S106301A-08R

Instrument ID: PEST1A

Matrix: (soil/water) SOIL

Date Analyzed: 06/30/98

Level: (low/med) LOW

Time Analyzed: 2030

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	0627-3LCS		S106301A-11R	06/30/98
02	9806-960-1		S106301A-15R	07/01/98
03	9806-960-2		S106301A-16R	07/01/98
04	9806-960-3		S106301A-17R	07/01/98
05	9806-960-4		S106301A-22R	07/01/98
06	9806-960-1MS		S106301A-24R	07/01/98
07	9806-960-1MS		S106301A-25R	07/01/98
08	9806-960-1		S406301A-27R	07/01/98
09	9806-960-2		S406301A-28R	07/01/98
10	9806-960-2		S406301A-29R	07/01/98
11	9806-960-3		S406301A-30R	07/01/98
12	9806-960-3		S406301A-31R	07/01/98
13	9806-960-4		S406301A-32R	07/01/98
14	9806-960-4		S406301A-33R	07/01/98
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

0627-3BLK

Lab Name: ETC, INC.

SDG No.: 9806-960

Matrix: (soil/water) SOIL

Lab Prep Batch: V10PSS9

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: S106301A-08R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 06/30/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6-----	alpha-BHC	1.33333	U
58-89-9-----	gamma-BHC (Lindane)	1.33333	U
319-85-7-----	beta-BHC	1.33333	U
76-44-8-----	Heptachlor	1.33333	U
319-86-8-----	delta-BHC	1.33333	U
309-00-2-----	Aldrin	1.33333	U
1024-57-3-----	Heptachlor epoxide	1.33333	U
5103-74-2-----	gamma-chlordane	1.33333	U
959-98-8/5103-71	Endosulfan I/alpha-chlordane	1.33333	U
72-55-9-----	4,4'-DDE	1.33333	U
60-57-1-----	Dieldrin	1.33333	U
72-20-8-----	Endrin	1.33333	U
72-54-8-----	4,4'-DDD	1.33333	U
33213-65-9-----	Endosulfan II	1.33333	U
50-29-3-----	4,4'-DDT	1.33333	U
7421-93-4-----	Endrin aldehyde	1.33333	U
1031-07-8-----	Endosulfan sulfate	1.33333	U
72-43-5-----	Methoxychlor	1.33333	U
53494-70-5-----	Endrin Ketone	1.33333	U
57-74-9-----	Chlordane-total	8.33333	U
8001-35-2-----	Toxaphene	100.00000	U

FORM I PESTICIDE

000019

378 115

FORM 3
SOIL PESTICIDE LAB CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V10PSS9

SDG No.: 9806-960

Matrix Spike - Sample No.: 0627-31cs

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
alpha-BHC	33.33333		29.53049	88	22-112
gamma-BHC (Lindane)	33.33333		30.27932	91	26-113
beta-BHC	33.33333		29.02727	87	54-120
Heptachlor	33.33333		33.32264	100	47-113
delta-BHC	33.33333		27.18317	82	10- 96
Aldrin	33.33333		31.26371	94	31-111
Heptachlor epoxide	33.33333		30.99745	93	47-112
gamma-chlordane	33.33333		30.68477	92	50-106
Endosulfan I/alpha-chlo	66.66666		60.96116	91	49-103
4,4'-DDE	33.33333		29.32639	88	36-117
Dieldrin	33.33333		31.47530	94	44-108
Endrin	33.33333		31.51828	94	44-118
4,4'-DDD	33.33333		30.95699	93	47-112
Endosulfan II	33.33333		33.21361	100	53-115
4,4'-DDT	33.33333		30.83855	92	49-110
Endrin aldehyde	33.33333		31.16215	93	48-120
Endosulfan sulfate	33.33333		27.23047	82	51-110
Methoxychlor	33.33333		31.99013	96	39-147
Endrin Ketone	33.33333		33.79439	101	38-130

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 19 outside limits

COMMENTS:

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY 378 116

Lab Name: ETC, INC.

Lab Prep Batch: V10PSS9

SDG No.: 9806-960

Matrix Spike - Sample No.: 9806-960-1

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
alpha-BHC	32.89473	0.00000	27.01545	82	22-112
gamma-BHC (Lindane)	32.89473	0.00000	29.78553	90	26-113
beta-BHC	32.89473	0.00000	31.04188	94	54-120
Heptachlor	32.89473	0.13784	29.85002	90	47-113
delta-BHC	32.89473	0.04430	25.41483	77	10- 96
Aldrin	32.89473	0.00000	28.08780	85	31-111
Heptachlor epoxide	32.89473	0.00000	28.22950	86	47-112
gamma-chlordane	32.89473	0.00000	28.04327	85	50-106
Endosulfan I/alpha-chlo	65.78947	0.00000	57.54033	87	49-103
4,4'-DDE	32.89473	0.85288	27.54368	81	36-117
Dieldrin	32.89473	49.71928	64.59793	45	44-108
Endrin	32.89473	0.00000	29.93682	91	44-118
4,4'-DDD	32.89473	0.00000	28.96889	88	47-112
Endosulfan II	32.89473	0.03347	32.12893	98	53-115
4,4'-DDT	32.89473	0.84601	28.32948	84	49-124
Endrin aldehyde	32.89473	0.00000	33.29515	101	48-128
Endosulfan sulfate	32.89473	0.09236	29.54979	90	51-110
Methoxychlor	32.89473	0.84454	30.94237	91	39-147
Endrin Ketone	32.89473	0.21930	30.08464	91	38-130

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

378 117

FORM 3

: SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: V10PSS9

SDG No.: 9806-960

Matrix Spike - Sample No.: 9806-960-1

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
alpha-BHC	33.33333	26.82769	80	2	20	22-112
gamma-BHC (Lindane)	33.33333	29.63650	89	1	20	26-113
beta-BHC	33.33333	27.60950	83	12	20	54-120
Heptachlor	33.33333	31.00555	93	3	20	47-113
delta-BHC	33.33333	25.10702	75	3	20	10- 96
Aldrin	33.33333	28.04400	84	1	20	31-111
Heptachlor epoxide	33.33333	27.62179	83	4	20	47-112
gamma-chlordane	33.33333	28.12470	84	1	20	50-106
Endosulfan I/alpha-chlo	66.66666	56.31354	84	4	20	49-103
4,4'-DDE	33.33333	29.50860	86	6	20	36-117
Dieldrin	33.33333	76.86763	81	57*	20	44-108
Endrin	33.33333	30.85054	92	1	20	44-118
4,4'-DDD	33.33333	27.89814	84	5	20	47-112
Endosulfan II	33.33333	30.65645	92	6	20	53-115
4,4'-DDT	33.33333	25.03205	72	15	20	49-110
Endrin aldehyde	33.33333	33.74164	101	0	20	48-120
Endosulfan sulfate	33.33333	28.01998	84	7	20	51-110
Methoxychlor	33.33333	30.74075	90	1	20	39-147
Endrin Ketone	33.33333	32.28210	96	5	20	38-130

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

RPD: 1 out of 19 outside limits

Spike Recovery: 0 out of 38 outside limits

COMMENTS:

FORM 2
WATER PESTICIDE SURROGATE RECOVERY

378 118

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9806-960

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	0630-3BLK	60	39							0
02	0630-3LCS	44	74							0
03	0630-3LCSD	45	78							0
04	9806-960-5	54	16*							1
05										
06										
07										
08										
09										
10										
11										
12										
13										
14										
15										
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26										
27										
28										
29										
30										

QC LIMITS

S1 (TMX) = Tetrachloro-m-xylene (31- 96)
S2 (DBC) = Decachlorobiphenyl (34-115)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

378 119

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

0630-3BLK

Lab Name: ETC, INC.

Lab Prep Batch: V13PSA14

Lab File ID: S106301A-09R

Matrix: (soil/water) WATER

Level: (low/med) LOW

SDG No.: 9806-960

Instrument ID: PEST1A

Date Analyzed: 06/30/98

Time Analyzed: 2110

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	0630-3LCS		S106301A-12R	06/30/98
02	0630-3LCSD		S106301A-13R	06/30/98
03	9806-960-5		S106301A-23R	07/01/98
04				
05				
06				
07				
08				
09				
10				
11				
12				
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28				
29				
30				

COMMENTS:

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

378 120
EPA GC SAMPLE NO.

0630-3BLK

Lab Name: ETC, INC.

SDG No.: 9806-960

Matrix: (soil/water) WATER

Lab Prep Batch: V13PSA14

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: S106301A-09R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 06/30/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6-----	alpha-BHC	0.04000	U
58-89-9-----	gamma-BHC (Lindane)	0.04000	U
319-85-7-----	beta-BHC	0.04000	U
76-44-8-----	Heptachlor	0.04000	U
319-86-8-----	delta-BHC	0.04000	U
309-00-2-----	Aldrin	0.04000	U
1024-57-3-----	Heptachlor epoxide	0.04000	U
5103-74-2-----	gamma-chlordane	0.04000	U
959-98-8/5103-71	Endosulfan I/alpha-chlordane	0.04000	U
72-55-9-----	4,4'-DDE	0.04000	U
60-57-1-----	Dieldrin	0.04000	U
72-20-8-----	Endrin	0.04000	U
72-54-8-----	4,4'-DDD	0.04000	U
33213-65-9-----	Endosulfan II	0.04000	U
50-29-3-----	4,4'-DDT	0.04000	U
7421-93-4-----	Endrin aldehyde	0.04000	U
1031-07-8-----	Endosulfan sulfate	0.04000	U
72-43-5-----	Methoxychlor	0.04000	U
53494-70-5-----	Endrin Ketone	0.04000	U
57-74-9-----	Chlordane-total	0.25000	U
8001-35-2-----	Toxaphene	3.00000	U

FORM I PESTICIDE

000025

378 121

FORM 3
WATER PESTICIDE LAB CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V13PSA14

SDG No.: 9806-960

Matrix Spike - Sample No.: 0630-31cs

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
alpha-BHC	1.00000		0.82843	83	41-102
gamma-BHC (Lindane)	1.00000		0.89308	89	41-102
beta-BHC	1.00000		0.88903	89	26-151
Heptachlor	1.00000		0.88500	88	43-114
delta-BHC	1.00000		0.72504	72	21- 92
Aldrin	1.00000		0.82615	83	34-105
Heptachlor epoxide	1.00000		0.91889	92	42-115
gamma-chlordane	1.00000		0.86990	87	50-108
Endosulfan I/alpha-chlo	2.00000		1.71629	86	48-117
4,4'-DDE	1.00000		0.82669	83	41-111
Dieldrin	1.00000		0.92057	92	42-111
Endrin	1.00000		0.88497	88	45-117
4,4'-DDD	1.00000		0.87116	87	39-124
Endosulfan II	1.00000		0.98650	99	52-111
4,4'-DDT	1.00000		0.76363	76	39-111
Endrin aldehyde	1.00000		0.96385	96	48-125
Endosulfan sulfate	1.00000		0.89077	89	46-111
Methoxychlor	1.00000		0.98380	98	39-140
Endrin Ketone	1.00000		0.96056	96	51-112

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

COMMENTS:

FORM 3
WATER PESTICIDE LAB CONTROL SAMPLE

378 122

Lab Name: ETC, INC.

Lab Prep Batch: V13PSA14

SDG No.: 9806-960

Matrix Spike - Sample No.: 0630-31cs

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
alpha-BHC	1.00000	0.86874	87	5	20	41-102
gamma-BHC (Lindane)	1.00000	0.91935	92	3	20	41-102
beta-BHC	1.00000	0.88308	88	1	20	26-151
Heptachlor	1.00000	0.89493	89	1	20	43-114
delta-BHC	1.00000	0.75405	75	4	20	21- 92
Aldrin	1.00000	0.82072	82	1	20	34-105
Heptachlor epoxide	1.00000	0.90666	91	1	20	42-115
gamma-chlordane	1.00000	0.91835	92	6	20	50-108
Endosulfan I/alpha-chlo	2.00000	1.84558	92	7	20	48-117
4,4'-DDE	1.00000	0.85282	85	2	20	41-111
Dieldrin	1.00000	0.91090	91	1	20	42-111
Endrin	1.00000	0.89526	90	2	20	45-117
4,4'-DDD	1.00000	0.85194	85	2	20	39-124
Endosulfan II	1.00000	0.95436	95	4	20	52-114
4,4'-DDT	1.00000	0.83182	83	9	20	39-123
Endrin aldehyde	1.00000	1.01144	101	5	20	48-125
Endosulfan sulfate	1.00000	0.91755	92	3	20	46-111
Methoxychlor	1.00000	1.05169	105	7	20	39-140
Endrin Ketone	1.00000	0.89102	89	8	20	51-112

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 19 outside limits
Spike Recovery: 0 out of 38 outside limits

COMMENTS:

FIELD SCREENING LABORATORY CONFIRMATION SAMPLES*Dated Collected 06/25&26/98***RA-B-006-06"-12"****RA-C-007-00"-06"****RA-C-008-06"-12"****RA-C-009-06"-12"****RA-C-010-00"-06"****RA-C-011-00"-00" (Duplicate of RA-C-010-00"-06")****RA-C-012-06"-12"****RA-C-013-00"-06"****RA-B-014-RB02 (Equip. Blank)**



ENVIRONMENTAL TESTING & CONSULTING, INC. ^{378 124}
2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334
Founded 1972

July 23, 1998

Ms. Elena Rodriguez
OHM Remediation Services
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

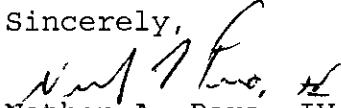
Ref: Analytical Testing
ETC Order # 9806A10
Project Description DDMT

Project # 20560 Defense Depot - Memphis, TN

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th/18th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136.

The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Nathan A. Pera, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT

378 125

Chemical Analytical Data
Review/Evaluation/Validation

SOUTHERN REGION

Report Type: ☐ Preliminary ☒ Final Date Received: _____ Project Number: 20560

Project Name: DDX.T Analysis/Method: SC31A/Pest

Laboratory: ETC Lab Project/Case Number: 9806A10

Sample Number(s): RA-B-006-06-12", C-007-00-06", 008-06-12", 009-06-12", 010-00-06", 011-00-00, 012-06-12", 013-00-06", B-014-RB02

Evaluated By: S. Tazawa Date Evaluated: 7/23/98 7/24/98

Data Package Deliverables Requirement: ☐ OHM Minimum ☒ OHM Standard ☐ OHM Maximum

☐ Other, please describe _____

Quality Control Deliverables	Required	Received	Passed	Failed
PQL, MDL, RL, etc meets DQOs		✓	✓	
Comment:				
Holding Times			✓	
Comment:				
Sample Condition (preservatives, containers, temperature, etc) / Case Narrative	X	✓	✓	
Comment:				
Surrogate Recoveries	X	✓	✓	
Comment:				
Lab Control Sample Recoveries	X	✓	✓	
Comment:				
Lab Control Sample Duplicate or Other Spike Recoveries	X	✓	✓	
Comment:				
Lab Control Sample Duplicate or Other Laboratory Duplicate RPD	X	✓	✓	
Comment:				
Matrix Spike Recoveries	X	✓	✓	
Comment:				
Matrix Spike Duplicate Recoveries	X	✓	✓	
Comment:				
Matrix Spike / Matrix Spike Duplicate RPD	X	✓	✓	
Comment:				
Laboratory Blanks (daily, method, instrument)	X	✓	✓	
Comment:				
Field Blanks (trip, eqpt rinsate, ambient, matrix)	X			
Comment:				

Quality Control Deliverables		Required	Received	Passed	Failed
Field Duplicates RPD		X			
Comment:					
Second Source Check		N/A			
Comment:					
Second Column Confirmation		✓	✓	✓	
Comment:					
Percent Moisture/Solids		✓	✓		
Comment:					
Initial / Continuing Calibrations					
Comment:					
Internal Standard Areas and Retention Times (Organics Only)					
Comment:					
Chromatograms		✓	✓		
Comment:					
Sample Prep Worksheets					
Comment:					
Raw Data Calculations					
Comment:					
Laboratory Duplicates					
Comment:					
Instrument Performance Checks (Organics Only)					
Comment:					
Tentatively Identified Compounds (TICs)					
Comment:					
Completeness	# Samples	# Analyses	Tot # Analyses	Tot # Accept Analyses	% Complete
Completeness = (Tot # Analyses / Tot # Accepted Analyses) x 100	9	1	9	9	100
General Comments:					

Summary: [] See attached pages

Check Applicable:

- ☐ Lab contacted--Corrective actions in process Date Contacted: _____
☐ Corrective actions received and accepted Date Received/Accepted: _____
☒ The data, as reported by the laboratory, are acceptable.
☐ The data, with qualifiers as described in the "Summary" portion of this report, are acceptable.
☐ The data are unacceptable.
☐ Other _____

S. Paranyape
 Evaluator's Signature

7/24/98
 Date

Environmental Testing & Consulting, Inc.
Data Qualifiers for Organic Reporting

Within the attached report, some analytical data may be reported as "Qualified Data" as indicated by a "Data Qualifier" next to the result. This table summarizes the possible "Data Qualifiers" that may be associated with this report.

Q	Surrogate Recovery Outside QC Limits
J	Estimated Value. Presence of the compound was confirmed but less than the reported detection limit.
E	Concentration exceeds the established method calibration range but is within the working range of the instrument.
B	Analyte detected in the associated Method Blank.
U	Reported result was unconfirmed. Refer to Case Narrative.
N	Non-Compliance Report associated with this sample or project.
C	Result reported from GC/MS confirmation analysis.
*	QC Data (percent recovery/RPD for a particular analyte was outside QC Limits)

ANALYTICAL SUMMARY TABLE

Client Name OHM Remediation Services
Site ID DDMT
Memphis, TN

<u>ETC</u> <u>Sample ID</u>	<u>Field ID</u>	<u>Matrix</u>	<u>Method</u>	<u>Method Description</u>
9806A1001	RA-B-006-06"-12"	SOIL	8081A	Organochlorine Pesticides
9806A1002	RA-C-007-00"-06"	SOIL	8081A	Organochlorine Pesticides
9806A1003	RA-C-008-06"-12"	SOIL	8081A	Organochlorine Pesticides
9806A1004	RA-C-009-06"-12"	SOIL	8081A	Organochlorine Pesticides
9806A1005	RA-C-010-00"-06"	SOIL	8081A	Organochlorine Pesticides
9806A1006	RA-C-011-00"-00"	SOIL	8081A	Organochlorine Pesticides
9806A1007	RA-C-012-06"-12"	SOIL	8081A	Organochlorine Pesticides
9806A1008	RA-C-013-00"-06"	SOIL	8081A	Organochlorine Pesticides
9806A1008	RA-C-013-00"-06"-LCS	SOIL	8081A	Organochlorine Pest/PCB
9806A1009	RA-B-014-RB02	AQUEOUS	8081A	Organochlorine Pesticides
9806A1009	RA-B-014-RB02-LCS	AQUEOUS	8081A	Organochlorine Pest/PCB

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody

**OHM Remediation
Services Corp.**
Subsidiary of OHM Corporation
U.S. Route 224 East • Findlay, Ohio

CHAIN-OF-CUSTODY RECORD

Alber, David

LABORATORY COPY

2178720

FORM 0019 REV. 2-97

Item		Sample Identifier	Matrix	Date	Time	Preserved	# of Cont.	QC Level	TAT	Analyses		Comments	
1	RA-B-006-06-12	Soil	6/25	1045	40	1X4	0.1m	Std	7	✓			Please fax results on DUE DATE to SLIT and to Lab Coordinator.
2	RA-C-007-06-12	Soil	6/25	1650	40	1X4	0.1m	Std	7	✓			C11, 0-6"
3	RA-C-008-06-12	Soil	6/25	1700	40	1X4	0.1m	Std	7	✓			C11, 6-12"
4	RA-C-009-06-12	Soil	6/25	1640	40	1X4	0.1m	Std	7	✓			C13, 6-12"
5	RA-C-010-00-00	Soil	6/25	1430	40	1X4	0.1m	Std	7	✓			C14, 0-6"
6	RA-C-011-00-00	Soil	6/25	-	40	1X4	0.1m	Std	7	✓			Duplicate
7	RA-C-012-06-12	Soil	6/25	1450	40	1X4	0.1m	Std	7	✓			C14, 6-12"
8	RA-C-013-00-00	Soil	6/25	1040	40	1X4	0.1m	Std	7	✓			C17, 0-6"
9	RA-B-014-06-12	Soil	6/25	0850	40	1X1	0.1m	Std	7	✓			Pinset, for 6/26/18 Area B.
10													

SAMPLES COLLECTED BY: SP/BK/SG		COOLER AND AIR BILL NUMBER		DELIVERED		PERSONALLY ON 6/26/18		COOLER TEMPERATURE UPON RECEIPT	
RECEIVED BY:	DATE:	RECEIVED BY:	DATE:	RECEIVED BY:	DATE:	RECEIVED BY:	DATE:	RECEIVED BY:	DATE:
SP/BK/SG	6/26/18	SP/BK/SG	6/26/18	SP/BK/SG	6/26/18	SP/BK/SG	6/26/18	SP/BK/SG	6/26/18

COOLER RECEIPT FORM

378 131

Cooler Receipt Form
9806A10 CRF p 1

LIMS # 9806-A10 Number of Coolers 1
Date Received 06/27/98
VDTSR 06/29/98 09 00
PROJECT DDMT-Memphis, .N

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS

A PRELIMINARY EXAMINATION PHASE Date cooler was opened 06/29/98
by (print) Lynette Bugg (sign) Lynette Bugg

1 Did cooler come with a shipping slip (airbill, etc)? NO
If YES, enter carrier name & airbill number _____

2a Were custody seals on outside of cooler? NO
2b Were custody seals on sample containers? NO

3 Were custody seals unbroken and intact at the date and time of arrival? NA

4 Did you screen samples for radioactivity using a Geiger Counter? NO

5 Were custody papers sealed in a plastic bag & taped inside to the lid? NO

6 Were custody papers filled out properly (ink, signed, etc)? NO

7 Did you sign custody papers in the appropriate place? YES

8 Was project identifiable from custody papers? If YES, enter project name at top of this form YES

9 If required, was enough ice used? cooler temp <4°C c, Type of ice Bagged YES

10 Have designated person initial here to acknowledge receipt of cooler RM date 06/27/98

B LOG-IN PHASE Date samples were logged-in 06/29/98
by (print) Lynette Bugg (sign) Lynette Bugg

11 Describe type of packing in cooler Bubble Wrap, Baggies and Ice

12 Were all bottles sealed in separate plastic bags? YES

13 Did all bottles arrive unbroken and were labels in good condition? YES

14 Were all bottle labels complete (ID, date, time, signature, preserved, etc)? YES

15 Did all bottle labels agree with custody papers? YES

16 Were correct containers used for the tests indicated? YES

17 Were correct preservatives added to samples? YES

18 Was a sufficient amount of sample sent for tests indicated? YES

19 Were bubbles absent in VOA samples? If NO, list by sample# _____ NA

20 Was the project manager called and status discussed? If YES, give details on the back of this form NO

21. Who was called? _____ By whom? _____ (date) _____

VDTSR - Validated Date/Time of Sample Receipt (Date sample is logged into LIMS system)

000005

[illegible]

ENVIRONMENTAL TESTING & CONSULTING, INC. 378 133
Memphis, TN
INORGANIC ANALYSIS DATA SHEET
PERCENT SOLIDS

Client Name :OHM Remediation Services
Project Name :DDMT

Date Sample Received :06/29/98
Contract Laboratory Order Number :9806-A10

<u>Contract Lab</u> <u>Sample No</u>	<u>Field</u> <u>ID</u>	<u>Date</u> <u>Sampled</u>	<u>Result</u> <u>Units : (%)</u>	<u>Date</u> <u>Analyzed</u>	<u>Method</u>	<u>By</u>
9806-A10-01	RA-B-006-06"-12"	06/25/98	91	06/29/98	160.3	MC
9806-A10-02	RA-C-007-00"-06"	06/25/98	91	06/29/98	160.3	MC
9806-A10-03	RA-C-008-06"-12"	06/25/98	92	06/29/98	160.3	MC
9806-A10-04	RA-C-009-06"-12"	06/25/98	92	06/29/98	160.3	MC
9806-A10-05	RA-C-010-00"-06"	06/25/98	90	06/29/98	160.3	MC
9806-A10-06	RA-C-011-00"-00"	06/25/98	92	06/29/98	160.3	MC
9806-A10-07	RA-C-012-06"-12"	06/25/98	93	06/29/98	160.3	MC
9806-A10-08	RA-C-013-00"-06"	06/26/98	94	06/29/98	160.3	MC


LABORATORY MANAGER

000007

378 134

ENVIRONMENTAL TESTING & CONSULTING, INC.
 2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services** Project **20560**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092
 Site ID **DDMT**
Memphis, TN

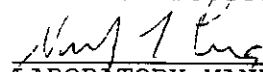
Date Arrived 06/29/98
 ETC Order Number 9806A10

ETC Lab ID 9806A10-01
Sample ID: RA-B-006-06"-12"
QC Batch : V10PSS10

Matrix :SOIL
 Sample Date :06/25/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/30/98	07/01/98	DC	8081A 3550B
QC Batch	V10PSS10	ug/Kg					
Aldrin	ND	ug/Kg	10				
Alpha-BHC	ND	ug/Kg	10				
Beta-BHC	ND	ug/Kg	10				
Delta-BHC	ND	ug/Kg	10				
Gamma-BHC (Lindane)	ND	ug/Kg	10				
alpha-Chlordane	ND	ug/Kg	10				
gamma-Chlordane	ND	ug/Kg	10				
Chlordane (Technical)	ND	ug/Kg	100				
4,4'-DDD	16.2	ug/Kg	10				
4,4'-DDE	76.7	ug/Kg	10				
4,4'-DDT	113	ug/Kg	10				
Dieldrin	318	ug/Kg	10				
Endosulfan I	ND	ug/Kg	10				
Endosulfan II	ND	ug/Kg	10				
Endosulfan Sulfate	ND	ug/Kg	10				
Endrin	ND	ug/Kg	10				
Endrin Aldehyde	ND	ug/Kg	10				
Endrin Ketone	ND	ug/Kg	10				
Heptachlor	ND	ug/Kg	10				
Heptachlor Epoxide	ND	ug/Kg	10				
Methoxychlor	ND	ug/Kg	10				
Toxaphene	ND	ug/Kg	800				
Surrogate Standard	% Recovery		QC Limits				
S1 - Tetrachloro-m-xylene	72		39	130			
S2 - Decachlorobiphenyl	72		64	154			

ND - Not Detected


 LABORATORY MANAGER

000008

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 135

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

OHM Project **20560**

Site ID **DDMT**
Memphis, TN

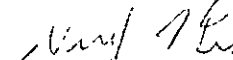
Date Arrived **06/29/98**
ETC Order Number **9806A10**

ETC Lab ID **9806A10-02**
Sample ID: RA-C-007-00"-06"
QC Batch : V10PSS10

Matrix : **SOIL**
Sample Date : **06/25/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/30/98	07/13/98	DC	8081A 3550B
Aldrin	ND	ug/Kg	10				
Alpha-BHC	ND	ug/Kg	10				
Beta-BHC	ND	ug/Kg	10				
Delta-BHC	ND	ug/Kg	10				
Gamma-BHC (Lindane)	ND	ug/Kg	10				
alpha-Chlordane	ND	ug/Kg	10				
gamma-Chlordane	ND	ug/Kg	10				
Chlordane (Technical)	ND	ug/Kg	100				
4,4'-DDD	67.7	ug/Kg	10				
4,4'-DDE	1,050	ug/Kg	10				
4,4'-DDT	1,030	ug/Kg	10				
Dieldrin	1,940	ug/Kg	10				
Endosulfan I	ND	ug/Kg	10				
Endosulfan II	ND	ug/Kg	10				
Endosulfan Sulfate	ND	ug/Kg	10				
Endrin	ND	ug/Kg	10				
Endrin Aldehyde	ND	ug/Kg	10				
Endrin Ketone	ND	ug/Kg	10				
Heptachlor	ND	ug/Kg	10				
Heptachlor Epoxide	ND	ug/Kg	10				
Methoxychlor	ND	ug/Kg	10				
Toxaphene	ND	ug/Kg	800				
Surrogate Standard		% Recovery	QC Limits				
S1 - Tetrachloro-m-xylene	71		39	130			
S2 - Decachlorobiphenyl	74		64	154			

ND - Not Detected


LABORATORY MANAGER

000009

378 136

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name OHM Remediation Services
 Defense Depot - Memphis, TN
 5335 Triangle Parkway
 Suite 450
 Norcross, GA 30092
 Site ID DDMT
 Memphis, TN

OHM Project 20560

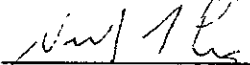
Date Arrived 06/29/98
 ETC Order Number 9806A10

ETC Lab ID 9806A10-03
Sample ID: RA-C-008-06"-12"
QC Batch : V10PSS10

Matrix :SOIL
 Sample Date :06/25/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/30/98	07/13/98	DC	8081A 3550B
Aldrin	ND	ug/Kg	10				
Alpha-BHC	ND	ug/Kg	10				
Beta-BHC	ND	ug/Kg	10				
Delta-BHC	ND	ug/Kg	10				
Gamma-BHC (Lindane)	ND	ug/Kg	10				
alpha-Chlordane	ND	ug/Kg	10				
gamma-Chlordane	ND	ug/Kg	10				
Chlordane (Technical)	ND	ug/Kg	100				
4,4'-DDD	129	ug/Kg	10				
4,4'-DDE	1,020	ug/Kg	10				
4,4'-DDT	756	ug/Kg	10				
Dieldrin	1,990	ug/Kg	10				
Endosulfan I	ND	ug/Kg	10				
Endosulfan II	ND	ug/Kg	10				
Endosulfan Sulfate	ND	ug/Kg	10				
Endrin	ND	ug/Kg	10				
Endrin Aldehyde	ND	ug/Kg	10				
Endrin Ketone	ND	ug/Kg	10				
Heptachlor	ND	ug/Kg	10				
Heptachlor Epoxide	ND	ug/Kg	10				
Methoxychlor	ND	ug/Kg	10				
Toxaphene	ND	ug/Kg	800				
Surrogate Standard	% Recovery		QC Limits				
S1 - Tetrachloro-m-xylene	67		39	130			
S2 - Decachlorobiphenyl	67		64	154			

ND - Not Detected


 LABORATORY MANAGER

000010

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 137

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

OHM Project **20560**

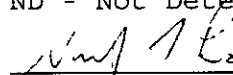
Date Arrived **06/29/98**
ETC Order Number **9806A10**

ETC Lab ID **9806A10-04**
Sample ID: RA-C-009-06"-12"
QC Batch : V10PSS10

Matrix : **SOIL**
Sample Date : **06/25/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/30/98	07/14/98	DC	8081A 3550B
Aldrin	ND	ug/Kg	1.00				
Alpha-BHC	ND	ug/Kg	1.00				
Beta-BHC	ND	ug/Kg	1.00				
Delta-BHC	ND	ug/Kg	1.00				
Gamma-BHC (Lindane)	ND	ug/Kg	1.00				
alpha-Chlordane	ND	ug/Kg	1.00				
gamma-Chlordane	ND	ug/Kg	1.00				
Chlordane (Technical)	ND	ug/Kg	10				
4,4'-DDD	ND	ug/Kg	1.00				
4,4'-DDE	11.6	ug/Kg	1.00				
4,4'-DDT	11.8	ug/Kg	1.00				
Dieldrin	9.14	ug/Kg	1.00				
Endosulfan I	ND	ug/Kg	1.00				
Endosulfan II	ND	ug/Kg	1.00				
Endosulfan Sulfate	ND	ug/Kg	1.00				
Endrin	ND	ug/Kg	1.00				
Endrin Aldehyde	ND	ug/Kg	1.00				
Endrin Ketone	ND	ug/Kg	1.00				
Heptachlor	ND	ug/Kg	1.00				
Heptachlor Epoxide	ND	ug/Kg	1.00				
Methoxychlor	ND	ug/Kg	1.00				
Toxaphene	ND	ug/Kg	80				
Surrogate Standard				% Recovery		QC Limits	
S1 - Tetrachloro-m-xylene	71			39		130	
S2 - Decachlorobiphenyl	63 Q			64		154	

ND - Not Detected


LABORATORY MANAGER

000011

378 138 **ENVIRONMENTAL TESTING & CONSULTING, INC.**
 2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services** OHM Project **20560**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092
 Site ID **DDMT**
Memphis, TN

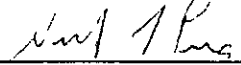
Date Arrived 06/29/98
 ETC Order Number 9806A10

ETC Lab ID 9806A10-05
Sample ID: RA-C-010-00"-06"
QC Batch : V10PSS10

Matrix :SOIL
 Sample Date :06/25/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/30/98	07/12/98	DC	8081A 3550B
Aldrin	ND	ug/Kg	10				
Alpha-BHC	ND	ug/Kg	10				
Beta-BHC	ND	ug/Kg	10				
Delta-BHC	ND	ug/Kg	10				
Gamma-BHC (Lindane)	ND	ug/Kg	10				
alpha-Chlordane	ND	ug/Kg	10				
gamma-Chlordane	ND	ug/Kg	10				
Chlordane (Technical)	ND	ug/Kg	100				
4,4'-DDD	7.84	ug/Kg	10				
4,4'-DDE	60.9	ug/Kg	10				
4,4'-DDT	71.2	ug/Kg	10				
Dieldrin	233	ug/Kg	10				
Endosulfan I	ND	ug/Kg	10				
Endosulfan II	ND	ug/Kg	10				
Endosulfan Sulfate	ND	ug/Kg	10				
Endrin	ND	ug/Kg	10				
Endrin Aldehyde	ND	ug/Kg	10				
Endrin Ketone	ND	ug/Kg	10				
Heptachlor	ND	ug/Kg	10				
Heptachlor Epoxide	ND	ug/Kg	10				
Methoxychlor	ND	ug/Kg	10				
Toxaphene	ND	ug/Kg	800				
Surrogate Standard				% Recovery			
S1 - Tetrachloro-m-xylene	71			39	130		
S2 - Decachlorobiphenyl	75			64	154		

ND - Not Detected


 LABORATORY MANAGER

000012

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 139

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

OHM Project 20560

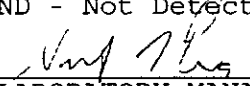
Date Arrived 06/29/98
ETC Order Number 9806A10

ETC Lab ID 9806A10-06
Sample ID: RA-C-011-00"-00"
QC Batch : V10PSS10

Matrix :SOIL
Sample Date :06/25/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/30/98	07/13/98	DC	8081A 3550B
Aldrin	ND	ug/Kg	10				
Alpha-BHC	ND	ug/Kg	10				
Beta-BHC	ND	ug/Kg	10				
Delta-BHC	ND	ug/Kg	10				
Gamma-BHC (Lindane)	ND	ug/Kg	10				
alpha-Chlordane	ND	ug/Kg	10				
gamma-Chlordane	ND	ug/Kg	10				
Chlordane (Technical)	ND	ug/Kg	100				
4,4'-DDD	7 42J	ug/Kg	10				
4,4'-DDE	60.6	ug/Kg	10				
4,4'-DDT	105	ug/Kg	10				
Dieldrin	202	ug/Kg	10				
Endosulfan I	ND	ug/Kg	10				
Endosulfan II	ND	ug/Kg	10				
Endosulfan Sulfate	ND	ug/Kg	10				
Endrin	ND	ug/Kg	10				
Endrin Aldehyde	ND	ug/Kg	10				
Endrin Ketone	ND	ug/Kg	10				
Heptachlor	ND	ug/Kg	10				
Heptachlor Epoxide	ND	ug/Kg	10				
Methoxychlor	ND	ug/Kg	10				
Toxaphene	ND	ug/Kg	800				
Surrogate Standard	% Recovery		QC Limits				
S1 - Tetrachloro-m-xylene	65		39 130				
S2 - Decachlorobiphenyl	64		64 154				

ND - Not Detected


LABORATORY MANAGER

000013

378 140

ENVIRONMENTAL TESTING & CONSULTING, INC.
 2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services** OHM Project **20560**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092
 Site ID **DDMT**
Memphis, TN

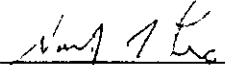
Date Arrived 06/29/98
 ETC Order Number 9806A10

ETC Lab ID 9806A10-07
Sample ID: RA-C-012-06"-12"
QC Batch : V10PSS10

Matrix :SOIL
 Sample Date :06/25/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/30/98	07/14/98	DC	8081A 3550B
Aldrin	ND	ug/Kg	1.00				
Alpha-BHC	ND	ug/Kg	1.00				
Beta-BHC	ND	ug/Kg	1.00				
Delta-BHC	ND	ug/Kg	1.00				
Gamma-BHC (Lindane)	ND	ug/Kg	1.00				
alpha-Chlordane	ND	ug/Kg	1.00				
gamma-Chlordane	ND	ug/Kg	1.00				
Chlordane (Technical)	ND	ug/Kg	10				
4,4'-DDD	3.49	ug/Kg	1.00				
4,4'-DDE	6.91	ug/Kg	1.00				
4,4'-DDT	11.8	ug/Kg	1.00				
Dieldrin	17.3	ug/Kg	1.00				
Endosulfan I	ND	ug/Kg	1.00				
Endosulfan II	ND	ug/Kg	1.00				
Endosulfan Sulfate	ND	ug/Kg	1.00				
Endrin	ND	ug/Kg	1.00				
Endrin Aldehyde	ND	ug/Kg	1.00				
Endrin Ketone	ND	ug/Kg	1.00				
Heptachlor	ND	ug/Kg	1.00				
Heptachlor Epoxide	ND	ug/Kg	1.00				
Methoxychlor	ND	ug/Kg	1.00				
Toxaphene	ND	ug/Kg	80				
Surrogate Standard				% Recovery			
S1 - Tetrachloro-m-xylene	73		39	130			
S2 - Decachlorobiphenyl	71		64	154			

ND - Not Detected


 LABORATORY MANAGER

000014

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 141

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

OHM Project 20560

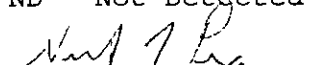
Date Arrived 06/29/98
ETC Order Number 9806A10

ETC Lab ID 9806A10-08
Sample ID: RA-C-013-00"-06"
QC Batch : V10PSS10

Matrix :SOIL
Sample Date :06/26/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/30/98	07/12/98	DC	8081A 3550B
Aldrin	ND	ug/Kg	1.00				
Alpha-BHC	ND	ug/Kg	1.00				
Beta-BHC	ND	ug/Kg	1.00				
Delta-BHC	ND	ug/Kg	1.00				
Gamma-BHC (Lindane)	ND	ug/Kg	1.00				
alpha-Chlordane	ND	ug/Kg	1.00				
gamma-Chlordane	ND	ug/Kg	1.00				
Chlordane (Technical)	ND	ug/Kg	10				
4,4'-DDD	ND	ug/Kg	1.00				
4,4'-DDE	ND	ug/Kg	1.00				
4,4'-DDT	ND	ug/Kg	1.00				
Dieldrin	49.1	ug/Kg	1.00				
Endosulfan I	ND	ug/Kg	1.00				
Endosulfan II	ND	ug/Kg	1.00				
Endosulfan Sulfate	ND	ug/Kg	1.00				
Endrin	ND	ug/Kg	1.00				
Endrin Aldehyde	ND	ug/Kg	1.00				
Endrin Ketone	ND	ug/Kg	1.00				
Heptachlor	ND	ug/Kg	1.00				
Heptachlor Epoxide	ND	ug/Kg	1.00				
Methoxychlor	ND	ug/Kg	1.00				
Toxaphene	ND	ug/Kg	80				
Surrogate Standard			% Recovery	QC Limits			
S1 - Tetrachloro-m-xylene	60			39	130		
S2 - Decachlorobiphenyl	69			64	154		

ND - Not Detected


LABORATORY MANAGER

000015

378 142

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

OHM Project 20560

Site ID DDMT
 Memphis, TN

Date Arrived 06/29/98
 ETC Order Number 9806A10

ETC Lab ID 9806A10-09

Sample ID: RA-B-014-RB02**QC Batch : V13PSA14**

Matrix :AQUEOUS

Sample Date :06/26/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/30/98	07/01/98	DC	8081A 3510C
Aldrin	ND	ug/L	0.04				
Alpha-BHC	ND	ug/L	0.04				
Beta-BHC	ND	ug/L	0.04				
Delta-BHC	ND	ug/L	0.04				
Gamma-BHC (Lindane)	ND	ug/L	0.04				
alpha-Chlordane	ND	ug/L	0.04				
gamma-Chlordane	ND	ug/L	0.04				
Chlordane (Technical)	ND	ug/L	0.50				
4,4'-DDD	ND	ug/L	0.04				
4,4'-DDE	ND	ug/L	0.04				
4,4'-DDT	ND	ug/L	0.04				
Dieldrin	ND	ug/L	0.04				
Endosulfan I	ND	ug/L	0.04				
Endosulfan II	ND	ug/L	0.04				
Endosulfan Sulfate	ND	ug/L	0.04				
Endrin	ND	ug/L	0.04				
Endrin Aldehyde	ND	ug/L	0.04				
Endrin Ketone	ND	ug/L	0.04				
Heptachlor	ND	ug/L	0.04				
Heptachlor Epoxide	ND	ug/L	0.04				
Methoxychlor	ND	ug/L	0.04				
Toxaphene	ND	ug/L	2.50				
Surrogate Standard	% Recovery		QC Limits				
S1 - Tetrachloro-m-xylene	86		31 96				
S2 - Decachlorobiphenyl	58		34 115				

ND - Not Detected

[Signature]
 LABORATORY MANAGER

000016

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC Pesticides

ETC Order 9806-A10

000017

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot
ETC Order # : 9806-A10
Method (SW-846) : 8081A/3550B

HOLDING TIMES

Sample Extraction : All soil samples extracted within 14 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
V10PSS10 0630-1BLK

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.*
*

Surrogate recovery for Decachlorobiphenyl was flagged as outside QC Limits in sample 9806-A10-04 (RA-C-009-06"-12"). Review of the raw data showed interference from Target Analytes present in the sample. Surrogate recovery for Tetrachloro-m-xylene was within QC Limits in sample 9806-A10-04.

Laboratory Control Sample FORM 3
0630-1LCS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9806-A10-08 RPD : All analytes within QC limits.*
RA-C-013-00"-06" Spike Recovery : All analytes within QC limits.*
*
RPDs for multiple analytes were flagged as outside QC Limits.

Recoveries for Dieldrin were flagged outside QC Limits in the Matrix Spike and Matrix Spike Duplicate.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
0630-1BLK

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration	: All criteria met. FORM 6
Daily Calibration	: All criteria met. FORM 7A
Endrin/Breakdown	: All criteria met. FORM 7

000018

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

378 145

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot
ETC Order # : 9806-A10
Method (SW-846) : 8081A/3550B

CALIBRATION

Initial Calibrations were performed using the linear regression option (first order) and are evaluated per section 7.5 of Method 8000B (SW-846 Revision 2) :

The correlation coefficient (r) must be 0.99 or greater for each analyte.

Calibration Verification Standards (CVS) were analyzed at approximately every 10th sample analyzed within the sequence and were evaluated per section 7.7 of Method 8000B (SW-846 Revision 2) :

1. The response for each analyte must be within 15% of expected.
- or
2. The average response for all calibrated analytes is within 15%.

Samples for this order were analyzed under three(3) analytical sequences :

Sequence S106301A (Primary Analysis)

A five(5)-point initial calibration was performed for this sequence.

Calibration Verification (S106301A-20R and S106301A-21R)
- All analytes <15% difference.
- Average of %Difference for all analytes was within 15%.

Calibration Verification (S106301A-34R and S106301A-35R)
- 4'4-DDT %Difference >15%.
- Methoxychlor %Difference >15%.
- Average of %difference for all analytes was within 15%.

4'4-DDT was reported for several samples associated with these calibration verifications (CV). The MS/MSD analyzed for this order was also associated with these CVs. Recoveries for DDT were 84% and 72% respectively indicating a slightly low bias. Recoveries for Methoxychlor were 91% and 90% respectively indicated little or no bias.

Calibration Verification (S106301A-47R)
- Delta-BHC %Difference >15%. High response.
- 4'4-DDD %Difference >15%. High response.
- 4'4-DDT %Difference >15%. Low response.
- Methoxychlor %Difference >15%. Low response.
- Average of %difference for all analytes was within 15%.

000019

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot

ETC Order # : 9806-A10
Method (SW-846) : 8081A/3550B

Sequence S406301A (Primary Analysis)

A five(5)-point initial calibration was performed for this sequence.

Calibration Verification (S406301A-36R)

- Alpha-BHC %Difference >15% High response.
- Delta-BHC %Difference >15% High response.
- 4'4-DDT %Difference >15%. Low response.
- Endrin Aldehyde %Difference >15%. High response.
- Methoxychlor %Difference >15%. Low response.
- Tetrachloro-m-xylene %Difference >15%. High response.
- Average of %difference for all analytes was within 15%.

Calibration Verification (S406301A-37R)

- %Difference for the majority of analytes were >15%. High response.
- Average of %difference for all analytes was >15%.

Due to the high response for this CV, samples analyzed after this standard were reviewed for potential bias. Sample 9806-A10-09(RA-B-014-RB02) was the only sample associated with this order. The high response found in this CV indicated that Detection Limits were not affected. No Target Analytes were identified in this sample. Note that this sample was re-analyzed on sequence S207131A. No Target Analytes were identified in either analysis.

Calibration Verification (S406301A-48R)

- Alpha-BHC %Difference >15% High response.
- Delta-BHC %Difference >15% High response.
- 4'4-DDD %Difference >15%. High response.
- 4'4-DDT %Difference >15%. Low response.
- Endrin Aldehyde %Difference >15%. High response.
- Methoxychlor %Difference >15%. Low response.
- Average of %difference for all analytes was within 15%.

Sequence S107112A (Primary Analysis)

A five(5)-point initial calibration was performed for this sequence.

Calibration Verification (S107112A-21R)

- Delta-BHC %Difference >15% High response.
- Endosulfan II %Difference >15%. High response.
- Endrin Aldehyde %Difference >15%. High response.
- Endosulfan Sulfate %Difference >15%. High response.
- Methoxychlor %Difference >15%. High response.
- Endrin Ketone %Difference >15%. High response.
- Average of %difference for all analytes was within 15%.

Calibration Verification (S107112A-22R)

- All analytes <15% difference.
- Average of %difference for all analytes was within 15%.

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

378 147

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot

ETC Order # : 9806-A10
Method (SW-846) : 8081A/3550B

Calibration Verification (S107112A-36R and S107112A-37R)

- Alpha-BHC %Difference >15% High response.
- Delta-BHC %Difference >15% High response.
- 4,4'-DDD %Difference >15% High response.
- Endosulfan II %Difference >15%. High response.
- Endrin Aldehyde %Difference >15%. High response.
- Endosulfan Sulfate %Difference >15%. High response.
- Endrin Ketone %Difference >15%. High response.
- Average of %difference for all analytes was > 15% for S107112A-36R
- Average of %difference for all analytes was < 15% for S107112A-37R

Sequence S107132A (Primary Analysis)

A five(5)-point initial calibration was performed for this sequence.

Calibration Verification (S107132A-22R and S107132A-23R)

- All analytes <15% difference.
- Average of %Difference for all analytes was within 15%.

Sequence S207131A (Primary Analysis)

A five(5)-point initial calibration was performed for this sequence.

Calibration Verification (S107131A-23R)

- Delta-BHC %Difference >15% High response.
- 4'4'-DDT %Difference >15%. High response.
- Endosulfan Sulfate %Difference >15%. High response.
- Methoxychlor %Difference >15%. High response.
- Endrin Ketone %Difference >15%. High response.
- Average of %difference for all analytes was within 15%.

Calibration Verification (S107131A-24R)

- Endrin %Difference at 15%
- 4'4'-DDT %Difference >15%. High response.
- Average of %difference for all analytes was within 15%.

Calibration Verification (S107131A-25R)

- 4'4'-DDT %Difference >15%. High response.
- Endosulfan Sulfate %Difference >15%. High response.
- Methoxychlor %Difference >15%. High response.
- Average of %difference for all analytes was within 15%.

Calibration Verification (S107131A-26R)

- 4'4'-DDT %Difference >15%. High response.
- Endosulfan Sulfate %Difference >15%. High response.
- Methoxychlor %Difference >15%. High response.
- Average of %difference for all analytes was within 15%.

000021

378 148

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

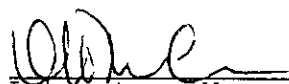
Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot
ETC Order # : 9806-A10
Method (SW-846) : 8081A/3550B

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.*
*

<u>Sample ID</u>	<u>Dilutions Applied</u>	<u>Reason for Dilution</u>
9806-A10-01	1:10	B
9806-A10-02	1:10,1:1000	B
9806-A10-03	1:10,1:100	B
9806-A10-05	1:10,1:100	B
9806-A10-06	1:10,1:100	B
9806-A10-08	1:10	B

A - Levels of Non-Target Analyte interfering compounds.
B - Bring Target Analytes within calibration range.


Laboratory Manager

000022

FORM 4
PESTICIDE METHOD BLANK SUMMARY

378 149
EPA GC SAMPLE NO.

0630-1BLK

Lab Name: ETC, INC.

Lab Prep Batch: V10PSS10

Lab File ID: S106301A-10R

Matrix: (soil/water) SOIL

Level:(low/med) LOW

SDG No.: 9806-A10

Instrument ID: PEST1A

Date Analyzed: 06/30/98

Time Analyzed: 2150

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	0630-1LCS		S106301A-14R	07/01/98
02	9806-A10-1		S106301A-28R	07/01/98
03	9806-A10-2		S106301A-29R	07/01/98
04	9806-A10-3		S106301A-30R	07/01/98
05	9806-A10-4		S106301A-31R	07/01/98
06	9806-A10-5		S106301A-36R	07/01/98
07	9806-A10-6		S106301A-37R	07/01/98
08	9806-A10-7		S106301A-38R	07/01/98
09	9806-A10-8		S106301A-39R	07/01/98
10	9806-A10-8MS		S106301A-40R	07/01/98
11	9806-A10-8MS		S106301A-41R	07/01/98
12				
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COMMENTS:

378 150

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

0630-1BLK

SDG No.: 9806-A10

Matrix: (soil/water) SOIL

Lab Prep Batch: V10PSS10

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: S106301A-10R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 06/30/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6-----	alpha-BHC	1.33333	U
58-89-9-----	gamma-BHC (Lindane)	1.33333	U
319-85-7-----	beta-BHC	1.33333	U
76-44-8-----	Heptachlor	1.33333	U
319-86-8-----	delta-BHC	1.33333	U
309-00-2-----	Aldrin	1.33333	U
1024-57-3-----	Heptachlor epoxide	1.33333	U
5103-74-2-----	gamma-chlordane	1.33333	U
959-98-8/5103-71	Endosulfan I/alpha-chlordane	1.33333	U
72-55-9-----	4,4'-DDE	1.33333	U
60-57-1-----	Dieldrin	1.33333	U
72-20-8-----	Endrin	1.33333	U
72-54-8-----	4,4'-DDD	1.33333	U
33213-65-9-----	Endosulfan II	1.33333	U
50-29-3-----	4,4'-DDT	1.33333	U
7421-93-4-----	Endrin aldehyde	1.33333	U
1031-07-8-----	Endosulfan sulfate	1.33333	U
72-43-5-----	Methoxychlor	1.33333	U
53494-70-5-----	Endrin Ketone	1.33333	U

FORM I PESTICIDE

000024

FORM 3
SOIL PESTICIDE LABORATORY CONTROL SAMPLE

378 151

Lab Name: ETC, INC.

Lab Prep Batch: V10PSS10

SDG No.: 9806-A10

Matrix Spike - Sample No.: 0630-11cs

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
alpha-BHC	33.33333		31.44199	94	22-112
gamma-BHC (Lindane)	33.33333		33.29177	100	26-113
beta-BHC	33.33333		32.28713	97	54-120
Heptachlor	33.33333		33.37881	100	47-113
delta-BHC	33.33333		26.25113	79	10- 96
Aldrin	33.33333		32.45784	97	31-111
Heptachlor epoxide	33.33333		32.40206	97	47-112
gamma-chlordane	33.33333		32.17900	96	50-106
Endosulfan I/alpha-chlo	66.66666		65.25093	98	49-103
4,4'-DDE	33.33333		31.57948	95	36-117
Dieldrin	33.33333		32.21965	97	44-108
Endrin	33.33333		33.93357	102	44-118
4,4'-DDD	33.33333		33.18911	100	47-112
Endosulfan II	33.33333		32.28718	97	53-115
4,4'-DDT	33.33333		31.41288	94	49-124
Endrin aldehyde	33.33333		33.97124	102	48-128
Endosulfan sulfate	33.33333		31.69534	95	51-110
Methoxychlor	33.33333		46.04392	138	39-147
Endrin Ketone	33.33333		36.51045	110	38-130

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 19 outside limits

COMMENTS:

378 152

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: V10PSS10

SDG No.: 9806-A10

Matrix Spike - Sample No.: 9806-A10-8

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
alpha-BHC	32.67973	0.00000	27.34091	84	22-112
gamma-BHC (Lindane)	32.67973	0.00000	29.52340	90	26-113
beta-BHC	32.67973	0.00000	29.60459	90	54-120
Heptachlor	32.67973	0.00000	27.14606	83	47-113
delta-BHC	32.67973	0.00000	24.71706	76	10- 96
Aldrin	32.67973	0.00000	28.34150	87	31-111
Heptachlor epoxide	32.67973	0.00000	27.48602	84	47-112
gamma-chlordane	32.67973	0.00000	26.34739	81	50-106
Endosulfan I/alpha-chlo	65.35947	0.00000	52.94985	81	49-103
4,4'-DDE	32.67973	2.31022	27.23290	76	36-117
Dieldrin	32.67973	47.73624	85.31400	115*	44-108
Endrin	32.67973	0.00000	28.57889	87	44-118
4,4'-DDD	32.67973	0.00000	32.65641	100	47-112
Endosulfan II	32.67973	0.00000	32.75259	100	53-115
4,4'-DDT	32.67973	2.48355	23.64686	65	49-124
Endrin aldehyde	32.67973	0.00000	32.06747	98	48-128
Endosulfan sulfate	32.67973	0.00000	29.01019	89	51-110
Methoxychlor	32.67973	0.97084	20.62054	60	39-147
Endrin Ketone	32.67973	0.00000	27.46449	84	38-130

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

COMMENTS:

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

378 153

Lab Name: ETC, INC.

Lab Prep Batch: V10PSS10

SDG No.: 9806-A10

Matrix Spike - Sample No.: 9806-A10-8

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
alpha-BHC	33.11258	31.72463	96	13	20	22-112
gamma-BHC (Lindane)	33.11258	32.58651	98	8	20	26-113
beta-BHC	33.11258	35.02458	106	16	20	54-120
Heptachlor	33.11258	31.66655	96	14	20	47-113
delta-BHC	33.11258	29.96399	90	17	20	10- 96
Aldrin	33.11258	33.68216	102	16	20	31-111
Heptachlor epoxide	33.11258	30.73061	93	10	20	47-112
gamma-chlordane	33.11258	31.20472	94	15	20	50-106
Endosulfan I/alpha-chlo	66.22516	63.17212	95	16	20	49-103
4,4'-DDE	33.11258	33.45075	94	21*	20	36-117
Dieldrin	33.11258	96.06887	146*	24*	20	44-108
Endrin	33.11258	35.56447	107	21*	20	44-118
4,4'-DDD	33.11258	36.85779	111	10	20	47-112
Endosulfan II	33.11258	34.67613	105	5	20	53-115
4,4'-DDT	33.11258	18.58567	49	28*	20	49-124
Endrin aldehyde	33.11258	35.04954	106	8	20	48-128
Endosulfan sulfate	33.11258	31.34072	95	6	20	51-110
Methoxychlor	33.11258	26.02048	76	24*	20	39-147
Endrin Ketone	33.11258	35.96293	109	26*	20	38-130

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 6 out of 19 outside limits

Spike Recovery: 2 out of 38 outside limits

COMMENTS:

378 154

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - AQUEOUS

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot
ETC Order # : 9806-A10
Method (SW-846) : 8081A/3510C

HOLDING TIMES

Sample Extraction : All aqueous samples extracted within 7 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
V13PSA14 0630-3BLK

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
0630-3LCS/LCSD

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
RPD : NA*
Spike Recovery : NA*

*

Due to the limited amount of sample available, no MS/MSD were
extracted.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
0630-3BLK

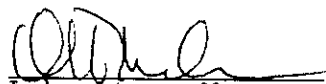
No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration	: All criteria met. FORM 6
Daily Calibration	: All criteria met. FORM 7A
Endrin/Breakdown	: All criteria met. FORM 7

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.


Laboratory Manager

000028

FORM 4
PESTICIDE METHOD BLANK SUMMARY

378 155
EPA GC SAMPLE NO.

0630-3BLK

Lab Name: ETC, INC.

Lab Prep Batch: V13PSA14

Lab File ID: S106301A-09R

Matrix: (soil/water) WATER

Level:(low/med) LOW

SDG No.: 9806-A10

Instrument ID: PEST1A

Date Analyzed: 06/30/98

Time Analyzed: 2110

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	0630-3LCS		S106301A-12R	06/30/98
02	0630-3LCSD		S106301A-13R	06/30/98
03	9806-A10-9		S406301A-40R	07/02/98
04				
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COMMENTS:

378-156

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

0630-3BLK

Lab Name: ETC, INC.

SDG No.: 9806-A10

Matrix: (soil/water) WATER

Lab Prep Batch: V13PSA14

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: S106301A-09R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 06/30/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.04000	U
58-89-9	gamma-BHC (Lindane)	0.04000	U
319-85-7	beta-BHC	0.04000	U
76-44-8	Heptachlor	0.04000	U
319-86-8	delta-BHC	0.04000	U
309-00-2	Aldrin	0.04000	U
1024-57-3	Heptachlor epoxide	0.04000	U
5103-74-2	gamma-chlordane	0.04000	U
959-98-8/5103-71	Endosulfan I/alpha-chlordane	0.04000	U
72-55-9	4,4'-DDE	0.04000	U
60-57-1	Dieldrin	0.04000	U
72-20-8	Endrin	0.04000	U
72-54-8	4,4'-DDD	0.04000	U
33213-65-9	Endosulfan II	0.04000	U
50-29-3	4,4'-DDT	0.04000	U
7421-93-4	Endrin aldehyde	0.04000	U
1031-07-8	Endosulfan sulfate	0.04000	U
72-43-5	Methoxychlor	0.04000	U
53494-70-5	Endrin Ketone	0.04000	U

FORM I PESTICIDE

000030

FORM 3
WATER PESTICIDE LABORATORY CONTROL SAMPLE

378 157

Lab Name: ETC, INC.

Lab Prep Batch: V13PSA14

SDG No.: 9806-A10

Matrix Spike - Sample No.: 0630-31cs

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
alpha-BHC	1.00000		0.82843	83	41-102
gamma-BHC (Lindane)	1.00000		0.89308	89	41-102
beta-BHC	1.00000		0.88903	89	26-151
Heptachlor	1.00000		0.85024	85	43-114
delta-BHC	1.00000		0.70526	70	21- 92
Aldrin	1.00000		0.82616	83	34-105
Heptachlor epoxide	1.00000		0.87476	87	42-115
gamma-chlordane	1.00000		0.86990	87	50-108
Endosulfan I/alpha-chlo	2.00000		1.71628	86	48-117
4,4'-DDE	1.00000		0.82669	83	41-111
Dieldrin	1.00000		0.89331	89	42-111
Endrin	1.00000		0.86108	86	45-117
4,4'-DDD	1.00000		0.86744	87	39-124
Endosulfan II	1.00000		0.95827	96	52-114
4,4'-DDT	1.00000		0.75243	75	39-123
Endrin aldehyde	1.00000		0.94058	94	48-125
Endosulfan sulfate	1.00000		0.88869	89	46-111
Methoxychlor	1.00000		0.95756	96	39-140
Endrin Ketone	1.00000		0.94839	95	51-112

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

378 158

FORM 3
WATER PESTICIDE LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V13PSA14

SDG No.: 9806-A10

Matrix Spike - Sample No.: 0630-3lcs

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
alpha-BHC	1.00000	0.86874	87	5	20	41-102
gamma-BHC (Lindane)	1.00000	0.91936	92	3	20	41-102
beta-BHC	1.00000	0.88308	88	1	20	26-151
Heptachlor	1.00000	0.86028	86	1	20	43-114
delta-BHC	1.00000	0.73444	73	4	20	21- 92
Aldrin	1.00000	0.82072	82	1	20	34-105
Heptachlor epoxide	1.00000	0.86236	86	1	20	42-115
gamma-chlordane	1.00000	0.91835	92	6	20	50-108
Endosulfan I/alpha-chlo	2.00000	1.84558	92	7	20	48-117
4,4'-DDE	1.00000	0.85282	85	2	20	41-111
Dieldrin	1.00000	0.88356	88	1	20	42-111
Endrin	1.00000	0.87145	87	1	20	45-117
4,4'-DDD	1.00000	0.84819	85	2	20	39-124
Endosulfan II	1.00000	0.92585	92	4	20	52-114
4,4'-DDT	1.00000	0.82084	82	9	20	39-123
Endrin aldehyde	1.00000	0.98851	99	5	20	48-125
Endosulfan sulfate	1.00000	0.91548	92	3	20	46-111
Methoxychlor	1.00000	1.02600	103	7	20	39-140
Endrin Ketone	1.00000	0.87859	88	8	20	51-112

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

RPD: 0 out of 19 outside limits
 Spike Recovery: 0 out of 38 outside limits

COMMENTS:

FIELD SCREENING LABORATORY CONFIRMATION SAMPLES*Date Collected 06/25, 26, 27, 28 & 29/98***RA-C-024-00"-06"****RA-C-025-00"-06"****RA-C-026-00"-06"****RA-C-027-00"-06"****RA-A-028-06"-12"****RA-C-029-00"-06" (Duplicate of RA-C-027-00"-06")**



378 160

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334
Founded 1972

July 14, 1998

Ms. Elena Rodriguez
OHM Remediation Services
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

Ref: Analytical Testing
ETC Order # 9807004
Project Description DDMT

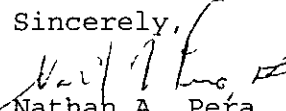
OHM Project # 20560

Defense Depot - Memphis, TN

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th/18th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136.

The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Nathan A. Peña, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT

Chemical Analytical Data
Review/Evaluation/Validation

SOUTHERN REGION

Report Type: ☐ Preliminary ☒ Final Date Received: _____ Project Number: 20560

Project Name: DDMT Analysis/Method: 8081A/Pest

Laboratory: ETC Lab Project/Case Number: 9807004

Sample Number(s): RA-C-024-00-06", C-025-00-06", 026-00-06",
027-00-06", A-028-06-12", C-029-00-00"

Evaluated By: S Paranjape Date Evaluated: 7/28/98

Data Package Deliverables Requirement: ☐ OHM Minimum ☒ OHM Standard ☐ OHM Maximum

☐ Other, please describe _____

Quality Control Deliverables	Required	Received	Passed	Failed
PQL, MDL, RL, etc meets DQOs		☒	☒	
Comment:				
Holding Times			☒	
Comment:				
Sample Condition (preservatives, containers, temperature, etc) / Case Narrative	X	☒	☒	
Comment:				
Surrogate Recoveries	X	☒	☒	
Comment:				
Lab Control Sample Recoveries	X	☒	☒	
Comment:				
Lab Control Sample Duplicate or Other Spike Recoveries	X			
Comment:				
Lab Control Sample Duplicate or Other Laboratory Duplicate RPD	X			
Comment:				
Matrix Spike Recoveries	X	☒	☒	
Comment:				
Matrix Spike Duplicate Recoveries	X	☒	☒	
Comment:				
Matrix Spike / Matrix Spike Duplicate RPD	X	☒	☒	
Comment:				
Laboratory Blanks (daily, method, instrument)	X	☒	☒	
Comment:				
Field Blanks (trip, eqpt rinsate, ambient, matrix)	X			
Comment:				

Quality Control Deliverables	Required	Received	Passed	Failed	
Field Duplicates RPD	X	✓	✓		
Comment:					
Second Source Check					
Comment:					
Second Column Confirmation		N/A	✓	(SP)	
Comment:					
Percent Moisture/Solids		N/A			
Comment:					
Initial / Continuing Calibrations					
Comment:		N/A			
Internal Standard Areas and Retention Times (Organics Only)					
Comment:					
Chromatograms		✓	✓	✓	
Comment:					
Sample Prep Worksheets					
Comment:					
Raw Data Calculations					
Comment:					
Laboratory Duplicates		N/A			
Comment:					
Instrument Performance Checks (Organics Only)					
Comment:					
Tentatively Identified Compounds (TICs)					
Comment:					
Completeness	# Samples	# Analyses	Tot # Analyses	Tot # Accept Analyses	% Complete
Completeness = (Tot # Analyses / Tot # Accepted Analyses) x 100	6	1	6	6	100
General Comments:					

Summary: [] See attached pages

Check Applicable:

- ☐ Lab contacted—Corrective actions in process Date Contacted: _____
☐ Corrective actions received and accepted Date Received/Accepted: _____
☒ The data, as reported by the laboratory, are acceptable.
☐ The data, with qualifiers as described in the "Summary" portion of this report, are acceptable.
☐ The data are unacceptable.
☐ Other _____

S. Pasamunuri
Evaluator's Signature

7/28/98

Date

Environmental Testing & Consulting, Inc.
Data Qualifiers for Organic Reporting

Within the attached report, some analytical data may be reported as "Qualified Data" as indicated by a "Data Qualifier" next to the result. This table summarizes the possible "Data Qualifiers" that may be associated with this report.

Q	Surrogate Recovery Outside QC Limits
J	Estimated Value. Presence of the compound was confirmed but less than the reported detection limit.
E	Concentration exceeds the established method calibration range but is within the working range of the instrument.
B	Analyte detected in the associated Method Blank.
U	Reported result was unconfirmed. Refer to Case Narrative.
N	Non-Compliance Report associated with this sample or project.
C	Result reported from GC/MS confirmation analysis.
*	QC Data (percent recovery/RPD for a particular analyte was outside QC Limits)

378 161

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ANALYTICAL SUMMARY TABLE

Client Name OHM Remediation Services
Site ID DDMT
Memphis, TN

<u>ETC</u> <u>Sample ID</u>	<u>Field ID</u>	<u>Matrix</u>	<u>Method</u>	<u>Method Description</u>
980700401	RA-C-024-00-06"	SOIL	8081A	Organochlorine Pesticides
980700401	RA-C-024-00-06"-LCS	SOIL	8081A	Organochlorine Pest/PCB
980700402	RA-C-025-00-06"	SOIL	8081A	Organochlorine Pesticides
980700403	RA-C-026-00-06"	SOIL	8081A	Organochlorine Pesticides
980700404	RA-C-027-00-06"	SOIL	8081A	Organochlorine Pesticides
980700405	RA-A-028-06-12"	SOIL	8081A	Organochlorine Pesticides
980700406	RA-C-029-00-00"	SOIL	8081A	Organochlorine Pesticides

000002

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody

000003



OHM Remediation Services Corp
Subsidiary of OHM Corporation
U.S. Route 224 East • Findlay, Ohio 45840 • (419) 423-3526

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY
217874

FORM OHM REV 2-97

OHM LAB COORDINATOR		LAB COORDINATOR (PHON)		LAB COORDINATOR FAX		LABORATORY SCHEDULED		LABORATORY CONTACT		MAIL REQUEST COMPANY NAME	
Elena Rodriguez		770-734-8060		770-453-7716		ETC		Nathan Pera		OHM Remediation Services Corp	
PROJECT ADDRESS		PROJECT PHONE NUMBER		PROJECT FAX		LABORATORY PHONE		LABORATORY FAX		RECIPIENT NAME	
PROJECT CONTACT		PROJECT PHONE NUMBER		PROJECT FAX		LABORATORY ADDRESS		LABORATORY ADDRESS		ADDRESS	
PROJECT ADDRESS		CITY STATE AND ZIP CODE		CITY STATE AND ZIP CODE		CITY STATE AND ZIP CODE		CITY STATE AND ZIP CODE		CITY STATE AND ZIP CODE	
PROJECT MANAGER		PROJECT MANAGER'S PHONE		PROJECT MANAGER'S FAX		LABORATORY ADDRESS		LABORATORY ADDRESS		LABORATORY ADDRESS	
Steve Offner		770-326-2571		770-453-7716		Memphis TN 38111		Memphis TN 38111		Norcross, GA 30092	
Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont	QC Level	TAT	Analyses	Comments	
1	RA-A-022-06-12	Soil	6/30/98	0900	40	1x4	OHM Std	3 day	✓	Please fax results on DUE DATE to SITE and to Lab Coordinator	
2	RA-A-023-06-12	Soil	6/29/98	1505	40	1x4	OHM Std	3 day	✓	A-14, 6-12	
3	RA-C-024-00-06	Soil	6/25/98	1630	40	1x4	OHM Std	7 day	✓	C2, 0-6	
4	RA-C-025-00-06	Soil	6/26/98	1300	40	1x4	OHM Std	7 day	✓	C8, 0-6	
5	RA-C-026-00-06	Soil	6/27/98	0935	40	1x4	OHM Std	7 day	✓	C1, 0-6	
6	RA-C-027-00-06	Soil	6/29/98	1505	40	1x4	OHM Std	7 day	✓	C5, 0-6	
7	RA-A-028-06-12	Soil	6/29/98	1655	40	1x4	OHM Std	7 day	✓	A16, 6-12	
8	RA-C-029-00-00	Soil	6/29/98	1655	40	1x4	OHM Std	7 day	✓	~~C5, 0-6~~ Duplicate	
9	RA-A-030-06-05	Water	6/29/98	1400	40	1x4	OHM Std	3 day	✓	Rinsets for 6/29/98	
10											
SAMPLES COLLECTED BY		COURT AND ANALYST NUMBER		DELIVERED PERSONALLY		DATE		TIME		CITY STATE AND ZIP CODE	
RB/SP/SS		1000000000		✓		6/29/98		1710		Memphis TN 38111	
RECEIVED BY		COURT AND ANALYST NUMBER		DATE		TIME		CITY STATE AND ZIP CODE		CITY STATE AND ZIP CODE	
S. Paaypse		1000000000		6/29/98		1710		Memphis TN 38111		Memphis TN 38111	
Distribution White - Laboratory (to be returned with Analytical Report) Goldmed - Project File Yellow - Project Data Manager											

991 82C

Covered 7/1/98

9807-001

COOLER RECEIPT FORM

Cooler Receipt Form
9807003 CRF p 1

LIMS # 9807-003 and 9807-004 Number of Coolers 1
Date Received 06/30/98
VDTSR 07/01/98 08 00
PROJECT DDMT/Memphis, TN

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS

A PRELIMINARY EXAMINATION PHASE Date cooler was opened 06/30/98
by (print) Sally Herrmann (sign) *Sally Herrmann*

1 Did cooler come with a shipping slip (airbill, etc)? NC
If YES, enter carrier name & airbill number _____

2a Were custody seals on outside of cooler? NO

2b Were custody seals on sample containers? NO

3 Were custody seals unbroken and intact at the date and time of arrival? NA

4 Did you screen samples for radioactivity using a Geiger Counter? NO

5 Were custody papers sealed in a plastic bag & taped inside to the lid? NO

6 Were custody papers filled out properly (ink, signed, etc)? YES

7 Did you sign custody papers in the appropriate place? YES

8 Was project identifiable from custody papers? If YES, enter project name at top of this form YES

9 If required, was enough ice used? cooler temp <4°C , Type of ice Bagged YES

10 Have designated person initial here to acknowledge receipt of cooler *SH* date 06/30/98

B LOG-IN PHASE Date samples were logged-in 07/01/98
by (print) Lynette Bugg (sign) *Lynette Bugg*

11 Describe type of packing in cooler Bubble Wrap and Ice

12 Were all bottles sealed in separate plastic bags? YES

13 Did all bottles arrive unbroken and were labels in good condition? YES

14 Were all bottle labels complete (ID, date, time, signature, preserved, etc)? YES

15 Did all bottle labels agree with custody papers? YES

16 Were correct containers used for the tests indicated? YES

17 Were correct preservatives added to samples? YES

18 Was a sufficient amount of sample sent for tests indicated? YES

19 Were bubbles absent in VOA samples? If NO, list by sample# _____ NA

20 Was the project manager called and status discussed? If YES, give details on the back of this form NO

21 Who was called? _____ By whom ? _____ (date) _____

VDTSR - Validated Date/Time of Sample Receipt (Date sample is logged into LIMS system)

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Sample Reports

000006

378 169

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

PERCENT SOLIDS

Client Name :OHM Remediation Services
Project Name :DDMT

Date Sample Received :07/01/98
Contract Laboratory Order Number :9807-004

<u>Contract Lab</u> <u>Sample No</u>	<u>Field</u> <u>ID</u>	<u>Date</u> <u>Sampled</u>	<u>Result</u> <u>Units : (%)</u>	<u>Date</u> <u>Analyzed</u>	<u>Method</u>	<u>By</u>
9807-004-01	RA-C-024-00-06"	06/25/98	93	07/01/98	160.3	MC
9807-004-02	RA-C-025-00-06"	06/26/98	91	07/01/98	160.3	MC
9807-004-03	RA-C-026-00-06"	06/27/98	97	07/01/98	160.3	MC
9807-004-04	RA-C-027-00-06"	06/26/98	91	07/01/98	160.3	MC
9807-004-05	RA-A-028-06-12"	06/29/98	91	07/01/98	160.3	MC
9807-004-06	RA-C-029-00-00"	06/25/98	91	07/01/98	160.3	MC


LABORATORY MANAGER

000007

378 170

ENVIRONMENTAL TESTING & CONSULTING, INC.
 2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

OHM Project **20560**

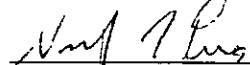
Date Arrived 07/01/98
 ETC Order Number 9807004

ETC Lab ID **9807004-01**
Sample ID: RA-C-024-00-06"
QC Batch : V10PSS12

Matrix :SOIL
 Sample Date :06/25/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				07/01/98	07/08/98	DC	8081A 3550B
Aldrin	ND	ug/Kg	1.00				
Alpha-BHC	ND	ug/Kg	1.00				
Beta-BHC	ND	ug/Kg	1.00				
Delta-BHC	ND	ug/Kg	1.00				
Gamma-BHC (Lindane)	ND	ug/Kg	1.00				
alpha-Chlordane	ND	ug/Kg	1.00				
gamma-Chlordane	ND	ug/Kg	1.00				
Chlordane (Technical)	ND	ug/Kg	10				
4,4'-DDD	ND	ug/Kg	1.00				
4,4'-DDE	ND	ug/Kg	1.00				
4,4'-DDT	4.90	ug/Kg	1.00				
Dieldrin	460	ug/Kg	1.00				
Endosulfan I	ND	ug/Kg	1.00				
Endosulfan II	ND	ug/Kg	1.00				
Endosulfan Sulfate	ND	ug/Kg	1.00				
Endrin	ND	ug/Kg	1.00				
Endrin Aldehyde	ND	ug/Kg	1.00				
Endrin Ketone	ND	ug/Kg	1.00				
Heptachlor	ND	ug/Kg	1.00				
Heptachlor Epoxide	ND	ug/Kg	1.00				
Methoxychlor	ND	ug/Kg	1.00				
Toxaphene	ND	ug/Kg	80				
Surrogate Standard				% Recovery			
S1 - Tetrachloro-m-xylene	56			39	130		
S2 - Decachlorobiphenyl	71			64	154		

ND - Not Detected


 LABORATORY MANAGER

000008

378 171

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services** OHM Project **20560**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092
Site ID **DDMT**
Memphis, TN

Date Arrived 07/01/98
ETC Order Number 9807004

ETC Lab ID 9807004-02
Sample ID: RA-C-025-00-06"
QC Batch : V10PSS12

Matrix :SOIL
Sample Date :06/26/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				07/01/98	07/08/98	DC	8081A 3550B
Aldrin	ND	ug/Kg	10				
Alpha-BHC	ND	ug/Kg	10				
Beta-BHC	ND	ug/Kg	10				
Delta-BHC	ND	ug/Kg	10				
Gamma-BHC (Lindane)	ND	ug/Kg	10				
alpha-Chlordane	ND	ug/Kg	10				
gamma-Chlordane	ND	ug/Kg	10				
Chlordane (Technical)	ND	ug/Kg	100				
4,4'-DDD	69.3	ug/Kg	10				
4,4'-DDE	380	ug/Kg	10				
4,4'-DDT	360	ug/Kg	10				
Dieldrin	496	ug/Kg	10				
Endosulfan I	ND	ug/Kg	10				
Endosulfan II	ND	ug/Kg	10				
Endosulfan Sulfate	ND	ug/Kg	10				
Endrin	ND	ug/Kg	10				
Endrin Aldehyde	ND	ug/Kg	10				
Endrin Ketone	ND	ug/Kg	10				
Heptachlor	ND	ug/Kg	10				
Heptachlor Epoxide	ND	ug/Kg	10				
Methoxychlor	ND	ug/Kg	10				
Toxaphene	ND	ug/Kg	800				
<u>Surrogate Standard</u>				<u>% Recovery</u>		<u>QC Limits</u>	
S1 - Tetrachloro-m-xylene	63			39	130		
S2 - Decachlorobiphenyl	129			64	154		

ND - Not Detected

Vincent King
LABORATORY MANAGER

000009

378 172

ENVIRONMENTAL TESTING & CONSULTING, INC.
 2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services** OHM Project **20560**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092
 Site ID **DDMT**
Memphis, TN

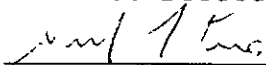
Date Arrived 07/01/98
 ETC Order Number 9807004

ETC Lab ID **9807004-03**
Sample ID: RA-C-026-00-06"
QC Batch : V10PSS12

Matrix :SOIL
 Sample Date :06/27/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				07/01/98	07/08/98	DC	8081A 3550B
Aldrin	ND	ug/Kg	10				
Alpha-BHC	ND	ug/Kg	10				
Beta-BHC	ND	ug/Kg	10				
Delta-BHC	ND	ug/Kg	10				
Gamma-BHC (Lindane)	ND	ug/Kg	10				
alpha-Chlordane	ND	ug/Kg	10				
gamma-Chlordane	ND	ug/Kg	10				
Chlordane (Technical)	ND	ug/Kg	100				
4,4'-DDD	ND	ug/Kg	10				
4,4'-DDE	ND	ug/Kg	10				
4,4'-DDT	2	80J ug/Kg	10				
Dieldrin	52.4	ug/Kg	10				
Endosulfan I	ND	ug/Kg	10				
Endosulfan II	ND	ug/Kg	10				
Endosulfan Sulfate	ND	ug/Kg	10				
Endrin	ND	ug/Kg	10				
Endrin Aldehyde	ND	ug/Kg	10				
Endrin Ketone	ND	ug/Kg	10				
Heptachlor	ND	ug/Kg	10				
Heptachlor Epoxide	ND	ug/Kg	10				
Methoxychlor	ND	ug/Kg	10				
Toxaphene	ND	ug/Kg	800				
Surrogate Standard				% Recovery			
S1 - Tetrachloro-m-xylene	65		39	130			
S2 - Decachlorobiphenyl	70		64	154			

ND - Not Detected


 LABORATORY MANAGER

000010

ENVIRONMENTAL TESTING & CONSULTING, INC.
 2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

OHM Project **20560**

Date Arrived **07/01/98**
 ETC Order Number **9807004**

ETC Lab ID **9807004-04**
Sample ID: RA-C-027-00-06"
QC Batch : V10PSS12

Matrix : **SOIL**
 Sample Date : **06/26/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				07/01/98	07/08/98	DC	8081A 3550B
Aldrin	ND	ug/Kg	10				
Alpha-BHC	ND	ug/Kg	10				
Beta-BHC	ND	ug/Kg	10				
Delta-BHC	ND	ug/Kg	10				
Gamma-BHC (Lindane)	ND	ug/Kg	10				
alpha-Chlordane	ND	ug/Kg	10				
gamma-Chlordane	ND	ug/Kg	10				
Chlordane (Technical)	ND	ug/Kg	100				
4,4'-DDD	33.0	ug/Kg	10				
4,4'-DDE	130	ug/Kg	10				
4,4'-DDT	100	ug/Kg	10				
Dieldrin	173	ug/Kg	10				
Endosulfan I	ND	ug/Kg	10				
Endosulfan II	ND	ug/Kg	10				
Endosulfan Sulfate	ND	ug/Kg	10				
Endrin	ND	ug/Kg	10				
Endrin Aldehyde	ND	ug/Kg	10				
Endrin Ketone	ND	ug/Kg	10				
Heptachlor	ND	ug/Kg	10				
Heptachlor Epoxide	ND	ug/Kg	10				
Methoxychlor	ND	ug/Kg	10				
Toxaphene	ND	ug/Kg	800				
Surrogate Standard	% Recovery		QC Limits				
S1 - Tetrachloro-m-xylene	67		39 130				
S2 - Decachlorobiphenyl	87		64 154				

ND - Not Detected


 LABORATORY MANAGER

000011

378 174

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

OHM Project **20560**

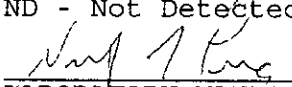
Date Arrived **07/01/98**
 ETC Order Number **9807004**

ETC Lab ID **9807004-05**
Sample ID: RA-A-028-06-12"
QC Batch : V10PSS12

Matrix : **SOIL**
 Sample Date : **06/29/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				07/01/98	07/08/98	DC	8081A 3550B
Aldrin	ND	ug/Kg	10				
Alpha-BHC	ND	ug/Kg	10				
Beta-BHC	ND	ug/Kg	10				
Delta-BHC	ND	ug/Kg	10				
Gamma-BHC (Lindane)	ND	ug/Kg	10				
alpha-Chlordane	ND	ug/Kg	10				
gamma-Chlordane	ND	ug/Kg	10				
Chlordane (Technical)	ND	ug/Kg	100				
4,4'-DDD	6.43	ug/Kg	10				
4,4'-DDE	14.9	ug/Kg	10				
4,4'-DDT	9.65	ug/Kg	10				
Dieldrin	91.2	ug/Kg	10				
Endosulfan I	ND	ug/Kg	10				
Endosulfan II	ND	ug/Kg	10				
Endosulfan Sulfate	ND	ug/Kg	10				
Endrin	ND	ug/Kg	10				
Endrin Aldehyde	ND	ug/Kg	10				
Endrin Ketone	ND	ug/Kg	10				
Heptachlor	ND	ug/Kg	10				
Heptachlor Epoxide	ND	ug/Kg	10				
Methoxychlor	ND	ug/Kg	10				
Toxaphene	ND	ug/Kg	800				
Surrogate Standard				% Recovery			
S1 - Tetrachloro-m-xylene	59		39	130			
S2 - Decachlorobiphenyl	65		64	154			

ND - Not Detected


 LABORATORY MANAGER

000012

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

378 175

Client Name **OHM Remediation Services** OHM Project **20560**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092
Site ID **DDMT**
Memphis, TN

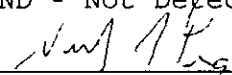
Date Arrived **07/01/98**
ETC Order Number **9807004**

ETC Lab ID **9807004-06**
Sample ID: RA-C-029-00-00"
QC Batch : V10PSS12

Matrix : **SOIL**
Sample Date : **06/25/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				07/01/98	07/08/98	DC	8081A 3550B
Aldrin	ND	ug/Kg	10				
Alpha-BHC	ND	ug/Kg	10				
Beta-BHC	ND	ug/Kg	10				
Delta-BHC	ND	ug/Kg	10				
Gamma-BHC (Lindane)	ND	ug/Kg	10				
alpha-Chlordane	ND	ug/Kg	10				
gamma-Chlordane	ND	ug/Kg	10				
Chlordane (Technical)	ND	ug/Kg	100				
4,4'-DDD	37.5	ug/Kg	10				
4,4'-DDE	170	ug/Kg	10				
4,4'-DDT	201	ug/Kg	10				
Dieldrin	261	ug/Kg	10				
Endosulfan I	ND	ug/Kg	10				
Endosulfan II	ND	ug/Kg	10				
Endosulfan Sulfate	ND	ug/Kg	10				
Endrin	ND	ug/Kg	10				
Endrin Aldehyde	ND	ug/Kg	10				
Endrin Ketone	ND	ug/Kg	10				
Heptachlor	ND	ug/Kg	10				
Heptachlor Epoxide	ND	ug/Kg	10				
Methoxychlor	ND	ug/Kg	10				
Toxaphene	ND	ug/Kg	800				
<u>Surrogate Standard</u>				<u>% Recovery</u>		<u>QC Limits</u>	
S1 - Tetrachloro-m-xylene	66			39	130		
S2 - Decachlorobiphenyl	84			64	154		

ND - Not Detected


LABORATORY MANAGER

000013

378 176

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC Pesticides

000014

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

378 177

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot
ETC Order # : 9807-004
Method (SW-846) : 8081A/3550B

HOLDING TIMES

Sample Extraction : All soil samples extracted within 14 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
V10PSS12 0701-1BLK

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
0701-1LCS

All criteria met.*

*
Endosulfan, alpha-Chlordane, and Endrin Aldehyde were flagged for high recovery in 0701-1LCS. High recovery indicates that detection levels were not affected. The data was not affected.

Matrix Spike / Matrix Spike Dup FORM 3

9807-003-02 RPD : All analytes within QC limits.*
RA-A-023-06-12" Spike Recovery : All analytes within QC limits.*

*
RPD for Methoxychlor was flagged as outside QC Limits.

Recoveries for multiple analytes were flagged outside QC Limits in the Matrix Spike and Matrix Spike Duplicate.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
0701-1BLK

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration	: All criteria met. FORM 6
Daily Calibration	: All criteria met. FORM 7A
Endrin/Breakdown	: All criteria met. FORM 7

Initial Calibrations were performed using the linear regression option (first order) and are evaluated per section 7.5 of Method 8000B (SW-846 Revision 2) :

The correlation coefficient (r) must be 0.99 or greater for each analyte.

000015

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot
ETC Order # : 9807-004
Method (SW-846) : 8081A/3550B

CALIBRATION

Calibration Verification Standards (CVS) were analyzed at approximately every 10th sample analyzed within the sequence and were evaluated per section 7.7 of Method 8000B (SW-846 Revision 2) :

1. The response for each analyte must be within 15% of expected.
or
2. The average response for all calibrated analytes is within 15%.

Samples for this order where analyzed under two(3) analytical sequences :

Sequence S107072A (Primary Analysis)

A five(5)-point initial calibration was performed for this sequence.

Calibration Verification (S107072A-19R and S107072A-20R)

- Aldrin %Difference >15%. High response.
- Endrin %Difference >15%. High response.
- Average of %Difference for all analytes was within 15%.

Sequence S207131A (Primary Analysis)

A five(5)-point initial calibration was performed for this sequence.

Calibration Verification (S207131A-22R and S207131A-23R)

- Delta-BHC %Difference >15%. High response.
- 4,4'-DDT %Difference >15%. High response.
- Endosulfan Sulfate %Difference >15%. High response.
- Methoxychlor %Difference >15%. High response.
- Endrin Ketone %Difference >15%. High response.
- Average of %difference for all analytes was within 15%.

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.*
*

Sample ID	Dilutions	Reason for Dilution
	Applied	
9807-004-02	1:10	B
9807-004-03	1:10	B
9807-004-04	1:10	B
9807-004-05	1:10	B
9807-004-06	1:10	B

A - Levels of Non-Target Analyte interfering compounds.
B - Bring Target Analytes within calibration range.

000016

MEMPHIS, TN

CASE NARRATIVE

GC PESTICIDES - SOIL

Client Name : OHM Remediation Services Corp.

Project Name : Defense Depot

ETC Order # : 9807-004

Method (SW-846) : 8081A/3550B

CALIBRATION

Due to an instrument malfunction, confirmation data was not acquired for Sequence S107112A. No sample data requiring confirmation data was reported from this sequence.


Laboratory Manager

000017

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

0701-1BLK

Lab Prep Batch: V10PSS12

SDG No.: 9807-004

Lab File ID: S107112A-18R

Instrument ID: PEST1A

Matrix: (soil/water) SOIL

Date Analyzed: 07/12/98

Level: (low/med) LOW

Time Analyzed: 0555

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	9807-003-2		S107072A-08R	07/08/98
02	9807-004-1		S107072A-10R	07/08/98
03	9807-004-2		S107072A-11R	07/08/98
04	9807-004-3		S107072A-12R	07/08/98
05	9807-004-4		S107072A-13R	07/08/98
06	9807-004-5		S107072A-14R	07/08/98
07	9807-004-6		S107072A-15R	07/08/98
08	9807-003-2MS		S107072A-16R	07/08/98
09	0701-1LCS		S107112A-25R	07/12/98
10	9807-003-2		S207131A-11R	07/13/98
11	9807-004-1		S207131A-12R	07/13/98
12	9807-004-2		S207131A-13R	07/13/98
13	9807-004-2		S207131A-14R	07/13/98
14	9807-004-3		S207131A-15R	07/13/98
15	9807-004-4		S207131A-16R	07/14/98
16	9807-004-6		S207131A-17R	07/14/98
17	9807-003-2MS		S207131A-18R	07/14/98
18	9807-003-2MS		S207131A-19R	07/14/98
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

378 181
EPA GC SAMPLE NO.

0701-1BLK

Lab Name: ETC, INC.

SDG No.: 9807-004

Matrix: (soil/water) SOIL

Lab Prep Batch: V10PSS12

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: S107112A-18R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10 (mL)

Date Analyzed: 07/12/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

319-84-6-----	alpha-BHC	1.33333	U
58-89-9-----	gamma-BHC (Lindane)	1.33333	U
319-85-7-----	beta-BHC	1.33333	U
76-44-8-----	Heptachlor	1.33333	U
319-86-8-----	delta-BHC	1.33333	U
309-00-2-----	Aldrin	1.33333	U
1024-57-3-----	Heptachlor epoxide	1.33333	U
5103-74-2-----	gamma-chlordane	1.33333	U
959-98-8/5103-71	Endosulfan I/alpha-chlordane	1.33333	U
72-55-9-----	4,4'-DDE	1.33333	U
60-57-1-----	Dieldrin	1.33333	U
72-20-8-----	Endrin	1.33333	U
72-54-8-----	4,4'-DDD	1.33333	U
33213-65-9-----	Endosulfan II	1.33333	U
50-29-3-----	4,4'-DDT	1.33333	U
7421-93-4-----	Endrin aldehyde	1.33333	U
1031-07-8-----	Endosulfan sulfate	1.33333	U
72-43-5-----	Methoxychlor	1.33333	U
53494-70-5-----	Endrin Ketone	1.33333	U

FORM I PESTICIDE

000019

378 182

FORM 3
SOIL PESTICIDE LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V10PSS12

SDG No.: 9807-004

Matrix Spike - Sample No.: 0701-1lcs

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
alpha-BHC	33.33333		34.90797	105	22-112
gamma-BHC (Lindane)	33.33333		35.96527	108	26-113
beta-BHC	33.33333		36.36353	109	54-120
Heptachlor	33.33333		37.71123	113	47-113
delta-BHC	33.33333		31.87128	96	10- 96
Aldrin	33.33333		33.48624	100	31-111
Heptachlor epoxide	33.33333		35.23296	106	47-112
gamma-chlordane	33.33333		35.26863	106	50-106
Endosulfan I/alpha-chlo	33.33333		35.34545	106*	49-103
4,4'-DDE	33.33333		33.53622	101	36-117
Dieldrin	33.33333		34.07587	102	44-108
Endrin	33.33333		33.67491	101	44-118
4,4'-DDD	33.33333		33.06262	99	47-112
Endosulfan II	33.33333		37.65948	113	53-115
4,4'-DDT	33.33333		36.33046	109	49-124
Endrin aldehyde	33.33333		40.10057	120	48-128
Endosulfan sulfate	33.33333		37.25523	112*	51-110
Methoxychlor	33.33333		33.47823	100	39-147
Endrin Ketone	33.33333		39.88654	120	38-130

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 2 out of 19 outside limits

COMMENTS:

FORM 3

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: V10PSS12

SDG No.: 9807-004

Matrix Spike - Sample No.: 9807-003-2

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
alpha-BHC	33.33333	0.00000	31.34464	94	22-112
gamma-BHC (Lindane)	33.33333	0.00000	33.38478	100	26-113
beta-BHC	33.33333	0.00000	32.35247	97	54-120
Heptachlor	33.33333	0.00000	30.72402	92	47-113
delta-BHC	33.33333	0.00000	35.14282	105*	10- 96
Aldrin	33.33333	0.00000	28.68714	86	31-111
Heptachlor epoxide	33.33333	0.00000	30.15438	90	47-112
gamma-chlordane	33.33333	0.00000	31.79289	95	50-106
Endosulfan I/alpha-chlo	33.33333	1.44648	34.10903	98	49-103
4,4'-DDE	33.33333	49.02870	65.23112	49	36-117
Dieldrin	33.33333	50.99235	92.07262	123*	44-108
Endrin	33.33333	1.53728	31.93834	91	44-118
4,4'-DDD	33.33333	4.04059	34.87410	92	47-112
Endosulfan II	33.33333	0.00000	42.97715	129*	53-115
4,4'-DDT	33.33333	34.17072	72.61840	115	49-124
Endrin aldehyde	33.33333	0.00000	43.66375	131*	48-128
Endosulfan sulfate	33.33333	0.38462	38.31442	114*	51-110
Methoxychlor	33.33333	40.11308	44.12056	12*	39-147
Endrin Ketone	33.33333	0.00000	43.11548	129	38-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS:

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: V10PSS12

SDG No.: 9807-004

Matrix Spike - Sample No.: 9807-003-2

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
alpha-BHC	33.22259	30.94593	93	1	20	22-112
gamma-BHC (Lindane)	33.22259	32.11627	97	3	20	26-113
beta-BHC	33.22259	30.19107	91	6	20	54-120
Heptachlor	33.22259	29.64217	89	3	20	47-113
delta-BHC	33.22259	33.18485	100*	5	20	10- 96
Aldrin	33.22259	27.02669	81	6	20	31-111
Heptachlor epoxide	33.22259	27.66686	83	8	20	47-112
gamma-chlordane	33.22259	29.70491	89	6	20	50-106
Endosulfan I/alpha-chlo	33.22259	31.64381	91	7	20	49-103
4,4'-DDE	33.22259	66.89819	54	10	20	36-117
Dieldrin	33.22259	93.88955	129*	5	20	44-108
Endrin	33.22259	29.65091	85	7	20	44-118
4,4'-DDD	33.22259	32.14889	85	8	20	47-112
Endosulfan II	33.22259	38.84403	117*	10	20	53-115
4,4'-DDT	33.22259	68.84736	104	10	20	49-124
Endrin aldehyde	33.22259	41.60004	125	5	20	48-128
Endosulfan sulfate	33.22259	35.64720	106	7	20	51-110
Methoxychlor	33.22259	64.49342	73	144*	20	39-147
Endrin Ketone	33.22259	45.02375	136*	5	20	38-130

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 1 out of 19 outside limits
Spike Recovery: 10 out of 38 outside limits

COMMENTS:

FIELD SCREENING LABORATORY CONFIRMATION SAMPLES*Date Collected 06/27/98***RA-C-015-06"-12"****RA-A-016-06"-12"****RA-A-017-06"-12"****RA-A-018-06"-12"****RA-A-019-00"-00" (Duplicate of RA-A-016-06"-12")****RA-C-020-RB03 (Equip. Blank)****RA-C-021-RB04 (Equip. Blank)**



ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road • Memphis TN 38111 • (901) 327-2750 • FAX (901) 327-6334

Founded 1972

July 23, 1998

Ms. Elena Rodriguez
OHM Remediation Services
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Ref: Analytical Testing
ETC Order # 9806A38
Project Description DDMT

Project # 20560 Defense Depot - Memphis, TN

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th/18th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136.

The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read 'N. Pera'.

Nathan A. Pera, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT

Chemical Analytical Data
Review/Evaluation/Validation

SOUTHERN REGION

Report Type: ☐ Preliminary ☒ Final Date Received: _____ Project Number: 20560

Project Name: DDT Analysis/Method: GC/MS / Pelt

Laboratory: ETC Lab Project/Case Number: 9806A38

Sample Number(s): PA-C-015-06.13, A-C-016-06.2, A-017-06-12, A-018-06-
A-019-06-06, C-020-RBC3, C-021-06-04

Evaluated By: S P. ... Date Evaluated: 7/27/95

Data Package Deliverables Requirement: ☐ OHM Minimum ☒ OHM Standard ☐ OHM Maximum

☐ Other, please describe _____

Quality Control Deliverables	Required	Received	Passed	Failed
PQL, MDL, RL, etc meets DQOs	☒	☒	☒	
Comment:				
Holding Times			☒	
Comment:				
Sample Condition (preservatives, containers, temperature, etc) / Case Narrative	X	☒	☒	
Comment:				
Surrogate Recoveries	X	☒	☒	
Comment:				
Lab Control Sample Recoveries	X	☒	☒	
Comment:				
Lab Control Sample Duplicate or Other Spike Recoveries	X	☒	☒	
Comment:				
Lab Control Sample Duplicate or Other Laboratory Duplicate RPD	X	☒	☒	
Comment:				
Matrix Spike Recoveries	X	☒	☒	
Comment:				
Matrix Spike Duplicate Recoveries	X	☒	☒	
Comment:				
Matrix Spike / Matrix Spike Duplicate RPD	X	☒	☒	
Comment:				
Laboratory Blanks (daily, method, instrument)	X	☒	☒	
Comment:				
Field Blanks (trip, eqpt rinsate, ambient, matrix)	X	☒	☒	
Comment:				

Quality Control Deliverables		Required	Received	Passed	Failed
Field Duplicates RPD		X			
Comment:	N/A				
Second Source Check					
Comment:	N/A				
Second Column Confirmation		✓		✓	
Comment:					
Percent Moisture/Solids		✓	✓		
Comment:					
Initial / Continuing Calibrations					
Comment:					
Internal Standard Areas and Retention Times (Organics Only)					
Comment:					
Chromatograms		✓	✓	✓	
Comment:					
Sample Prep Worksheets					
Comment:					
Raw Data Calculations					
Comment:					
Laboratory Duplicates					
Comment:					
Instrument Performance Checks (Organics Only)					
Comment:					
Tentatively Identified Compounds (TICs)					
Comment:					
Completeness	# Samples	# Analyses	Tot # Analyses	Tot # Accept Analyses	% Complete
Completeness = (Tot # Analyses / Tot # Accepted Analyses) x 100	7	1	7	7	100
General Comments:					

Summary: [] See attached pages

Check Applicable:

- ☐ Lab contacted--Corrective actions in process Date Contacted: _____
☐ Corrective actions received and accepted Date Received/Accepted: _____
☒ The data, as reported by the laboratory, are acceptable.
☐ The data, with qualifiers as described in the "Summary" portion of this report, are acceptable.
☐ The data are unacceptable.
☐ Other _____

S. Pasaniya
Evaluators Signature

7/27/98
Date

Environmental Testing & Consulting, Inc.
Data Qualifiers for Organic Reporting

Within the attached report, some analytical data may be reported as "Qualified Data" as indicated by a "Data Qualifier" next to the result. This table summarizes the possible "Data Qualifiers" that may be associated with this report.

Q	Surrogate Recovery Outside QC Limits
J	Estimated Value. Presence of the compound was confirmed but less than the reported detection limit.
E	Concentration exceeds the established method calibration range but is within the working range of the instrument.
B	Analyte detected in the associated Method Blank.
U	Reported result was unconfirmed. Refer to Case Narrative.
N	Non-Compliance Report associated with this sample or project.
C	Result reported from GC/MS confirmation analysis.
*	QC Data (percent recovery/RPD for a particular analyte was outside QC Limits)

ANALYTICAL SUMMARY TABLE

Client Name **OHM Remediation Services**
Site ID **DDMT**
Memphis, TN

<u>ETC</u> <u>Sample ID</u>	<u>Field ID</u>	<u>Matrix</u>	<u>Method</u>	<u>Method Description</u>
9806A3801	RA-C-015-06"-12"	SOIL	8081A	Organochlorine Pesticides
9806A3801	RA-C-015-06"-12"-LCS	SOIL	8081A	Organochlorine Pest/PCB
9806A3802	RA-A-016-06"-12"	SOIL	8081A	Organochlorine Pesticides
9806A3803	RA-A-017-06"-12"	SOIL	8081A	Organochlorine Pesticides
9806A3804	RA-A-018-06"-12"	SOIL	8081A	Organochlorine Pesticides
9806A3805	RA-A-019-00"-00"	SOIL	8081A	Organochlorine Pesticides
9806A3806	RA-C-020-RB03	AQUEOUS	8081A	Organochlorine Pesticides
9806A3806	RA-C-020-RB03-LCS	AQUEOUS	8081A	Organochlorine Pest/PCB
9806A3807	RA-C-021-RB04	AQUEOUS	8081A	Organochlorine Pesticides

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody



**OHM Remediation
Services Corp**
Subsidiary of OHM Corporation
US Route 224 East Findlay, Ohio 45840 • (419) 423-3526

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY
217873

FORM 0019 REV 07

OHM LABORATORIAN		LAB COORDINATOR'S PHONE		LAB COORDINATOR'S FAX		LABORATORY'S R.F.I.D.		LABORATORY CONTACT		MAIL REPORT (COMPANY NAME)	
Elena Rodriguez		770-734-8060		770-453-7716		ETC		Nathan Pera		OHM Remediation Services Corp	
PROJECT NAME		PROJECT LOCATION		PROJECT NUMBER		LABORATORY PHONE		LABORATORY FAX		RECIPIENT NAME	
DDMT		Memphis, TN		20560		901-327-2750		901-327-6334		Elena Rodriguez	
PROJECT CONTACT		PROJECT PHONE NUMBER		PROJECT FAX		LABORATORY ADDRESS		ADDRESS		CITY STATE AND ZIP CODE	
Steve Offner		901-743-1117		901-743-1048		2924 Walnut Grove Road		5445 Triangle Pkwy, #400		NORCROSS, GA 30092	
PROJECT ADDRESS		CITY STATE AND ZIP CODE		CITY STATE AND ZIP CODE		CITY STATE AND ZIP CODE		CITY STATE AND ZIP CODE		CITY STATE AND ZIP CODE	
1708 Dunn Ave.		Memphis, TN 38114		USACE		Memphis TN 38111		Memphis TN 38111		Memphis TN 38111	
PROJECT MANAGER		PROJECT MANAGER'S FAX		PROJECT MANAGER'S FAX		PROJECT MANAGER'S FAX		PROJECT MANAGER'S FAX		PROJECT MANAGER'S FAX	
Steve Offner		770-326-2571		770-453-7716		770-453-7716		770-453-7716		770-453-7716	
Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont.	QC Level	TAI	Analyses	Comments	
1	RA-C-015-06-12	Soil	6/27	1555	40	1x4	0.1m	7d	✓	Please fax results on DUE DATE to SUE and to Lab Coordinator	
2	RA-A-016-06-12	Soil	6/27	1545	40	1x4	0.1m	7d	✓	A7-6-1211	
3	RA-A-017-06-12	Soil	6/27	1515	40	1x4	0.1m	7d	✓	A10, 6-1211	
4	RA-A-018-06-12	Soil	6/27	1310	40	1x4	0.1m	7d	✓	A20, 6-1211	
5	RA-A-019-00-00	Soil	6/27	-	40	1x4	0.1m	7d	✓	Duplicate	
6	RA-C-020-06-12	Water	6/27	0845	40	1x1	0.1m	7d	✓	Rinsate - Area C (See Blank)	
7	RA-C-021-06-12	Water	6/27	0830	40	1x1	0.1m	7d	✓	Rinsate - Area C (See Blank)	
8											
9											
10											
SAMPLES COLLECTED BY		RECEIVED BY		DELIVERED BY		DATE		TIME		COOLER TEMPERATURE (UPON RECEIPT)	
RB/SJS/SJS		RB/SJS/SJS		RB/SJS/SJS		6/27/12		1515		5445 Triangle Pkwy, #400	
5 Phoenyxape		RB/SJS/SJS		RB/SJS/SJS		6/27/12		1515		5445 Triangle Pkwy, #400	
Distribution White - Laboratory (To be returned with Analytical Report), Goldenrod - Project File, Yellow - Project Data Manager											

COOLER RECEIPT FORM

378 193

Cooler Receipt Form
9806A38 CRF p 1

LIMS # 9806-A38 Number of Coolers 1
Date Received 06/29/98
VDTSR 06/29/98 15 15
PROJECT DDMT-Memphis, TN

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS

A PRELIMINARY EXAMINATION PHASE Date cooler was opened 06/29/98
by (print) Lynette Bugg (sign) Lynette Bugg

1 Did cooler come with a shipping slip (airbill, etc)? NO
If YES, enter carrier name & airbill number _____

2a Were custody seals on outside of cooler? NO
2b Were custody seals on sample containers? NO

3 Were custody seals unbroken and intact at the date and time of arrival? NA

4 Did you screen samples for radioactivity using a Geiger Counter? NO

5 Were custody papers sealed in a plastic bag & taped inside to the lid? NO

6 Were custody papers filled out properly (ink, signed, etc)? YES

7 Did you sign custody papers in the appropriate place? YES

8 Was project identifiable from custody papers? If YES, enter project name at top of this form YES

9 If required, was enough ice used? cooler temp <4°C , Type of ice Bagged YES

10 Have designated person initial here to acknowledge receipt of cooler LB date 06/29/98

B LOG-IN PHASE Date samples were logged-in 06/29/98
by (print) Lynette Bugg (sign) Lynette Bugg

11 Describe type of packing in cooler Bubble Wrap & Ice

12 Were all bottles sealed in separate plastic bags? NO

13 Did all bottles arrive unbroken and were labels in good condition? YES

14 Were all bottle labels complete (ID, date, time, signature, preserved, etc)? YES

15 Did all bottle labels agree with custody papers? YES

16 Were correct containers used for the tests indicated? YES

17 Were correct preservatives added to samples? YES

18 Was a sufficient amount of sample sent for tests indicated? YES

19 Were bubbles absent in VOA samples? If NO, list by sample# _____ NA

20 Was the project manager called and status discussed? If YES, give details on the back of this form NO

21 Who was called? _____ By whom? _____ (date) _____

VDTSR - Validated Date/Time of Sample Receipt (Date sample is logged into LIMS system)

000005

Environmental Testing & Consulting, Inc.

Sample Reports

000006

ENVIRONMENTAL TESTING & CONSULTING, INC. 378 195
Memphis, TN
INORGANIC ANALYSIS DATA SHEET
PERCENT SOLIDS

Client Name :OHM Remediation Services
Project Name :DDMT

Date Sample Received :06/29/98
Contract Laboratory Order Number :9806-A38

<u>Contract Lab</u> <u>Sample No</u>	<u>Field</u> <u>ID</u>	<u>Date</u> <u>Sampled</u>	<u>Result</u> <u>Units : (%)</u>	<u>Date</u> <u>Analyzed</u>	<u>Method</u>	<u>By</u>
9806-A38-01	RA-C-015-06"-12"	06/27/98	93	06/30/98	160.3	MC
9806-A38-02	RA-A-016-06"-12"	06/27/98	91	06/30/98	160.3	MC
9806-A38-03	RA-A-017-06"-12"	06/27/98	92	06/30/98	160.3	MC
9806-A38-04	RA-A-018-06"-12"	06/27/98	91	06/30/98	160.3	MC
9806-A38-05	RA-A-019-00"-00"	06/27/98	92	06/30/98	160.3	MC


LABORATORY MANAGER

000007

378 196

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name OHM Remediation Services
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092
Site ID DDMT
Memphis, TN

OHM Project 20560

Date Arrived 06/29/98
ETC Order Number 9806A38

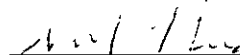
ETC Lab ID 9806A38-01
Sample ID: RA-C-015-06"-12"
QC Batch : V10PSS10

Matrix :SOIL
Sample Date :06/27/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/30/98	07/01/98	RG	8081A 3550B
Aldrin	ND	ug/Kg	1.00				
Alpha-BHC	ND	ug/Kg	1.00				
Beta-BHC	ND	ug/Kg	1.00				
Delta-BHC	ND	ug/Kg	1.00				
Gamma-BHC (Lindane)	ND	ug/Kg	1.00				
alpha-Chlordane	ND	ug/Kg	1.00				
gamma-Chlordane	ND	ug/Kg	1.00				
Chlordane (Technical)	ND	ug/Kg	1.0				
4,4'-DDD	ND	ug/Kg	1.00				
4,4'-DDE	ND	ug/Kg	1.00				
4,4'-DDT	6.33	ug/Kg	1.00				
Dieldrin	6.35	ug/Kg	1.00				
Endosulfan I	ND	ug/Kg	1.00				
Endosulfan II	ND	ug/Kg	1.00				
Endosulfan Sulfate	ND	ug/Kg	1.00				
Endrin	ND	ug/Kg	1.00				
Endrin Aldehyde	ND	ug/Kg	1.00				
Endrin Ketone	ND	ug/Kg	1.00				
Heptachlor	ND	ug/Kg	1.00				
Heptachlor Epoxide	ND	ug/Kg	1.00				
Methoxychlor	ND	ug/Kg	1.00				
Toxaphene	ND	ug/Kg	80				

Surrogate Standard	% Recovery	QC Limits
S1 - Tetrachloro-m-xylene	74	39 130
S2 - Decachlorobiphenyl	74	64 154

ND - Not Detected


LABORATORY MANAGER

000008

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 197

Client Name **OHM Remediation Services** Project **20560**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092
Site ID **DDMT**
Memphis, TN

Date Arrived 06/29/98
ETC Order Number 9806A38

ETC Lab ID **9806A38-02**
Sample ID: RA-A-016-06"-12"
QC Batch : V10PSS10

Matrix :SOIL
Sample Date :06/27/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/30/98	07/01/98	RG	8081A 3550B
QC Batch		ug/Kg					
Aldrin	ND	ug/Kg	1 00				
Alpha-BHC	ND	ug/Kg	1 00				
Beta-BHC	ND	ug/Kg	1 00				
Delta-BHC	ND	ug/Kg	1 00				
Gamma-BHC (Lindane)	ND	ug/Kg	1 00				
alpha-Chlordane	ND	ug/Kg	1.00				
gamma-Chlordane	ND	ug/Kg	1.00				
Chlordane (Technical)	ND	ug/Kg	10				
4,4'-DDD	4 12	ug/Kg	1.00				
4,4'-DDE	17.5	ug/Kg	1 00				
4,4'-DDT	18.9	ug/Kg	1 00				
Dieldrin	19 7	ug/Kg	1 00				
Endosulfan I	ND	ug/Kg	1 00				
Endosulfan II	ND	ug/Kg	1 00				
Endosulfan Sulfate	ND	ug/Kg	1 00				
Endrin	ND	ug/Kg	1 00				
Endrin Aldehyde	ND	ug/Kg	1 00				
Endrin Ketone	ND	ug/Kg	1 00				
Heptachlor	ND	ug/Kg	1 00				
Heptachlor Epoxide	ND	ug/Kg	1 00				
Methoxychlor	ND	ug/Kg	1 00				
Toxaphene	ND	ug/Kg	80				
Surrogate Standard	% Recovery		QC Limits				
S1 - Tetrachloro-m-xylene	78		39 130				
S2 - Decachlorobiphenyl	79		64 154				

ND - Not Detected

1/2/1 King
LABORATORY MANAGER

000009

378 198

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

OHM Project 20560

Date Arrived 06/29/98
 ETC Order Number 9806A38

ETC Lab ID 9806A38-03
Sample ID: RA-A-017-06"-12"
QC Batch : V10PSS10

Matrix :SOIL
 Sample Date :06/27/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/30/98	07/01/98	RG	8081A 3550B
Aldrin	ND	ug/Kg	1.00				
Alpha-BHC	ND	ug/Kg	1.00				
Beta-BHC	ND	ug/Kg	1.00				
Delta-BHC	ND	ug/Kg	1.00				
Gamma-BHC (Lindane)	ND	ug/Kg	1.00				
alpha-Chlordane	ND	ug/Kg	1.00				
gamma-Chlordane	ND	ug/Kg	1.00				
Chlordane (Technical)	ND	ug/Kg	1.0				
4,4'-DDD	ND	ug/Kg	1.00				
4,4'-DDE	ND	ug/Kg	1.00				
4,4'-DDT	ND	ug/Kg	1.00				
Dieldrin	ND	ug/Kg	1.00				
Endosulfan I	ND	ug/Kg	1.00				
Endosulfan II	ND	ug/Kg	1.00				
Endosulfan Sulfate	ND	ug/Kg	1.00				
Endrin	ND	ug/Kg	1.00				
Endrin Aldehyde	ND	ug/Kg	1.00				
Endrin Ketone	ND	ug/Kg	1.00				
Heptachlor	ND	ug/Kg	1.00				
Heptachlor Epoxide	ND	ug/Kg	1.00				
Methoxychlor	ND	ug/Kg	1.00				
Toxaphene	ND	ug/Kg	80				
Surrogate Standard				% Recovery			
S1 - Tetrachloro-m-xylene	63		39	130			
S2 - Decachlorobiphenyl	72		64	154			

ND - Not Detected

[Signature]
 LABORATORY MANAGER

000010

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

378 199

Client Name **OHM Remediation Services** OHM Project **20560**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092
Site ID **DDMT**
Memphis, TN

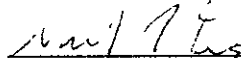
Date Arrived **06/29/98**
ETC Order Number **9806A38**

ETC Lab ID **9806A38-04**
Sample ID: RA-A-018-06"-12"
QC Batch : V10PSS10

Matrix : **SOIL**
Sample Date : **06/27/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/30/98	07/01/98	RG	8081A 3550B
Aldrin	ND	ug/Kg	1.00				
Alpha-BHC	ND	ug/Kg	1.00				
Beta-BHC	ND	ug/Kg	1.00				
Delta-BHC	ND	ug/Kg	1.00				
Gamma-BHC (Lindane)	ND	ug/Kg	1.00				
alpha-Chlordane	ND	ug/Kg	1.00				
gamma-Chlordane	ND	ug/Kg	1.00				
Chlordane (Technical)	ND	ug/Kg	1.00				
4,4'-DDD	ND	ug/Kg	1.00				
4,4'-DDE	29.7	ug/Kg	1.00				
4,4'-DDT	24.9	ug/Kg	1.00				
Dieldrin	94.8	ug/Kg	1.00				
Endosulfan I	ND	ug/Kg	1.00				
Endosulfan II	ND	ug/Kg	1.00				
Endosulfan Sulfate	ND	ug/Kg	1.00				
Endrin	ND	ug/Kg	1.00				
Endrin Aldehyde	ND	ug/Kg	1.00				
Endrin Ketone	ND	ug/Kg	1.00				
Heptachlor	ND	ug/Kg	1.00				
Heptachlor Epoxide	ND	ug/Kg	1.00				
Methoxychlor	ND	ug/Kg	1.00				
Toxaphene	ND	ug/Kg	80				
Surrogate Standard				% Recovery		QC Limits	
S1 - Tetrachloro-m-xylene	70			39	130		
S2 - Decachlorobiphenyl	77			64	154		

ND - Not Detected


LABORATORY MANAGER

000011

378 200

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

OHM Project **20560**

Date Arrived **06/29/98**
 ETC Order Number **9806A38**

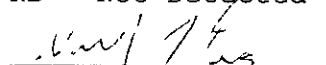
ETC Lab ID **9806A38-05****Sample ID: RA-A-019-00"-00"****QC Batch : V10PSS10**

Matrix :SOIL

Sample Date :06/27/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/30/98	07/01/98	RG	8081A 3550B
Aldrin	ND	ug/Kg	1.00				
Alpha-BHC	ND	ug/Kg	1.00				
Beta-BHC	ND	ug/Kg	1.00				
Delta-BHC	ND	ug/Kg	1.00				
Gamma-BHC (Lindane)	ND	ug/Kg	1.00				
alpha-Chlordane	ND	ug/Kg	1.00				
gamma-Chlordane	ND	ug/Kg	1.00				
Chlordane (Technical)	ND	ug/Kg	1.0				
4,4'-DDD	ND	ug/Kg	1.00				
4,4'-DDE	18.5	ug/Kg	1.00				
4,4'-DDT	12.3	ug/Kg	1.00				
Dieldrin	18.2	ug/Kg	1.00				
Endosulfan I	ND	ug/Kg	1.00				
Endosulfan II	ND	ug/Kg	1.00				
Endosulfan Sulfate	ND	ug/Kg	1.00				
Endrin	ND	ug/Kg	1.00				
Endrin Aldehyde	ND	ug/Kg	1.00				
Endrin Ketone	ND	ug/Kg	1.00				
Heptachlor	ND	ug/Kg	1.00				
Heptachlor Epoxide	ND	ug/Kg	1.00				
Methoxychlor	ND	ug/Kg	1.00				
Toxaphene	ND	ug/Kg	80				
Surrogate Standard				% Recovery			
S1 - Tetrachloro-m-xylene	77		39	130			
S2 - Decachlorobiphenyl	79		64	154			

ND - Not Detected


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000012

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 201

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

OHM Project. 20560

Date Arrived 06/29/98
ETC Order Number 9806A38

ETC Lab ID 9806A38-06
Sample ID: RA-C-020-RB03
QC Batch : V13PSA14

Matrix :AQUEOUS
Sample Date :06/27/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/30/98	07/01/98	RG	8081A 3510C
Aldrin	ND	ug/L	0.04				
Alpha-BHC	ND	ug/L	0.04				
Beta-BHC	ND	ug/L	0.04				
Delta-BHC	ND	ug/L	0.04				
Gamma-BHC (Lindane)	ND	ug/L	0.04				
alpha-Chlordane	ND	ug/L	0.04				
gamma-Chlordane	ND	ug/L	0.04				
Chlordane (Technical)	ND	ug/L	0.50				
4,4'-DDD	ND	ug/L	0.04				
4,4'-DDE	ND	ug/L	0.04				
4,4'-DDT	ND	ug/L	0.04				
Dieldrin	ND	ug/L	0.04				
Endosulfan I	ND	ug/L	0.04				
Endosulfan II	ND	ug/L	0.04				
Endosulfan Sulfate	ND	ug/L	0.04				
Endrin	ND	ug/L	0.04				
Endrin Aldehyde	ND	ug/L	0.04				
Endrin Ketone	ND	ug/L	0.04				
Heptachlor	ND	ug/L	0.04				
Heptachlor Epoxide	ND	ug/L	0.04				
Methoxychlor	ND	ug/L	0.04				
Toxaphene	ND	ug/L	2.50				
Surrogate Standard	% Recovery		QC Limits				
S1 - Tetrachloro-m-xylene	65		31 96				
S2 - Decachlorobiphenyl	64		34 115				

ND - Not Detected


LABORATORY MANAGER

000013

378 202

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

OHM Project 20560

Date Arrived 06/29/98
ETC Order Number 9806A38

ETC Lab ID 9806A38-07
Sample ID: RA-C-021-RB04
QC Batch : V13PSA14

Matrix :AQUEOUS
Sample Date :06/29/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				06/30/98	07/02/98	RG	8081A 3510C
Aldrin	ND	ug/L	0.04				
Alpha-BHC	ND	ug/L	0.04				
Beta-BHC	ND	ug/L	0.04				
Delta-BHC	ND	ug/L	0.04				
Gamma-BHC (Lindane)	ND	ug/L	0.04				
alpha-Chlordane	ND	ug/L	0.04				
gamma-Chlordane	ND	ug/L	0.04				
Chlordane (Technical)	ND	ug/L	0.50				
4,4'-DDD	ND	ug/L	0.04				
4,4'-DDE	ND	ug/L	0.04				
4,4'-DDT	ND	ug/L	0.04				
Dieldrin	ND	ug/L	0.04				
Endosulfan I	ND	ug/L	0.04				
Endosulfan II	ND	ug/L	0.04				
Endosulfan Sulfate	ND	ug/L	0.04				
Endrin	ND	ug/L	0.04				
Endrin Aldehyde	ND	ug/L	0.04				
Endrin Ketone	ND	ug/L	0.04				
Heptachlor	ND	ug/L	0.04				
Heptachlor Epoxide	ND	ug/L	0.04				
Methoxychlor	ND	ug/L	0.04				
Toxaphene	ND	ug/L	2.50				
Surrogate Standard			% Recovery	QC Limits			
S1 - Tetrachloro-m-xylene	74		31	96			
S2 - Decachlorobiphenyl	40		34	115			

ND - Not Detected

W. J. Long
LABORATORY MANAGER

000014

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC Pesticides

ETC Order 9806-A38

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot
ETC Order # : 9806-A38
Method (SW-846) : 8081A/3550B

HOLDING TIMES

Sample Extraction : All soil samples extracted within 14 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
V10PSS10 0630-1BLK

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
0630-1LCS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9806-A10-08 RPD : All analytes within QC limits.*
RA-C-013-00"-06" Spike Recovery : All analytes within QC limits.*
*
RPDs for multiple analytes were flagged as outside QC Limits.

Recoveries for Dieldrin were flagged outside QC Limits in the Matrix Spike and Matrix Spike Duplicate.

Recovery for 4,4'-DDT was flagged outside QC Limits in the Matrix Spike Duplicate. MS recovery was within QC Limits.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
0630-1BLK

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration	: All criteria met. FORM 6
Daily Calibration	: All criteria met. FORM 7A
Endrin/Breakdown	: All criteria met. FORM 7

Initial Calibrations were performed using the linear regression option (first order) and are evaluated per section 7.5 of Method 8000B (SW-846 Revision 2) :

The correlation coefficient (r) must be 0.99 or greater for each analyte.

000016

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

378 205

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot
ETC Order # : 9806-A38
Method (SW-846) : 8081A/3550B

CALIBRATION

Calibration Verification Standards (CVS) were analyzed at approximately every 10th sample analyzed within the sequence and were evaluated per section 7.7 of Method 8000B (SW-846 Revision 2) :

1. The response for each analyte must be within 15% of expected.
- or
2. The average response for all calibrated analytes is within 15%.

Samples for this order were analyzed under three(3) analytical sequences :

Sequence S106301A (Primary Analysis)

A five(5)-point initial calibration was performed for this sequence.

Calibration Verification (S106301A-34R and S106301A-35R)

- 4'4-DDT %Difference >15%.
- Methoxychlor %Difference >15%.
- Average of %difference for all analytes was within 15%.

4'4-DDT was reported for several samples associated with these calibration verifications (CV). The MS/MSD analyzed for this order was also associated with these CVs. Recoveries for DDT were 84% and 72% respectively indicating a slightly low bias. Recoveries for Methoxychlor were 91% and 90% respectively indicated little or no bias.

Calibration Verification (S106301A-47R)

- 4'4-DDD %Difference >15%. High response.
- 4'4-DDT %Difference >15%. Low response.
- Methoxychlor %Difference >15%. Low response.
- Average of %difference for all analytes was within 15%.

Calibration Verification (S106301A-50R)

- Gamma BHC %Difference >15%. High response.
- Beta BHC %Difference >15%. High response.
- Delta BHC %Difference >15%. High response.
- 4'4-DDD %Difference >15%. High response.
- 4'4-DDT %Difference >15%. Low response.
- Endosulfan Sulfate %Difference >15%. Low response.
- Methoxychlor %Difference >15%. Low response.
- Average of %difference for all analytes was within 15%.

000017

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot
ETC Order # : 9806-A38
Method (SW-846) : 8081A/3550B

CALIBRATIONSequence S406301A (Primary Analysis)

A five(5)-point initial calibration was performed for this sequence.

Calibration Verification (S406301A-36R)

- Alpha-BHC %Difference >15% High response.
- Delta-BHC %Difference >15% High response.
- 4'4-DDT %Difference >15%. Low response.
- Endrin Aldehyde %Difference >15%. High response.
- Methoxychlor %Difference >15%. Low response.
- Tetrachloro-m-xylene %Difference >15%. High response.
- Average of %difference for all analytes was within 15%.

Calibration Verification (S406301A-37R)

- %Difference for the majority of analytes were >15%. High response.
- Average of %difference for all analytes was >15%.

Due to the high response for this CV, samples analyzed after this standard were reviewed for potential bias. Samples 9806-A38-06(RA-C-020-RB03) and 9806-A38-07(RA-C-021-RB04) were the only samples associated with this order. The high response found in this CV indicated that Detection Limits were not affected. No Target Analytes were identified in these samples.

Calibration Verification (S406301A-48R)

- Alpha-BHC %Difference >15% High response.
- Delta-BHC %Difference >15% High response.
- 4'4-DDD %Difference >15%. High response.
- 4'4-DDT %Difference >15%. Low response.
- Endrin Aldehyde %Difference >15%. High response.
- Methoxychlor %Difference >15%. Low response.
- Average of %difference for all analytes was within 15%.

Sequence S107132A (Primary Analysis)

A five(5)-point initial calibration was performed for this sequence.

Calibration Verification (S107132A-22R and S107132A-23R)

- % Difference for all analytes was within 15%.
- Average of %Difference for all analytes was within 15%.

Calibration Verification (S107132A-35R and S107132A-36R)

- Failed injection was noted for S107132A-35R.
- % Difference for all analytes was within 15%.
- Average of %Difference for all analytes was within 15%.

Calibration Verification (S107132A-42R and S107132A-43R)

- % Difference for all analytes was within 15%.
- Average of %Difference for all analytes was within 15%.

000018

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

378 207

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot

ETC Order # : 9806-A38
Method (SW-846) : 8081A/3550B

Sequence S207131A (Primary Analysis)

A five(5)-point initial calibration was performed for this sequence.

Calibration Verification (S207131A-22R and S207131A-23R)

- Delta-BHC %Difference >15% High response.
- 4'4-DDT %Difference >15%. High response.
- Endosulfan Sulfate %Difference >15%. High response.
- Methoxychlor %Difference >15%. High response.
- Endrin Ketone %Difference >15%. High response.
- Average of %Difference for all analytes was within 15%.

Calibration Verification (S207131A-26R)

- 4'4-DDT %Difference >15%. High response.
- Endosulfan Sulfate %Difference >15%. High response.
- Methoxychlor %Difference >15%. High response.
- Average of %Difference for all analytes was within 15%.

Calibration Verification (S207131A-43R)

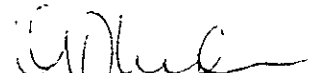
- Gamma-BHC %Difference >15% High response.
- Delta-BHC %Difference >15% High response.
- Endosulfan II %Difference >15%. High response.
- 4'4-DDT %Difference >15%. High response.
- Endrin Aldehyde %Difference >15%. High response.
- Endosulfan Sulfate %Difference >15%. High response.
- Methoxychlor %Difference >15%. High response.
- Endrin Ketone %Difference >15%. High response.
- Average of %Difference for all analytes was >15%.

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.*

*

Dilution of 1:10 was performed on sample 9806-A38-04
(RA-A-018-06"-12") to bring the Target Analyte(s) within
calibration range.


Laboratory Manager

000019

378 208

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

0630-1BLK

Lab Name: ETC, INC.

Lab Prep Batch: V10PSS10

SDG No.: 9806-A38

Lab File ID: S106301A-10R

Lab Prep Batch: V10PSS10

Date Analyzed: 06/30/98

Time Analyzed: 2150

GC Column: DB-608 ID: 0.53 (mm)

Heated Purge: (Y/N) N

Instrument ID: PEST1A

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	0630-1LCS		S106301A-14R	0028
02	9806-A10-8		S106301A-39R	1659
03	9806-A10-8MS		S106301A-40R	1738
04	9806-A10-8MS		S106301A-41R	1818
05	9806-A38-1		S106301A-42R	1857
06	9806-A38-2		S106301A-43R	1937
07	9806-A38-3		S106301A-44R	2017
08	9806-A38-4		S106301A-45R	2056
09	9806-A38-5		S106301A-48R	2255
10				
11				
12				
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COMMENTS:

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

378 209
EPA GC SAMPLE NO.

0630-1BLK

Lab Name: ETC, INC.

SDG No.: 9806-A38

Matrix: (soil/water) SOIL

Lab Prep Batch: V10PSS10

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: S106301A-10R

Level: (low/med) LOW

Date Analyzed: 06/30/98

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6-----	alpha-BHC	1.33333	U
58-89-9-----	gamma-BHC (Lindane)	1.33333	U
319-85-7-----	beta-BHC	1.33333	U
76-44-8-----	Heptachlor	1.33333	U
319-86-8-----	delta-BHC	1.33333	U
309-00-2-----	Aldrin	1.33333	U
1024-57-3-----	Heptachlor epoxide	1.33333	U
5103-74-2-----	gamma-chlordane	1.33333	U
959-98-8/5103-71	Endosulfan I/alpha-chlordane	1.33333	U
72-55-9-----	4,4'-DDE	1.33333	U
60-57-1-----	Dieldrin	1.33333	U
72-20-8-----	Endrin	1.33333	U
72-54-8-----	4,4'-DDD	1.33333	U
33213-65-9-----	Endosulfan II	1.33333	U
50-29-3-----	4,4'-DDT	1.33333	U
7421-93-4-----	Endrin aldehyde	1.33333	U
1031-07-8-----	Endosulfan sulfate	1.33333	U
72-43-5-----	Methoxychlor	1.33333	U
53494-70-5-----	Endrin Ketone	1.33333	U

FORM I PESTICIDE

000021

FORM 3
SOIL PESTICIDE LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V10PSS10

SDG No.: 9806-A38

Matrix Spike - Sample No.: 0630-11cs

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
alpha-BHC	33.33333		31.44199	94	22-112
gamma-BHC (Lindane)	33.33333		33.29177	100	26-113
beta-BHC	33.33333		32.28713	97	54-120
Heptachlor	33.33333		33.37881	100	47-113
delta-BHC	33.33333		26.25113	79	10- 96
Aldrin	33.33333		32.45784	97	31-111
Heptachlor epoxide	33.33333		32.40206	97	47-112
gamma-chlordane	33.33333		32.17900	96	50-106
Endosulfan I/alpha-chlo	66.66666		65.25093	98	49-103
4,4'-DDE	33.33333		31.57948	95	36-117
Dieldrin	33.33333		32.21965	97	44-108
Endrin	33.33333		33.93357	102	44-118
4,4'-DDD	33.33333		33.18911	100	47-112
Endosulfan II	33.33333		32.28718	97	53-115
4,4'-DDT	33.33333		31.41288	94	49-124
Endrin aldehyde	33.33333		33.97124	102	48-128
Endosulfan sulfate	33.33333		31.69534	95	51-110
Methoxychlor	33.33333		46.04392	138	39-147
Endrin Ketone	33.33333		36.51045	110	38-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 19 outside limits

COMMENTS:

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

378 211

Lab Name: ETC, INC.

Lab Prep Batch: V10PSS10

SDG No.: 9806-A38

Matrix Spike - Sample No.: 9806-A10-8

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
alpha-BHC	32.67973	0.00000	27.34091	84	22-112
gamma-BHC (Lindane)	32.67973	0.00000	29.52350	90	26-113
beta-BHC	32.67973	0.00000	29.60459	90	54-120
Heptachlor	32.67973	0.00000	25.99166	80	47-113
delta-BHC	32.67973	0.00000	24.07653	74	10- 96
Aldrin	32.67973	0.00000	28.34161	87	31-111
Heptachlor epoxide	32.67973	0.00000	26.00943	80	47-112
gamma-chlordane	32.67973	0.00000	26.34735	81	50-106
Endosulfan I/alpha-chlo	65.35947	0.00000	52.94971	81	49-103
4,4'-DDE	32.67973	2.31023	27.23300	76	36-117
Dieldrin	32.67973	48.01573	84.87859	113*	44-108
Endrin	32.67973	0.00000	27.79591	85	44-118
4,4'-DDD	32.67973	0.00000	32.53911	100	47-112
Endosulfan II	32.67973	0.00000	31.83451	97	53-115
4,4'-DDT	32.67973	2.44677	23.27672	64	49-124
Endrin aldehyde	32.67973	0.00000	31.31103	96	48-128
Endosulfan sulfate	32.67973	0.00000	28.94215	88	51-110
Methoxychlor	32.67973	0.86659	19.66991	58	39-147
Endrin Ketone	32.67973	0.00000	27.05225	83	38-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS:

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: V10PSS10

SDG No.: 9806-A38

Matrix Spike - Sample No.: 9806-A10-8

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
alpha-BHC	33.11258	31.72463	96	13	20	22-112
gamma-BHC (Lindane)	33.11258	32.58661	98	8	20	26-113
beta-BHC	33.11258	35.02458	106	16	20	54-120
Heptachlor	33.11258	30.54033	92	14	20	47-113
delta-BHC	33.11258	29.34261	89	18	20	10- 96
Aldrin	33.11258	33.68226	102	16	20	31-111
Heptachlor epoxide	33.11258	29.27332	88	10	20	47-112
gamma-chlordane	33.11258	31.20467	94	15	20	50-106
Endosulfan I/alpha-chlo	66.22516	63.17197	95	16	20	49-103
4,4'-DDE	33.11258	33.45085	94	21*	20	36-117
Dieldrin	33.11258	95.70708	144*	24*	20	44-108
Endrin	33.11258	34.81828	105	21*	20	44-118
4,4'-DDD	33.11258	36.74307	111	10	20	47-112
Endosulfan II	33.11258	33.75888	102	5	20	53-115
4,4'-DDT	33.11258	18.19342	48*	28*	20	49-124
Endrin aldehyde	33.11258	34.30127	104	8	20	48-128
Endosulfan sulfate	33.11258	31.27297	94	6	20	51-110
Methoxychlor	33.11258	25.09869	73	23*	20	39-147
Endrin Ketone	33.11258	35.57525	107	25*	20	38-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 6 out of 19 outside limits

Spike Recovery: 3 out of 38 outside limits

COMMENTS:

MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - AQUEOUS

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot
ETC Order # : 9806-A38
Method (SW-846) : 8081A/3510C

HOLDING TIMES

Sample Extraction : All aqueous samples extracted within 7 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
V13PSA14 0630-3BLK

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
0630-3LCS/LCSD

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
RPD : NA*
Spike Recovery : NA*

*
Due to the limited amount of sample available, no MS/MSD were
extracted.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
0630-3BLK

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration	: All criteria met. FORM 6
Daily Calibration	: All criteria met. FORM 7A
Endrin/Breakdown	: All criteria met. FORM 7

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.


Laboratory Manager

000025

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

0630-3BLK

Lab Prep Batch: V13PSA14

SDG No.: 9806-A38

Lab File ID: S106301A-09R

Lab Prep Batch: V13PSA14

Date Analyzed: 06/30/98

Time Analyzed: 2110

GC Column: DB-608 ID: 0.53 (mm)

Heated Purge: (Y/N) N

Instrument ID: PEST1A

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	0630-3LCS		S106301A-12R	2309
02	0630-3LCSD		S106301A-13R	2348
03	9806-A38-6		S406301A-38R	2330
04	9806-A38-7		S406301A-39R	0005
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COMMENTS:

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

0630-3BLK

Lab Name: ETC, INC.

SDG No.: 9806-A38

Matrix: (soil/water) WATER

Lab Prep Batch: V13PSA14

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: S106301A-09R

Level: (low/med) LOW

Date Analyzed: 06/30/98

Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	Q
319-84-6-----	alpha-BHC	0.04000 U
58-89-9-----	gamma-BHC (Lindane)	0.04000 U
319-85-7-----	beta-BHC	0.04000 U
76-44-8-----	Heptachlor	0.04000 U
319-86-8-----	delta-BHC	0.04000 U
309-00-2-----	Aldrin	0.04000 U
1024-57-3-----	Heptachlor epoxide	0.04000 U
5103-74-2-----	gamma-chlordane	0.04000 U
959-98-8/5103-71	Endosulfan I/alpha-chlordane	0.04000 U
72-55-9-----	4,4'-DDE	0.04000 U
60-57-1-----	Dieldrin	0.04000 U
72-20-8-----	Endrin	0.04000 U
72-54-8-----	4,4'-DDD	0.04000 U
33213-65-9-----	Endosulfan II	0.04000 U
50-29-3-----	4,4'-DDT	0.04000 U
7421-93-4-----	Endrin aldehyde	0.04000 U
1031-07-8-----	Endosulfan sulfate	0.04000 U
72-43-5-----	Methoxychlor	0.04000 U
53494-70-5-----	Endrin Ketone	0.04000 U

FORM I PESTICIDE

000027

378 216

FORM 3
WATER PESTICIDE LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V13PSA14

SDG No.: 9806-A38

Matrix Spike - Sample No.: 0630-3lcs

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
alpha-BHC	1.00000		0.82843	83	41-102
gamma-BHC (Lindane)	1.00000		0.89308	89	41-102
beta-BHC	1.00000		0.88903	89	26-151
Heptachlor	1.00000		0.85024	85	43-114
delta-BHC	1.00000		0.70526	70	21- 92
Aldrin	1.00000		0.82616	83	34-105
Heptachlor epoxide	1.00000		0.87476	87	42-115
gamma-chlordane	1.00000		0.86990	87	50-108
Endosulfan I/alpha-chlo	2.00000		1.71628	86	48-117
4,4'-DDE	1.00000		0.82669	83	41-111
Dieldrin	1.00000		0.89331	89	42-111
Endrin	1.00000		0.86108	86	45-117
4,4'-DDD	1.00000		0.86744	87	39-124
Endosulfan II	1.00000		0.95827	96	52-114
4,4'-DDT	1.00000		0.75243	75	39-123
Endrin aldehyde	1.00000		0.94058	94	48-125
Endosulfan sulfate	1.00000		0.88869	89	46-111
Methoxychlor	1.00000		0.95756	96	39-140
Endrin Ketone	1.00000		0.94839	95	51-112

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS:

FORM 3
WATER PESTICIDE LABORATORY CONTROL SAMPLE

378 217

Lab Name: ETC, INC.

Lab Prep Batch: V13PSA14

SDG No.: 9806-A38

Matrix Spike - Sample No.: 0630-3lcs

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
alpha-BHC	1.00000	0.86874	87	5	20	41-102
gamma-BHC (Lindane)	1.00000	0.91936	92	3	20	41-102
beta-BHC	1.00000	0.88308	88	1	20	26-151
Heptachlor	1.00000	0.86028	86	1	20	43-114
delta-BHC	1.00000	0.73444	73	4	20	21- 92
Aldrin	1.00000	0.82072	82	1	20	34-105
Heptachlor epoxide	1.00000	0.86236	86	1	20	42-115
gamma-chlordane	1.00000	0.91835	92	6	20	50-108
Endosulfan I/alpha-chlo	2.00000	1.84558	92	7	20	48-117
4,4'-DDE	1.00000	0.85282	85	2	20	41-111
Dieldrin	1.00000	0.88356	88	1	20	42-111
Endrin	1.00000	0.87145	87	1	20	45-117
4,4'-DDD	1.00000	0.84819	85	2	20	39-124
Endosulfan II	1.00000	0.92585	92	4	20	52-114
4,4'-DDT	1.00000	0.82084	82	9	20	39-123
Endrin aldehyde	1.00000	0.98851	99	5	20	48-125
Endosulfan sulfate	1.00000	0.91548	92	3	20	46-111
Methoxychlor	1.00000	1.02600	103	7	20	39-140
Endrin Ketone	1.00000	0.87859	88	8	20	51-112

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 19 outside limits

Spike Recovery: 0 out of 38 outside limits

COMMENTS:

FIELD SCREENING LABORATORY CONFIRMATION SAMPLES

Date Collected 06/29&30/98

RA-A-022-06"-12"

RA-A-023-06"-12"

RA-A-030-RB05 (Equip. Blank)



378 219
ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2730 • FAX (901) 327-6334
Founded 1972

July 14, 1998

Ms. Elena Rodriguez
OHM Remediation Services
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

Ref: Analytical Testing
ETC Order # 9807003
Project Description DDMT

OHM Project # 20560

Defense Depot - Memphis, TN

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th/18th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136.

The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Nathan A. Pera, IV', is written over the word 'Sincerely,'.

Nathan A. Pera, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT

SOUTHERN REGION

378 220
Chemical Analytical Data
Review/Evaluation/Validation

Report Type: ☐ Preliminary ☒ Final Date Received: _____ Project Number: 20560
Project Name: DDMT Analysis/Method: 8081A / Pest
Laboratory: ETC Lab Project/Case Number: 9807003
Sample Number(s): RA-A-022-06-12, RA-A-023-06-12, A-030-RBDS

Evaluated By: S. Paranjape Date Evaluated: 7/28/98
Data Package Deliverables Requirement: ☐ OHM Minimum ☐ OHM Standard ☒ OHM Maximum
☐ Other, please describe _____

Quality Control Deliverables	Required	Received	Passed	Failed
PQL, MDL, RL, etc meets DQOs		☒	☒	
Comment:				
Holding Times			☒	
Comment:				
Sample Condition (preservatives, containers, temperature, etc) / Case Narrative	X	☒	☒	
Comment:				
Surrogate Recoveries	X	☒	☒	
Comment:				
Lab Control Sample Recoveries	X	☒	☒	
Comment:				
Lab Control Sample Duplicate or Other Spike Recoveries	X	☒	☒	
Comment:				
Lab Control Sample Duplicate or Other Laboratory Duplicate RPD	X	☒	☒	
Comment:				
Matrix Spike Recoveries	X	☒	☒	
Comment:				
Matrix Spike Duplicate Recoveries	X	☒	☒	
Comment:				
Matrix Spike / Matrix Spike Duplicate RPD	X	☒	☒	
Comment:				
Laboratory Blanks (daily, method, instrument)	X	☒	☒	
Comment:				
Field Blanks (trip, eqpt rinsate, ambient, matrix)	X			
Comment:				

378 221

Quality Control Deliverables	Required	Received	Passed	Failed	
Field Duplicates RPD	X				
Comment:	N/A				
Second Source Check					
Comment:	N/A				
Second Column Confirmation		✓	✓	✓	
Comment:					
Percent Moisture/Solids	✓	✓	✓	✓	
Comment:					
Initial / Continuing Calibrations					
Comment:	N/Performed				
Internal Standard Areas and Retention Times (Organics Only)	✓	✓	✓	✓	
Comment:					
Chromatograms	✓	✓	✓	✓	
Comment:					
Sample Prep Worksheets					
Comment:					
Raw Data Calculations					
Comment:	N/A				
Laboratory Duplicates					
Comment:					
Instrument Performance Checks (Organics Only)					
Comment:					
Tentatively Identified Compounds (TICs)					
Comment:					
Completeness	# Samples	# Analyses	Tot # Analyses	Tot # Accept Analyses	% Complete
Completeness = (Tot # Analyses / Tot # Accepted Analyses) x 100	3	1	3	3	100

General Comments:

Summary: ☐ See attached pages

Check Applicable:

- ☐ Lab contacted—Corrective actions in process Date Contacted: _____
☐ Corrective actions received and accepted Date Received/Accepted: _____
☒ The data, as reported by the laboratory, are acceptable.
☐ The data, with qualifiers as described in the "Summary" portion of this report, are acceptable.
☐ The data are unacceptable.
☐ Other _____

S. Paranjape
 Evaluator's Signature

7/28/98
 Date

Environmental Testing & Consulting, Inc.
Data Qualifiers for Organic Reporting

Within the attached report, some analytical data may be reported as "Qualified Data" as indicated by a "Data Qualifier" next to the result. This table summarizes the possible "Data Qualifiers" that may be associated with this report.

Q	Surrogate Recovery Outside QC Limits
J	Estimated Value. Presence of the compound was confirmed but less than the reported detection limit.
E	Concentration exceeds the established method calibration range but is within the working range of the instrument.
B	Analyte detected in the associated Method Blank.
U	Reported result was unconfirmed. Refer to Case Narrative.
N	Non-Compliance Report associated with this sample or project.
C	Result reported from GC/MS confirmation analysis.
*	QC Data (percent recovery/RPD for a particular analyte was outside QC Limits)

378 223

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ANALYTICAL SUMMARY TABLE

Client Name OHM Remediation Services
Site ID DDMT
Memphis, TN

<u>ETC</u> <u>Sample ID</u>	<u>Field ID</u>	<u>Matrix</u>	<u>Method</u>	<u>Method Description</u>
980700301	RA-A-022-06-12" Area A12	SOIL	8081A	Organochlorine Pesticides
980700302	RA-A-023-06-12"	SOIL	8081A	Organochlorine Pesticides
980700302	RA-A-023-06-12"-LCS	SOIL	8081A	Organochlorine Pest/PCB
980700303	RA-A-030-RB05	AQUEOUS	8081A	Organochlorine Pesticides
980700303	RA-A-030-RB05-LCS	AQUEOUS	8081A	Organochlorine Pest/PCB

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody

000003



OHM Remediation Services Corp
Subsidiary of OHM Corporation
U.S. Route 224 East • Findlay, Ohio 45840 • (419) 423-3526

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY
217874

FORM 0019 REV 2-92

OHM LAB COORDINATOR		LAB COORDINATOR PHONE		LAB COORDINATOR FAX		LABORATORY SERVICE ID		LABORATORY CONTACT		MAIL REPORT (COMPANY NAME)	
Elena Rodriguez		770-734-8060		770-453-7716		ETC		Nathan Pera		OHM Remediation Services Corp	
PROJECT NAME		PROJECT LOCATION		PROJECT PHONE NUMBER		PROJECT FAX		LABORATORY PHONE		LABORATORY FAX	
DDMT		Memphis, TN		20560		20560		901-327-2750		901-327-6334	
PROJECT CONTACT		PROJECT PHONE NUMBER		PROJECT FAX		LABORATORY ADDRESS		LABORATORY ADDRESS		RECIPIENT NAME	
Steve Offner		901-743-1117		901-743-1048		2924 Walnut Grove Road		2924 Walnut Grove Road		Elena Rodriguez	
PROJECT ADDRESS		CITY, STATE AND ZIP CODE		CLIENT		CITY, STATE AND ZIP CODE		CITY, STATE AND ZIP CODE		ADDRESS	
1708 Dunn Ave.		Memphis, TN 38114		USACE		Memphis, TN 38111		Memphis, TN 38111		5445 Triangle Pkwy, #400	
PROJECT MANAGER		PROJECT MANAGER'S PHONE		PROJECT MANAGER'S FAX		PROJECT MANAGER'S PHONE		PROJECT MANAGER'S FAX		CITY, STATE AND ZIP CODE	
Steve Offner		770-326-2571		770-453-7716		770-326-2571		770-453-7716		Norcross, GA 30092	
Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont	QC Level	TAT	Analyses	Comments	
1	RA-A-022-06-12	Soil	6/30/98	4:00	1x4	0.1m	3 day	✓	✓	Please fax results on DUE DATE to SITE and to Lab Coordinator	
2	RA-A-023-06-12	Soil	6/29/98	15:05	4:00	1x4	0.1m	3 day	✓	A-14, 16-12	
3	RA-C-024-00-06	Soil	6/25/98	16:30	4:00	1x4	0.1m	7 day	✓	C2, 0-6	
4	RA-C-025-00-06	Soil	6/26/98	13:00	4:00	1x4	0.1m	7 day	✓	C2, 0-6	
5	RA-C-026-00-06	Soil	6/27/98	07:35	4:00	1x4	0.1m	7 day	✓	C1, 0-6	
6	RA-C-027-00-06	Soil	6/28/98	15:05	4:00	1x4	0.1m	7 day	✓	C5, 0-6	
7	RA-A-028-06-12	Soil	6/29/98	16:55	4:00	1x4	0.1m	7 day	✓	A16, 0-12	
8	RA-C-029-00-00	Soil	6/25/98	15:05	4:00	1x4	0.1m	7 day	✓	~~C5, 0-6~~ Duplicate	
9	RA-A-030-0805	Water	6/29/98	14:00	4:00	1x4	0.1m	3 day	✓	Kinsate for 6/29/98	
10											
SAMPLES COLLECTED BY RB/SP/LS		COURIER AND AIR BILL NUMBER		DELIVERED BY		DATE		TIME		COOLER TEMPERATURE UPON RECEIPT	
S. Faraway		J. Lamm		J. Lamm		6/29/98		1710		SAMPLE'S CONDITION UPON RECEIPT	

Distribution White - Laboratory (To be returned with Analytical Report), Yellow - Project File, Yellow - Project Data Manager

522 823

Angela Jones
6/11/98

1807-003

COOLER RECEIPT FORM

378 226

Cooler Receipt Form
9807004 CRF p 1

LIMS # 9807-003 and 9807-004 Number of Coolers 1
Date Received 06/30/98
VDTSR 07/01/98 08 00
PROJECT DDMT/Memphis, TN

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS

A PRELIMINARY EXAMINATION PHASE Date cooler was opened 06/30/98
by (print) Sally Herrmann (sign) S. Herrmann

1 Did cooler come with a shipping slip (airbill, etc)? NO
If YES, enter carrier name & airbill number _____

2a Were custody seals on outside of cooler? NO
2b Were custody seals on sample containers? NO

3 Were custody seals unbroken and intact at the date and time of arrival? NA

4 Did you screen samples for radioactivity using a Geiger Counter? NO

5 Were custody papers sealed in a plastic bag & taped inside to the lid? NO

6 Were custody papers filled out properly (ink, signed, etc)? YES

7 Did you sign custody papers in the appropriate place? YES

8 Was project identifiable from custody papers? If YES, enter project name at top of this form YES

9 If required, was enough ice used? cooler temp <4°C , Type of ice Bagged YES

10 Have designated person initial here to acknowledge receipt of cooler [Signature] date 06/30/98

B LOG-IN PHASE Date samples were logged-in 07/01/98
by (print) Lynette Bugg (sign) Lynette Bugg

11 Describe type of packing in cooler Bubble Wrap and Ice

12 Were all bottles sealed in separate plastic bags? YES

13 Did all bottles arrive unbroken and were labels in good condition? YES

14 Were all bottle labels complete (ID, date, time, signature, preserved, etc)? YES

15 Did all bottle labels agree with custody papers? YES

16 Were correct containers used for the tests indicated? YES

17 Were correct preservatives added to samples? YES

18 Was a sufficient amount of sample sent for tests indicated? YES

19 Were bubbles absent in VOA samples? If NO, list by sample# _____ NA

20 Was the project manager called and status discussed? If YES, give details on the back of this form NO

21 Who was called? _____ By whom ? _____ (date) _____

VDTSR - Validated Date/Time of Sample Receipt (Date sample is logged into LIMS system)

000005

378 227

Environmental Testing & Consulting, Inc.

Sample Reports

000006

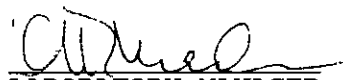
378 228

ENVIRONMENTAL TESTING & CONSULTING, INC.
Memphis, TN
INORGANIC ANALYSIS DATA SHEET
PERCENT SOLIDS

Client Name :OHM Remediation Services
Project Name :DDMT

Date Sample Received :07/01/98
Contract Laboratory Order Number :9807-003

<u>Contract Lab</u> <u>Sample No</u>	<u>Field</u> <u>ID</u>	<u>Date</u> <u>Sampled</u>	<u>Result</u> <u>Units : (%)</u>	<u>Date</u> <u>Analyzed</u>	<u>Method</u>	<u>By</u>
9807-003-01	RA-A-022-06-12"	06/30/98	90	07/01/98	160.3	MC
9807-003-02	RA-A-023-06-12"	06/29/98	92	07/01/98	160.3	MC


LABORATORY MANAGER

000007

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 229

Client Name OHM Remediation Services
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092
Site ID DDMT
Memphis, TN

OHM Project 20560

Date Arrived 07/01/98
ETC Order Number 9807003

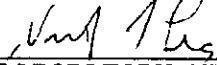
ETC Lab ID 9807003-01

Sample ID: RA-A-022-06-12" Area A12
QC Batch : V10PSS2

Matrix :SOIL
Sample Date :06/30/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				07/01/98	07/13/98	DC	8081A 3550B
Aldrin	ND	ug/Kg	1.00				
Alpha-BHC	ND	ug/Kg	1.00				
Beta-BHC	ND	ug/Kg	1.00				
Delta-BHC	ND	ug/Kg	1.00				
Gamma-BHC (Lindane)	ND	ug/Kg	1.00				
alpha-Chlordane	ND	ug/Kg	1.00				
gamma-Chlordane	ND	ug/Kg	1.00				
Chlordane (Technical)	ND	ug/Kg	10				
4,4'-DDD	ND	ug/Kg	1.00				
4,4'-DDE	ND	ug/Kg	1.00				
4,4'-DDT	ND	ug/Kg	1.00				
Dieldrin	ND	ug/Kg	1.00				
Endosulfan I	ND	ug/Kg	1.00				
Endosulfan II	ND	ug/Kg	1.00				
Endosulfan Sulfate	ND	ug/Kg	1.00				
Endrin	ND	ug/Kg	1.00				
Endrin Aldehyde	ND	ug/Kg	1.00				
Endrin Ketone	ND	ug/Kg	1.00				
Heptachlor	ND	ug/Kg	1.00				
Heptachlor Epoxide	ND	ug/Kg	1.00				
Methoxychlor	ND	ug/Kg	1.00				
Toxaphene	ND	ug/Kg	80				
Surrogate Standard			% Recovery	QC Limits			
S1 - Tetrachloro-m-xylene	49			39	130		
S2 - Decachlorobiphenyl	35 Q			64	154		

ND - Not Detected


LABORATORY MANAGER

000008

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 230

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

OHM Project **20560**

Site ID **DDMT**
Memphis, TN

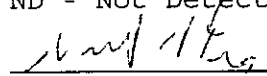
Date Arrived **07/01/98**
ETC Order Number **9807003**

ETC Lab ID **9807003-02**
Sample ID: RA-A-023-06-12"
QC Batch : V10PSS2

Matrix : **SOIL**
Sample Date : **06/29/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				07/01/98	07/13/98	DC	8081A 3550B
Aldrin	ND	ug/Kg	10				
Alpha-BHC	ND	ug/Kg	10				
Beta-BHC	ND	ug/Kg	10				
Delta-BHC	ND	ug/Kg	10				
Gamma-BHC (Lindane)	ND	ug/Kg	10				
alpha-Chlordane	ND	ug/Kg	10				
gamma-Chlordane	ND	ug/Kg	10				
Chlordane (Technical)	ND	ug/Kg	100				
4,4'-DDD	55.4	ug/Kg	10				
4,4'-DDE	42.5	ug/Kg	10				
4,4'-DDT	84.9	ug/Kg	10				
Dieldrin	ND	ug/Kg	10				
Endosulfan I	ND	ug/Kg	10				
Endosulfan II	ND	ug/Kg	10				
Endosulfan Sulfate	ND	ug/Kg	10				
Endrin	ND	ug/Kg	10				
Endrin Aldehyde	ND	ug/Kg	10				
Endrin Ketone	ND	ug/Kg	10				
Heptachlor	ND	ug/Kg	10				
Heptachlor Epoxide	ND	ug/Kg	10				
Methoxychlor	ND	ug/Kg	10				
Toxaphene	ND	ug/Kg	800				
Surrogate Standard				% Recovery			
S1 - Tetrachloro-m-xylene	72		39	130			
S2 - Decachlorobiphenyl	98		64	154			
QC Limits							

ND - Not Detected


LABORATORY MANAGER

000009

378 231

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services** Project **20560**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092
Site ID **DDMT**
Memphis, TN

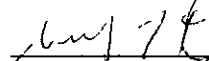
Date Arrived 07/01/98
ETC Order Number 9807003

ETC Lab ID **9807003-03**
Sample ID: RA-A-030-RB05
QC Batch : V10PSS2

Matrix :AQUEOUS
Sample Date :06/29/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				07/02/98	07/08/98	DC	8081A 3510C
Aldrin	ND	ug/L	0.04				
Alpha-BHC	ND	ug/L	0.04				
Beta-BHC	ND	ug/L	0.04				
Delta-BHC	ND	ug/L	0.04				
Gamma-BHC (Lindane)	ND	ug/L	0.04				
alpha-Chlordane	ND	ug/L	0.04				
gamma-Chlordane	ND	ug/L	0.04				
Chlordane (Technical)	ND	ug/L	0.50				
4,4'-DDD	ND	ug/L	0.04				
4,4'-DDE	ND	ug/L	0.04				
4,4'-DDT	ND	ug/L	0.04				
Dieldrin	ND	ug/L	0.04				
Endosulfan I	ND	ug/L	0.04				
Endosulfan II	ND	ug/L	0.04				
Endosulfan Sulfate	ND	ug/L	0.04				
Endrin	ND	ug/L	0.04				
Endrin Aldehyde	ND	ug/L	0.04				
Endrin Ketone	ND	ug/L	0.04				
Heptachlor	ND	ug/L	0.04				
Heptachlor Epoxide	ND	ug/L	0.04				
Methoxychlor	ND	ug/L	0.04				
Toxaphene	ND	ug/L	2.50				
Surrogate Standard	% Recovery		QC Limits				
S1 - Tetrachloro-m-xylene	52		31 96				
S2 - Decachlorobiphenyl	38		34 115				

ND - Not Detected


LABORATORY MANAGER

000010

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC Pesticides

ETC Order 9807-003

000011

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot

ETC Order # : 9807-003
Method (SW-846) : 8081A/3550B

HOLDING TIMES

Sample Extraction : All soil samples extracted within 14 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
V10PSS12 0701-1BLK

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.*

*
Surrogate recovery for Decachlorobiphenyl was flagged as outside QC Limits in sample 9807-003-01(RA-A-022-06-12" Area A12). Review of the raw data showed no obvious interference. Surrogate recovery for Tetrachloro-m-xylene was within QC Limits.

Laboratory Control Sample FORM 3
0701-1LCS

All criteria met.*

*
Endosulfan, alpha-Chlordane, and Endrin Aldehyde were flagged for high recovery in 0701-1LCS. High recovery indicates that detection levels were not affected. The data was not affected.

Matrix Spike / Matrix Spike Dup FORM 3
9807-003-02 RPD : All analytes within QC limits.*
RA-A-030-RB05 Spike Recovery : All analytes within QC limits.*

*
RPD for Methoxychlor was flagged as outside QC Limits.

Recoveries for multiple analytes were flagged outside QC Limits in the Matrix Spike and Matrix Spike Duplicate.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
0701-1BLK

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration	: All criteria met. FORM 6
Daily Calibration	: All criteria met. FORM 7A
Endrin/Breakdown	: All criteria met. FORM 7

000012

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

378 234

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot
ETC Order # : 9807-003
Method (SW-846) : 8081A/3550B

CALIBRATION

Initial Calibrations were performed using the linear regression option (first order) and are evaluated per section 7.5 of Method 8000B (SW-846 Revision 2) :

The correlation coefficient (r) must be 0.99 or greater for each analyte.

Calibration Verification Standards (CVS) were analyzed at approximately every 10th sample analyzed within the sequence and were evaluated per section 7.7 of Method 8000B (SW-846 Revision 2) :

1. The response for each analyte must be within 15% of expected.
- or
2. The average response for all calibrated analytes is within 15%.

Samples for this order were analyzed under three(3) analytical sequences :

Sequence S107112A (Primary Analysis)

A five(5)-point initial calibration was performed for this sequence.

Calibration Verification (S107112A-21R and S107112A-22R)

- Multiple analytes were flagged with %Difference >15% in S107112A-21R. High response.
- All analytes <15% difference in S107112A-22R.
- Average of %Difference for all analytes was within 15%.

Calibration Verification (S107112A-36R and S107112A-37R)

- Multiple analytes were flagged with %Difference >15% in S107112A-36R and S107112A-37R. High response.
- Average of %difference for all analytes >15%.

All samples analyzed after these CVs were re-analyzed. Laboratory Control Samples 0702-1LCS/LCSD associated with this order were re-analyzed under Sequence S107132A.

Sequence S107132A (Primary Analysis)

A five(5)-point initial calibration was performed for this sequence.

Calibration Verification (S107132A-22R and S107132A-23R)

- All analytes %Difference <15%.
- Average of %difference for all analytes was within 15%.

Calibration Verification (S107132A-35R and S107132A-36R)

- Injection problem noted for S107132A-35R. This CV was not used for evaluation.
- All analytes %Difference <15%.
- Average of %difference for all analytes was within 15%.

000013

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot
ETC Order # : 9807-003
Method (SW-846) : 8081A/3550B

CALIBRATION

Sequence S207131A (Primary Analysis)

A five(5)-point initial calibration was performed for this sequence.

Calibration Verification (S207131A-22R and S207131A-23R)

- Delta-BHC %Difference >15%. High response.
- 4,4'-DDT %Difference >15%. High response.
- Endosulfan Suflate %Difference >15%. High response.
- Methoxychlor %Difference >15%. High response.
- Endrin Ketone %Difference >15%. High response.
- Average of %difference for all analytes was within 15%.

Calibration Verification (S207131A-24R and S207131A-25R)

- Endrin %Difference =15%. Low response.
- 4,4'-DDT %Difference >15%. High response.
- Endosulfan Suflate %Difference >15%. High response.
- Methoxychlor %Difference >15%. High response.
- Average of %difference for all analytes was within 15%.

Calibration Verification (S207131A-26R)

- 4,4'-DDT %Difference >15%. High response.
- Endosulfan Suflate %Difference >15%. High response.
- Methoxychlor %Difference >15%. High response.
- Average of %difference for all analytes was within 15%.

Calibration Verification (S207131A-43R)

- Gamma-BHC %Difference >15%. High response.
- Delta-BHC %Difference >15%. High response.
- Endosulfan II %Difference >15%. High response.
- 4,4'-DDT %Difference >15%. High response.
- Endrin Aldehyde %Difference >15%. High response.
- Endosulfan Suflate %Difference >15%. High response.
- Methoxychlor %Difference >15%. High response.
- Endrin Ketone %Difference >15%. High response.
- Average of %difference for all analytes was >15%.

Results sample 9807-003-01(RA-A-022-06-12") was reported from this sequence. The ending CV showed high responses for all Target Analytes indicating that detection limits were not affected. No Target Analytes were identified in this sample. The data was not affected.

000014

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

378 236

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot
ETC Order # : 9807-003
Method (SW-846) : 8081A/3550B

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.*
*

<u>Sample ID</u>	<u>Dilutions Applied</u>	<u>Reason for Dilution</u>
9807-003-02	1:10	B

A - Levels of Non-Target Analyte interfering compounds.
B - Bring Target Analytes within calibration range.

Due to an instrument malfunction, confirmation data was not acquired for Sequence S107112A. No sample data requiring confirmation data was reported from this sequence.


Laboratory Manager

000015

378 237

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

0701-1BLK

Lab Prep Batch: V10PSS12

SDG No.: 9807-003

Lab File ID: S107112A-18R

Instrument ID: PEST1A

Matrix: (soil/water) SOIL

Date Analyzed: 07/12/98

Level:(low/med) LOW

Time Analyzed: 0555

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	9807-003-1		S107072A-07R	07/07/98
02	9807-003-2		S107072A-08R	07/08/98
03	9807-003-2MS		S107072A-16R	07/08/98
04	0701-1LCS		S107112A-25R	07/12/98
05	9807-003-1		S207131A-10R	07/13/98
06	9807-003-2		S207131A-11R	07/13/98
07	9807-003-2MS		S207131A-18R	07/14/98
08	9807-003-2MS		S207131A-19R	07/14/98
09	9807-003-1		S207131A-33R	07/14/98
10				
11				
12				
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29				
30				

COMMENTS:

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

378 238
EPA GC SAMPLE NO.

0701-1BLK

Lab Name: ETC, INC.

SDG No.: 9807-003

Matrix: (soil/water) SOIL

Lab Prep Batch: V10PSS12

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: S107112A-18R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10 (mL)

Date Analyzed: 07/12/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

319-84-6-----	alpha-BHC	1.33333	U
58-89-9-----	gamma-BHC (Lindane)	1.33333	U
319-85-7-----	beta-BHC	1.33333	U
76-44-8-----	Heptachlor	1.33333	U
319-86-8-----	delta-BHC	1.33333	U
309-00-2-----	Aldrin	1.33333	U
1024-57-3-----	Heptachlor epoxide	1.33333	U
5103-74-2-----	gamma-chlordane	1.33333	U
959-98-8/5103-71	Endosulfan I/alpha-chlordane	1.33333	U
72-55-9-----	4,4'-DDE	1.33333	U
60-57-1-----	Dieldrin	1.33333	U
72-20-8-----	Endrin	1.33333	U
72-54-8-----	4,4'-DDD	1.33333	U
33213-65-9-----	Endosulfan II	1.33333	U
50-29-3-----	4,4'-DDT	1.33333	U
7421-93-4-----	Endrin aldehyde	1.33333	U
1031-07-8-----	Endosulfan sulfate	1.33333	U
72-43-5-----	Methoxychlor	1.33333	U
53494-70-5-----	Endrin Ketone	1.33333	U

FORM I PESTICIDE

000017

FORM 3
SOIL PESTICIDE LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V10PSS12

SDG No.: 9807-003

Matrix Spike - Sample No.: 0701-11cs

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
alpha-BHC	33.33333		34.90797	105	22-112
gamma-BHC (Lindane)	33.33333		35.96527	108	26-113
beta-BHC	33.33333		36.36353	109	54-120
Heptachlor	33.33333		37.71123	113	47-113
delta-BHC	33.33333		31.87128	96	10- 96
Aldrin	33.33333		33.48624	100	31-111
Heptachlor epoxide	33.33333		35.23296	106	47-112
gamma-chlordane	33.33333		35.26863	106	50-106
Endosulfan I/alpha-chlo	33.33333		35.34545	106*	49-103
4,4'-DDE	33.33333		33.53622	101	36-117
Dieldrin	33.33333		34.07587	102	44-108
Endrin	33.33333		33.67491	101	44-118
4,4'-DDD	33.33333		33.06262	99	47-112
Endosulfan II	33.33333		37.65948	113	53-115
4,4'-DDT	33.33333		36.33046	109	49-124
Endrin aldehyde	33.33333		40.10057	120	48-128
Endosulfan sulfate	33.33333		37.25523	112*	51-110
Methoxychlor	33.33333		33.47823	100	39-147
Endrin Ketone	33.33333		39.88654	120	38-130

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 2 out of 19 outside limits

COMMENTS:

378 240

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: V10PSS12

SDG No.: 9807-003

Matrix Spike - Sample No.: 9807-003-2

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
alpha-BHC	33.33333	0.00000	31.34464	94	22-112
gamma-BHC (Lindane)	33.33333	0.00000	33.38478	100	26-113
beta-BHC	33.33333	0.00000	32.35247	97	54-120
Heptachlor	33.33333	0.00000	30.72402	92	47-113
delta-BHC	33.33333	0.00000	35.14282	105*	10- 96
Aldrin	33.33333	0.00000	28.68714	86	31-111
Heptachlor epoxide	33.33333	0.00000	30.15438	90	47-112
gamma-chlordane	33.33333	0.00000	31.79289	95	50-106
Endosulfan I/alpha-chlo	33.33333	1.44648	34.10903	98	49-103
4,4'-DDE	33.33333	49.02870	65.23112	49	36-117
Dieldrin	33.33333	50.99235	92.07262	123*	44-108
Endrin	33.33333	1.53728	31.93834	91	44-118
4,4'-DDD	33.33333	4.04059	34.87410	92	47-112
Endosulfan II	33.33333	0.00000	42.97715	129*	53-115
4,4'-DDT	33.33333	34.17072	72.61840	115	49-124
Endrin aldehyde	33.33333	0.00000	43.66375	131*	48-128
Endosulfan sulfate	33.33333	0.38462	38.31442	114*	51-110
Methoxychlor	33.33333	40.11308	44.12056	12*	39-147
Endrin Ketone	33.33333	0.00000	43.11548	129	38-130

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS: _____

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: V10PSS12

SDG No.: 9807-003

Matrix Spike - Sample No.: 9807-003-2

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD	%	QC LIMITS	
			REC #	RPD #	RPD	REC.
alpha-BHC	33.22259	30.94593	93	1	20	22-112
gamma-BHC (Lindane)	33.22259	32.11627	97	3	20	26-113
beta-BHC	33.22259	30.19107	91	6	20	54-120
Heptachlor	33.22259	29.64217	89	3	20	47-113
delta-BHC	33.22259	33.18485	100*	5	20	10- 96
Aldrin	33.22259	27.02669	81	6	20	31-111
Heptachlor epoxide	33.22259	27.66686	83	8	20	47-112
gamma-chlordane	33.22259	29.70491	89	6	20	50-106
Endosulfan I/alpha-chlo	33.22259	31.64381	91	7	20	49-103
4,4'-DDE	33.22259	66.89819	54	10	20	36-117
Dieldrin	33.22259	93.88955	129*	5	20	44-108
Endrin	33.22259	29.65091	85	7	20	44-118
4,4'-DDD	33.22259	32.14889	85	8	20	47-112
Endosulfan II	33.22259	38.84403	117*	10	20	53-115
4,4'-DDT	33.22259	68.84736	104	10	20	49-124
Endrin aldehyde	33.22259	41.60004	125	5	20	48-128
Endosulfan sulfate	33.22259	35.64720	106	7	20	51-110
Methoxychlor	33.22259	64.49342	73	144*	20	39-147
Endrin Ketone	33.22259	45.02375	136*	5	20	38-130

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 1 out of 19 outside limits
Spike Recovery: 10 out of 38 outside limits

COMMENTS:

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - AQUEOUS

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot
ETC Order # : 9807-003
Method (SW-846) : 8081A/3510C

HOLDING TIMES

Sample Extraction : All aqueous samples extracted within 7 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
V13PSA15 0702-1BLK

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
0702-1LCS/LCSD

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
RPD : NA*
Spike Recovery : NA*

*
Due to the limited amount of sample available, no MS/MSD were
extracted.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
0702-1BLK

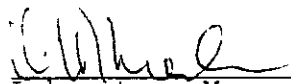
No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration	: All criteria met. FORM 6
Daily Calibration	: All criteria met. FORM 7A
Endrin/Breakdown	: All criteria met. FORM 7

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.


Laboratory Manager

378 243

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

0702-1BLK

Lab Prep Batch: V13PSA15

SDG No.: 9807-003

Lab File ID: S107112A-24R

Instrument ID: PEST1A

Matrix: (soil/water) WATER

Date Analyzed: 07/12/98

Level:(low/med) LOW

Time Analyzed: 0953

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	9807-003-3		S107072A-09R	07/08/98
02	0702-1LCS		S107132A-25R	07/14/98
03	0702-1LCSD		S107112A-26R	07/14/98
04				
05				
06				
07				
08				
09				
10				
11				
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29				
30				

COMMENTS:

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

378 244
EPA GC SAMPLE NO.

0702-1BLK

Lab Name: ETC, INC.

SDG No.: 9807-003

Matrix: (soil/water) WATER

Lab Prep Batch: V13PSA15

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: S107112A-24R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 07/12/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6-----	alpha-BHC	0.04000	U
58-89-9-----	gamma-BHC (Lindane)	0.04000	U
319-85-7-----	beta-BHC	0.04000	U
76-44-8-----	Heptachlor	0.04000	U
319-86-8-----	delta-BHC	0.04000	U
309-00-2-----	Aldrin	0.04000	U
1024-57-3-----	Heptachlor epoxide	0.04000	U
5103-74-2-----	gamma-chlordane	0.04000	U
959-98-8/5103-71	Endosulfan I/alpha-chlordane	0.04000	U
72-55-9-----	4,4'-DDE	0.04000	U
60-57-1-----	Dieldrin	0.04000	U
72-20-8-----	Endrin	0.04000	U
72-54-8-----	4,4'-DDD	0.04000	U
33213-65-9-----	Endosulfan II	0.04000	U
50-29-3-----	4,4'-DDT	0.04000	U
7421-93-4-----	Endrin aldehyde	0.04000	U
1031-07-8-----	Endosulfan sulfate	0.04000	U
72-43-5-----	Methoxychlor	0.04000	U
53494-70-5-----	Endrin Ketone	0.04000	U

FORM I PESTICIDE

000023

378 245

FORM 3
WATER PESTICIDE LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V13PSA15

SDG No.: 9807-003

Matrix Spike - Sample No.: 0702-11cs

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
alpha-BHC	1.00000		0.79185	79	41-102
gamma-BHC (Lindane)	1.00000		0.84068	84	41-102
beta-BHC	1.00000		0.85974	86	26-151
Heptachlor	1.00000		0.81918	82	43-114
delta-BHC	1.00000		0.64648	65	21- 92
Aldrin	1.00000		0.75289	75	34-105
Heptachlor epoxide	1.00000		0.83744	84	42-115
gamma-chlordane	1.00000		0.86825	87	50-108
Endosulfan I/alpha-chlo	1.00000		0.87295	87	48-117
4,4'-DDE	1.00000		0.80708	81	41-111
Dieldrin	1.00000		0.82602	83	42-111
Endrin	1.00000		0.86968	87	45-117
4,4'-DDD	1.00000		0.83775	84	39-124
Endosulfan II	1.00000		0.89649	90	52-114
4,4'-DDT	1.00000		0.87918	88	39-123
Endrin aldehyde	1.00000		0.90710	91	48-125
Endosulfan sulfate	1.00000		0.83130	83	46-111
Methoxychlor	1.00000		0.84394	84	39-140
Endrin Ketone	1.00000		0.90146	90	51-112

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

COMMENTS:

FORM 3
WATER PESTICIDE LABORATORY CONTROL SAMPLE

378 246

Lab Name: ETC, INC.

Lab Prep Batch: V13PSA15

SDG No.: 9807-003

Matrix Spike - Sample No.: 0702-11cs

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
alpha-BHC	1.00000	0.80554	80	1	20	41-102
gamma-BHC (Lindane)	1.00000	0.82508	82	2	20	41-102
beta-BHC	1.00000	0.89851	90	4	20	26-151
Heptachlor	1.00000	0.82019	82	0	20	43-114
delta-BHC	1.00000	0.66374	66	2	20	21- 92
Aldrin	1.00000	0.76437	76	1	20	34-105
Heptachlor epoxide	1.00000	0.85382	85	1	20	42-115
gamma-chlordane	1.00000	0.85770	86	1	20	50-108
Endosulfan I/alpha-chlo	1.00000	0.88679	89	2	20	48-117
4,4'-DDE	1.00000	0.78707	79	2	20	41-111
Dieldrin	1.00000	0.85017	85	2	20	42-111
Endrin	1.00000	0.91470	91	4	20	45-117
4,4'-DDD	1.00000	0.91619	92	9	20	39-124
Endosulfan II	1.00000	0.91763	92	2	20	52-114
4,4'-DDT	1.00000	0.94144	94	6	20	39-123
Endrin aldehyde	1.00000	0.88881	89	2	20	48-125
Endosulfan sulfate	1.00000	0.76770	77	8	20	46-111
Methoxychlor	1.00000	0.70371	70	18	20	39-140
Endrin Ketone	1.00000	0.86930	87	3	20	51-112

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 19 outside limits
Spike Recovery: 0 out of 38 outside limits

COMMENTS:

DISPOSAL CHARACTERIZATION SAMPLES

Date Collected 07/02/98

RA-A-031-DS

RA-A-032-DS

RA-A-033-DS



378 248
ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334

Founded 1972

July 9, 1998

Ms. Elena Rodriguez
OHM Remediation Services
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

Ref: Analytical Testing
ETC Order # 9807092
Project Description DDMT

OHM Project # 20560

Defense Depot - Memphis, TN

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th/18th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136.

The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read 'N. Pera', is written over the word 'Sincerely,'.

Nathan A. Pera, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT

Memo



**OHM Remediation
Services Corp.**
A Subsidiary of OHM Corporation

TO: Steve Offner
FROM: Sushama Paranjape *SP*
PC: Terry Whitt (w/o Attachments)
Theresa Rojas (w/o Attachments)
DATE: August 3, 1998
SUBJECT: Document Transfer
Defense Depot Memphis Tennessee
OHM Project No. 20560

Enclosed please find the laboratory hard copy data packages for the Defense Depot Memphis TN Project. The data included in the packages are validated and are found to be of acceptable quality as reported by the laboratory.

Package No.	Sample No.s	Laboratory
9807092	RA-A-031-DS	Environmental Testing and Consulting, Inc.
	RA-A-032-DS	
	RA-A-033-DS	

Please call me at Ext. 8062 if you have any questions

Environmental Testing & Consulting, Inc.
Data Qualifiers for Organic Reporting

Within the attached report, some analytical data may be reported as "Qualified Data" as indicated by a "Data Qualifier" next to the result. This table summarizes the possible "Data Qualifiers" that may be associated with this report.

Q	Surrogate Recovery Outside QC Limits
J	Estimated Value. Presence of the compound was confirmed but less than the reported detection limit.
E	Concentration exceeds the established method calibration range but is within the working range of the instrument.
B	Analyte detected in the associated Method Blank.
U	Reported result was unconfirmed. Refer to Case Narrative.
N	Non-Compliance Report associated with this sample or project.
C	Result reported from GC/MS confirmation analysis.
*	QC Data (percent recovery/RPD for a particular analyte was outside QC Limits)

ENVIRONMENTAL TESTING & CONSULTING, INC.
 2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ANALYTICAL SUMMARY TABLE

Client Name OHM Remediation Services
 Site ID DDMT
 Memphis, TN

ETC Sample ID	Field ID	Matrix	Method	Method Description
980709201	RA-A-031-DS	SOIL	8081A	TCLP Pesticides
980709201	RA-A-031-DS	SOIL	8151A	TCLP Herbicides
980709201	RA-A-031-DS	SOIL	8260B	TCLP Volatile Organics
980709201	RA-A-031-DS	SOIL	8270C	TCLP Semivolatiles
980709201	RA-A-031-DS	SOIL	6010B	Silver - TCLP
980709201	RA-A-031-DS	SOIL	6010B	Arsenic - TCLP
980709201	RA-A-031-DS	SOIL	6010B	Barium - TCLP
980709201	RA-A-031-DS	SOIL	6010B	Cadmium - TCLP
980709201	RA-A-031-DS	SOIL	6010B	Chromium - TCLP
980709201	RA-A-031-DS	SOIL	7470A	Mercury - TCLP
980709201	RA-A-031-DS	SOIL	6010B	Lead - TCLP
980709201	RA-A-031-DS	SOIL	6010B	Selenium - TCLP
980709202	RA-A-032-DS	SOIL	8081A	TCLP Pesticides
980709202	RA-A-032-DS	SOIL	8151A	TCLP Herbicides
980709202	RA-A-032-DS	SOIL	8260B	TCLP Volatile Organics
980709202	RA-A-032-DS	SOIL	8270C	TCLP Semivolatiles
980709202	RA-A-032-DS	SOIL	6010B	Silver - TCLP
980709202	RA-A-032-DS	SOIL	6010B	Arsenic - TCLP
980709202	RA-A-032-DS	SOIL	6010B	Barium - TCLP
980709202	RA-A-032-DS	SOIL	6010B	Cadmium - TCLP
980709202	RA-A-032-DS	SOIL	6010B	Chromium - TCLP
980709202	RA-A-032-DS	SOIL	7470A	Mercury - TCLP
980709202	RA-A-032-DS	SOIL	6010B	Lead - TCLP
980709202	RA-A-032-DS	SOIL	6010B	Selenium - TCLP
980709203	RA-A-033-DS	SOIL	8081A	TCLP Pesticides
980709203	RA-A-033-DS	SOIL	8151A	TCLP Herbicides
980709203	RA-A-033-DS	SOIL	8260B	TCLP Volatile Organics
980709203	RA-A-033-DS	SOIL	8270C	TCLP Semivolatiles
980709203	RA-A-033-DS	SOIL	6010B	Silver - TCLP
980709203	RA-A-033-DS	SOIL	6010B	Arsenic - TCLP
980709203	RA-A-033-DS	SOIL	6010B	Barium - TCLP
980709203	RA-A-033-DS	SOIL	6010B	Cadmium - TCLP
980709203	RA-A-033-DS	SOIL	6010B	Chromium - TCLP
980709203	RA-A-033-DS	SOIL	7470A	Mercury - TCLP
980709203	RA-A-033-DS	SOIL	6010B	Lead - TCLP
980709203	RA-A-033-DS	SOIL	6010B	Selenium - TCLP

000002

378 252

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody

000003



**OHM Remediation
Services Corp**
Subsidiary of OHM Corp

Subsidiary of OHM Corporation
US Route 224 East • Findlay, OH

(419) 423-7526

CHAIN-OF-CUSTODY RECORD

LABORATORY CO.

217873

FORM 0019 REV 2 97

OHM - LAB COORDINATOR		LAB COORDINATOR'S PHONE		LAB COORDINATOR'S FAX		LABORATORY SERVICE ID		LABORATORY CONTACT		MAIL REPORT (COMPANY NAME)		
Elena Rodriguez		770-734-8060		770-453-7716		ETC		Nathan Pera		OHM Remediation Services Corp		
PROJECT NAME		PROJECT LOCATION		PROJECT NUMBER		LABORATORY PHONE		LABORATORY FAX		RECIPIENT NAME		
DMT		Memphis, TN		20560		901-327-2750		901-327-6334		Elena Rodriguez		
PROJECT CONTACT		PROJECT MGR. NAME		PROJECT FAX		LABORATORY ADDRESS		ADDRESS		CITY STATE AND ZIP CODE		
Steve Offner		901-743-1117		901-743-1048		2924 Walnut Grove Road		5445 Triangle Pkwy, #400		Norcross, GA 30092		
PROJECT ADDRESS		CITY STATE AND ZIP CODE		CITY STATE AND ZIP CODE		CITY STATE AND ZIP CODE		CITY STATE AND ZIP CODE		CITY STATE AND ZIP CODE		
1708 Dunn Ave.		Memphis, TN 38114		USACE		Memphis, TN 38111		Memphis, TN 38111		Memphis, TN 38111		
PROJECT MANAGER		PROJECT MANAGER'S PHONE		PROJECT MANAGER'S FAX		PROJECT MANAGER'S PHONE		PROJECT MANAGER'S FAX		PROJECT MANAGER'S PHONE		
Steve Offner		770-326-2571		770-453-7716		770-326-2571		770-453-7716		770-326-2571		
Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont	QC Level	TAT	Analyses			Comments
1	RA-B-031-D5				40	3x802 OHM	7004	✓	✓	✓	✓	Please fax results on DUE DATE to SITE and to Lab Coordinator <i>Disposal Sample Area B</i>
2	RA-B-032-D5				40	3x802 OHM	7004	✓	✓	✓	✓	
3	RA-B-033-D5				40	3x802 OHM	7004	✓	✓	✓	✓	
4					40	3x802 OHM	7004	✓	✓	✓	✓	
5					40	3x802 OHM	7004	✓	✓	✓	✓	
6					40	3x802 OHM	7004	✓	✓	✓	✓	
7					40	3x802 OHM	7004	✓	✓	✓	✓	
8					40	3x802 OHM	7004	✓	✓	✓	✓	
9					40	3x802 OHM	7004	✓	✓	✓	✓	
10					40	3x802 OHM	7004	✓	✓	✓	✓	
SAMPLES COLLECTED BY		CORRIGER AND AIR BILL NUMBER		RECEIVED BY		DATE		TIME		SAMPLE'S COMPANY UPON RECEIPT		
56		01/16/02		D. H. H. H.		1435		4400		4400		
RECEIVED BY		DATE		TIME		SAMPLE'S COMPANY UPON RECEIPT		SAMPLE'S COMPANY UPON RECEIPT		SAMPLE'S COMPANY UPON RECEIPT		
8/10/02		1435		4400		4400		4400		4400		

Distribution White - Laboratory (To be returned with Analytical Report). Gold/Red - Project File. Yellow - Project Data Manager

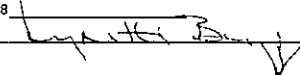
FORM 0019 2 97

COOLER RECEIPT FORM

Cooler Receipt Form
9807092 CRF p 1

LIMS # 9807-092 Number of Coolers 1
 Date Received 07/02/98
 VDTSR 07/02/98 14:35
 PROJECT DDMT-Memphis, TN

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS

A PRELIMINARY EXAMINATION PHASE Date cooler was opened 07/02/98
 by (print) Lynette Bugg (sign) 

1 Did cooler come with a shipping slip (airbill, etc)? NO
 If YES, enter carrier name & airbill number _____

2a Were custody seals on outside of cooler? NO
 2b Were custody seals on sample containers? NO

3 Were custody seals unbroken and intact at the date and time of arrival? NO

4 Did you screen samples for radioactivity using a Geiger Counter? NO

5 Were custody papers sealed in a plastic bag & taped inside to the lid? NO

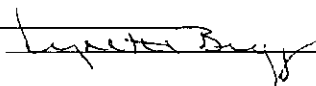
6 Were custody papers filled out properly (ink, signed, etc)? YES

7 Did you sign custody papers in the appropriate place? YES

8 Was project identifiable from custody papers? If YES, enter project name at top of this form YES

9 If required, was enough ice used? cooler temp <4°C , Type of ice Bagged YES

10 Have designated person initial here to acknowledge receipt of cooler LB date 07/02/98

B LOG-IN PHASE Date samples were logged-in 07/02/98
 by (print) Lynette Bugg (sign) 

11 Describe type of packing in cooler Bubble Wrap and Ice

12 Were all bottles sealed in separate plastic bags? YES

13 Did all bottles arrive unbroken and were labels in good condition? YES

14 Were all bottle labels complete (ID, date, time, signature, preserved, etc)? YES

15 Did all bottle labels agree with custody papers? YES

16 Were correct containers used for the tests indicated? YES

17 Were correct preservatives added to samples? YES

18 Was a sufficient amount of sample sent for tests indicated? YES

19 Were bubbles absent in VOA samples? If NO, list by sample# _____ NA

20 Was the project manager called and status discussed? If YES, give details on the back of this form NO

21 Who was called? _____ By whom ? _____ (date) _____

VDTSR - Validated Date/Time of Sample Receipt (Date sample is logged into LIMS system)

000005

Environmental Testing & Consulting, Inc.

Sample Reports

000006

378 256

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
INORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project # 20560

Date Arrived 07/02/98
ETC Order Number 9807092

ETC Lab ID **9807092-01**
Sample ID: RA-A-031-DS

Matrix :Soil
Sample Date :07/02/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE PREPARED	DATE ANALYZED	METHOD	QC BATCH
Metals Digestion Batch				07/07/98		3015A	V5-TC-37
Mercury Digestion Batch				07/07/98		7470	V3-TC-15
TCLP Extraction	Leachate	mg/L		07/06/98		1311	
Silver - TCLP	ND	mg/L	0.500	07/07/98	07/08/98	6010B	
Arsenic - TCLP	ND	mg/L	0.500	07/07/98	07/08/98	6010B	
Barium - TCLP	ND	mg/L	5.00	07/07/98	07/08/98	6010B	
Cadmium - TCLP	ND	mg/L	0.100	07/07/98	07/08/98	6010B	
Chromium - TCLP	ND	mg/L	0.500	07/07/98	07/08/98	6010B	
Mercury - TCLP	ND	mg/L	0.020	07/07/98	07/07/98	7470A	
Lead - TCLP	ND	mg/L	0.500	07/07/98	07/08/98	6010B	
Selenium - TCLP	ND	mg/L	0.500	07/07/98	07/08/98	6010B	


LABORATORY MANAGER

000007

378 257

ENVIRONMENTAL TESTING & CONSULTING, INC.
 2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
INORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project # 20560

Date Arrived 07/02/98
 ETC Order Number 9807092

ETC Lab ID 9807092-02
Sample ID: RA-A-032-DS

Matrix :Soil
 Sample Date :07/02/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE PREPARED	DATE ANALYZED	METHOD	QC BATCH
Metals Digestion Batch				07/07/98		3015A	V5-TC-67
Mercury Digestion Batch				07/07/98		7470	V3-TC-15
TCLP Extraction	Leachate	mg/L		07/06/98		1311	
Silver - TCLP	ND	mg/L	0.500	07/07/98	07/08/98	6010B	
Arsenic - TCLP	ND	mg/L	0.500	07/07/98	07/08/98	6010B	
Barium - TCLP	ND	mg/L	5.00	07/07/98	07/08/98	6010B	
Cadmium - TCLP	ND	mg/L	0.100	07/07/98	07/08/98	6010B	
Chromium - TCLP	ND	mg/L	0.500	07/07/98	07/08/98	6010B	
Mercury - TCLP	ND	mg/L	0.020	07/07/98	07/07/98	7470A	
Lead - TCLP	ND	mg/L	0.500	07/07/98	07/08/98	6010B	
Selenium - TCLP	ND	mg/L	0.500	07/07/98	07/08/98	6010B	


 LABORATORY MANAGER

000008

373 258

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
INORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project # 20560

Date Arrived 07/02/98
ETC Order Number 9807092

ETC Lab ID 9807092-03
Sample ID: RA-A-033-DS

Matrix :Soil
Sample Date 07/02/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE PREPARED	DATE ANALYZED	METHOD	QC BATCH
Metals Digestion Batch				07/07/98		3015A	V5-TC-67
Mercury Digestion Batch				07/07/98		7470	V3-TC-15
TCLP Extraction	Leachate	mg/L		07/06/98		1311	
Silver - TCLP	ND	mg/L	0.500	07/07/98	07/08/98	6010B	
Arsenic - TCLP	ND	mg/L	0.500	07/07/98	07/08/98	6010B	
Barium - TCLP	ND	mg/L	5.00	07/07/98	07/08/98	6010B	
Cadmium - TCLP	ND	mg/L	0.100	07/07/98	07/08/98	6010B	
Chromium - TCLP	ND	mg/L	0.500	07/07/98	07/08/98	6010B	
Mercury - TCLP	ND	mg/L	0.020	07/07/98	07/07/98	7470A	
Lead - TCLP	ND	mg/L	0.500	07/07/98	07/08/98	6010B	
Selenium - TCLP	ND	mg/L	0.500	07/07/98	07/08/98	6010B	


LABORATORY MANAGER

000009

378 259

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services** . OHM Project **20560**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092
 Site ID **DDMT**
Memphis, TN

Date Arrived 07/02/98
 ETC Order Number 9807092

ETC Lab ID **9807092-01**
Sample ID: RA-A-031-DS
QC Batch : V2070801

Matrix :SOIL
 Sample Date :07/02/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Volatile Organics				07/08/98	07/08/98	LS	8260B 5030B
Analysis Batch Method		mg/L					
Benzene	ND	mg/L	0 010				
Carbon Tetrachloride	ND	mg/L	0 010				
Chlorobenzene	ND	mg/L	0 010				
Chloroform	ND	mg/L	0 050				
1,4-Dichlorobenzene	ND	mg/L	0.010				
1,2-Dichloroethane	ND	mg/L	0 010				
1,1-Dichloroethene	ND	mg/L	0 010				
Methyl Ethyl Ketone	ND	mg/L	1				
Tetrachloroethene	ND	mg/L	0 010				
Trichloroethene	ND	mg/L	0 010				
Vinyl Chloride	ND	mg/L	0 010				
Surrogate Standard							
	% Recovery		QC Limits				
S1 - Dibromofluoromethane	103		87 107				
S2 - Toluene-d8	101		91 108				
S3 - 4-Bromofluorobenzene	106		88 107				
TCLP Extraction ZHE Leachate				07/06/98		TL	1311

ND - Not Detected


 LABORATORY MANAGER

000010

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name OHM Remediation Services
 Defense Depot - Memphis, TN
 5335 Triangle Parkway
 Suite 450

OHM Project 20560

Norcross, GA 30092

Site ID DDMT
 Memphis, TN

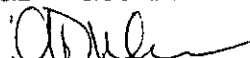
Date Arrived 07/02/98
 ETC Order Number 9807092

ETC Lab ID 9807092-02
Sample ID: RA-A-032-DS
QC Batch : V2070801

Matrix :SOIL
 Sample Date :07/02/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Volatile Organics				07/08/98	07/08/98	LS	8260B 5030B
Analysis Batch Method		mg/L					
Benzene	ND	mg/L	0.010				
Carbon Tetrachloride	ND	mg/L	0.010				
Chlorobenzene	ND	mg/L	0.010				
Chloroform	ND	mg/L	0.050				
1,4-Dichlorobenzene	ND	mg/L	0.010				
1,2-Dichloroethane	ND	mg/L	0.010				
1,1-Dichloroethene	ND	mg/L	0.010				
Methyl Ethyl Ketone	ND	mg/L	1				
Tetrachloroethene	ND	mg/L	0.010				
Trichloroethene	ND	mg/L	0.010				
Vinyl Chloride	ND	mg/L	0.010				
Surrogate Standard	% Recovery		QC Limits				
S1 - Dibromofluoromethane	102		87 107				
S2 - Toluene-d8	101		91 108				
S3 - 4-Bromofluorobenzene	105		88 107				
TCLP Extraction ZHE	Leachate			07/06/98		TL	1311

ND - Not Detected


 LABORATORY MANAGER

000011

ENVIRONMENTAL TESTING & CONSULTING, INC.
 2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

OHM Project **20560**

Date Arrived 07/02/98
 ETC Order Number 9807092

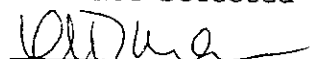
ETC Lab ID 9807092-03
Sample ID: RA-A-033-DS
QC Batch : V2070801

Matrix :SOIL
 Sample Date :07/02/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Volatile Organics				07/06/98	07/08/98	LS	8260B 5030B
Analysis Batch Method		mg/L					
Benzene	ND	mg/L	0.010				
Carbon Tetrachloride	ND	mg/L	0.010				
Chlorobenzene	ND	mg/L	0.010				
Chloroform	ND	mg/L	0.050				
1,4-Dichlorobenzene	ND	mg/L	0.010				
1,2-Dichloroethane	ND	mg/L	0.010				
1,1-Dichloroethene	ND	mg/L	0.010				
Methyl Ethyl Ketone	ND	mg/L	1				
Tetrachloroethene	ND	mg/L	0.010				
Trichloroethene	ND	mg/L	0.010				
Vinyl Chloride	ND	mg/L	0.010				
Surrogate Standard	% Recovery		QC Limits				
S1 - Dibromofluoromethane	103		87 107				
S2 - Toluene-d8	102		91 108				
S3 - 4-Bromofluorobenzene	107		88 107				

TCLP Extraction ZHE Leachate 07/06/98 TL 1311

ND - Not Detected


 LABORATORY MANAGER

000012

373 262

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services** OHM Project **20560**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

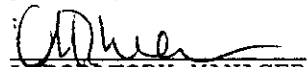
Date Arrived 07/02/98
 ETC Order Number 9807092

ETC Lab ID **9807092-01**
Sample ID: RA-A-031-DS
QC Batch : V21BAA19

Matrix :SOIL
 Sample Date :07/02/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Semivolatiles				07/07/98	07/07/98	CB	8270C 3510C
Analysis Batch Method		mg/L					
o-Cresol	ND	mg/L	0.008				
m-Cresol	ND	mg/L	0.008				
p-Cresol	ND	mg/L	0.008				
Cresol (Total)	ND	mg/L	0.008				
Pentachlorophenol	ND	mg/L	0.020				
2,4,5-Trichlorophenol	ND	mg/L	0.008				
2,4,6-Trichlorophenol	ND	mg/L	0.008				
1,4-Dichlorobenzene	ND	mg/L	0.008				
2,4-Dinitrotoluene	ND	mg/L	0.008				
Hexachlorobenzene	ND	mg/L	0.008				
Hexachlorobutadiene	ND	mg/L	0.008				
Hexachloroethane	ND	mg/L	0.008				
Nitrobenzene	ND	mg/L	0.008				
Pyridine	ND	mg/L	0.008				
Surrogate Standard	% Recovery		QC Limits				
S1 - Nitrobenzene-d5	63		35 85				
S2 - 2-Fluorobiphenyl	64		46 84				
S3 - 4-Terphenyl-d14	70		33 113				
S4 - Phenol-d6	30		12 48				
S5 - 2,4,6-Tribromophenol	79		10 100				
S6 - 2-Fluorophenol	37		21 73				
TCLP Extraction Organics	Leachate			07/06/98		TL	1311

ND - Not Detected


 LABORATORY MANAGER

000013

378 263

ENVIRONMENTAL TESTING & CONSULTING, INC.
 2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450

OHM Project **20560**

Site ID **DDMT**
Memphis, TN

Date Arrived **07/02/98**
 ETC Order Number **9807092**

ETC Lab ID **9807092-02**
Sample ID: RA-A-032-DS
QC Batch : V21BAA19

Matrix : **SOIL**
 Sample Date : **07/02/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD

TCLP Semivolatiles

Analysis Batch Method

07/07/98 07/07/98 CB 8270C
 3510C

o-Cresol	ND	mg/L	0.008
m-Cresol	ND	mg/L	0.008
p-Cresol	ND	mg/L	0.008
Cresol (Total)	ND	mg/L	0.008
Pentachlorophenol	ND	mg/L	0.020
2,4,5-Trichlorophenol	ND	mg/L	0.008
2,4,6-Trichlorophenol	ND	mg/L	0.008
1,4-Dichlorobenzene	ND	mg/L	0.008
2,4-Dinitrotoluene	ND	mg/L	0.008
Hexachlorobenzene	ND	mg/L	0.008
Hexachlorobutadiene	ND	mg/L	0.008
Hexachloroethane	ND	mg/L	0.008
Nitrobenzene	ND	mg/L	0.008
Pyridine	ND	mg/L	0.008

Surrogate Standard

% Recovery

QC Limits

S1 - Nitrobenzene-d5	63	35	85
S2 - 2-Fluorobiphenyl	66	46	84
S3 - 4-Terphenyl-d14	67	33	113
S4 - Phenol-d6	30	12	48
S5 - 2,4,6-Tribromophenol	77	10	100
S6 - 2-Fluorophenol	36	21	73

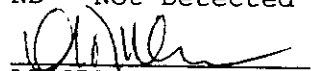
TCLP Extraction Organics

Leachate

07/06/98

TL 1311

ND - Not Detected


 LABORATORY MANAGER

000014

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services** OHM Project **20560**
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092
 Site ID **DDMT**
Memphis, TN

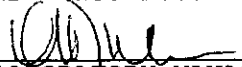
Date Arrived 07/02/98
 ETC Order Number 9807092

ETC Lab ID **9807092-03**
Sample ID: RA-A-033-DS
QC Batch : V21BAA19

Matrix :SOIL
 Sample Date :07/02/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Semivolatiles				07/07/98	07/07/98	CB	8270C 3510C
Analysis Batch Method		mg/L					
o-Cresol	ND	mg/L	0.008				
m-Cresol	ND	mg/L	0.008				
p-Cresol	ND	mg/L	0.008				
Cresol (Total)	ND	mg/L	0.008				
Pentachlorophenol	ND	mg/L	0.020				
2,4,5-Trichlorophenol	ND	mg/L	0.008				
2,4,6-Trichlorophenol	ND	mg/L	0.008				
1,4-Dichlorobenzene	ND	mg/L	0.008				
2,4-Dinitrotoluene	ND	mg/L	0.008				
Hexachlorobenzene	ND	mg/L	0.008				
Hexachlorobutadiene	ND	mg/L	0.008				
Hexachloroethane	ND	mg/L	0.008				
Nitrobenzene	ND	mg/L	0.008				
Pyridine	ND	mg/L	0.008				
Surrogate Standard	% Recovery		QC Limits				
S1 - Nitrobenzene-d5	69		35 85				
S2 - 2-Fluorobiphenyl	75		46 84				
S3 - 4-Terphenyl-d14	74		33 113				
S4 - Phenol-d6	31		12 48				
S5 - 2,4,6-Tribromophenol	84		10 100				
S6 - 2-Fluorophenol	40		21 73				
TCLP Extraction Organics	Leachate			07/06/98		TL	1311

ND - Not Detected


 LABORATORY MANAGER

000015

378 265

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services** Project 20560
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092
Site ID **DDMT**
Memphis, TN

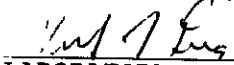
Date Arrived 07/02/98
ETC Order Number 9807092

ETC Lab ID 9807092-01
Sample ID: RA-A-031-DS
QC Batch : V13PSA16

Matrix :SOIL
Sample Date :07/02/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Pesticides				07/07/98	07/08/98	RG	8081A 3510
Chlordane	ND	mg/L	0.010				
Heptachlor	ND	mg/L	0.001				
Gamma-BHC	ND	mg/L	0.001				
Endrin	ND	mg/L	0.001				
Methoxychlor	ND	mg/L	0.040				
Toxaphene	ND	mg/L	0.100				
<u>Surrogate Standard</u>	<u>% Recovery</u>		<u>QC Limits</u>				
S1 - Decachlorobiphenyl	40		34 115				
S2 - Tetrachloro-m-xylene	36		31 96				
TCLP Extraction Organics	Leachate			07/06/98		TL	1311

ND - Not Detected


LABORATORY MANAGER

000016

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services** Project 20560
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

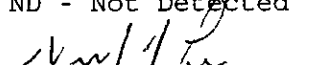
Date Arrived 07/02/98
 ETC Order Number 9807092

ETC Lab ID **9807092-02**
Sample ID: RA-A-032-DS
QC Batch : V13PSA16

Matrix :SOIL
 Sample Date :07/02/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Pesticides				07/07/98	07/08/98	RG	8081A 3510
Chlordane	ND	mg/L	0.010				
Heptachlor	ND	mg/L	0.001				
Gamma-BHC	ND	mg/L	0.001				
Endrin	ND	mg/L	0.001				
Methoxychlor	ND	mg/L	0.040				
Toxaphene	ND	mg/L	0.100				
<u>Surrogate Standard</u>	<u>% Recovery</u>		<u>QC Limits</u>				
S1 - Decachlorobiphenyl	38		34	115			
S2 - Tetrachloro-m-xylene	37		31	96			
TCLP Extraction Organics	Leachate			07/06/98		TL	1311

ND - Not Detected


 LABORATORY MANAGER

000017

378 267

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services** Project 20560
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Site ID **Norcross, GA 30092**
DDMT
Memphis, TN

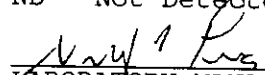
Date Arrived 07/02/98
ETC Order Number 9807092

ETC Lab ID 9807092-03
Sample ID: RA-A-033-DS
QC Batch : V13PSA16

Matrix :SOIL
Sample Date :07/02/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Pesticides							
				07/07/98	07/08/98	RG	8081A 3510
Chlordane	ND	mg/L	0 010				
Heptachlor	ND	mg/L	0 001				
Gamma-BHC	ND	mg/L	0 001				
Endrin	ND	mg/L	0 001				
Methoxychlor	ND	mg/L	0 040				
Toxaphene	ND	mg/L	0 100				
<u>Surrogate Standard</u>							
	<u>% Recovery</u>		<u>QC Limits</u>				
S1 - Decachlorobiphenyl	42		34	115			
S2 - Tetrachloro-m-xylene	41		31	96			
TCLP Extraction Organics							
	Leachate			07/06/98		TL	1311

ND - Not Detected


LABORATORY MANAGER

000018

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name OHM Remediation Services OHM Project 20560
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092
Site ID DDMT
Memphis, TN

Date Arrived 07/02/98
ETC Order Number 9807092

ETC Lab ID 9807092-01
Sample ID: RA-A-031-DS
QC Batch : V07HEB36

Matrix :SOIL
Sample Date :07/02/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Herbicides				07/07/98	07/08/98	DC	8151A
2,4-D	ND	mg/L	0.010				
Silvex	ND	mg/L	0.010				
<u>Surrogate Standard</u>	<u>% Recovery</u>		<u>QC Limits</u>				
S1 - 2,4,5-T	118		25	125			
TCLP Extraction Organics	Leachate			07/06/98		TL	1311

ND - Not Detected


LABORATORY MANAGER

000019

378 269

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name OHM Remediation Services
Defense Depot - Memphis, TN
5335 Triangle Parkway
Suite 450
Norcross, GA 30092

OHM Project 20560

Site ID DDMT
Memphis, TN

Date Arrived 07/02/98
ETC Order Number 9807092

ETC Lab ID 9807092-02
Sample ID: RA-A-032-DS
QC Batch : V07HEB36

Matrix :SOIL
Sample Date :07/02/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Herbicides							
2,4-D	ND	mg/L	0 010	07/07/98	07/08/98	DC	8151A
Silvex	ND	mg/L	0 010				
<u>Surrogate Standard</u>	<u>% Recovery</u>		<u>QC Limits</u>				
S1 - 2,4,5-T	102		25 125				
TCLP Extraction Organics	Leachate			07/06/98		TL	1311

ND - Not Detected


LABORATORY MANAGER

000020

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name OHM Remediation Services OHM Project 20560
 Defense Depot - Memphis, TN
 5335 Triangle Parkway
 Suite 450
 Norcross, GA 30092
 Site ID DDMT
 Memphis, TN

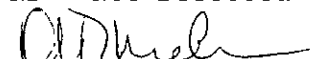
Date Arrived 07/02/98
 ETC Order Number 9807092

ETC Lab ID 9807092-03
Sample ID: RA-A-033-DS
QC Batch : V07HEB36

Matrix :SOIL
 Sample Date :07/02/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Herbicides				07/07/98	07/08/98	DC	8151A
2,4-D	ND	mg/L	0 010				
Silvex	ND	mg/L	0 010				
Surrogate Standard	% Recovery		QC Limits				
S1 - 2,4,5-T	114		25	125			
TCLP Extraction Organics	Leachate			07/06/98		TL	1311

ND - Not Detected


 LABORATORY MANAGER

000021

378 271

Environmental Testing & Consulting, Inc.

TCLP Metals

000022

Environmental Testing & Consulting, Inc.

Quality Control Reports

Metals (ICP/GFAA/CV)

000023

373 273

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
METALS - TCLP

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot
ETC Order # : 9807-092

HOLDING TIMES

QC Batch(s) for this order : ICP/GFAA V5-TC-67
Mercury V3-TC-15

TCLP Extraction : All soils extracted within 180 days.
(28 days for Mercury)
Sample Preparation: All TCLP leachates prepared and analyzed
within 180 days. (28 days for Mercury)

CALIBRATION

Initial Calibration : All criteria met.
Continuing Calibration : All criteria met.

SAMPLE ANALYSIS

Instrumentation : Thermo Jarrell Ash Enviro-I ICP
Varian 640Z Zeeman Graphite Furnace
Perkin Elmer 5100ZL Graphite Furnace
Perkin Elmer 6000 Graphite Furnace
Thermo Jarrell Ash AA-Scan 4 Graphite Furnace
CETAC M-6000A Mercury Analyzer
Dilutions Required : No dilutions required.

QUALITY CONTROL

9807-092.MQCBLANK
Method Blank
V5-TC-67BLK - ICP/GFAA Metals
V3-TC-15BLK - Mercury

No analytes detected in the Method Blank. .

9807-092.MQCLCS
Laboratory Control Sample(s)
V5-TC-67LCS - ICP/GFAA Metals
V3-TC-15LCS - Mercury

All criteria met.

9807-092.MQCMSMSD
Matrix Spike / Matrix Spike Dup - ICP Metals
9807-092-01 RPD : All analytes within QC limits.
RA-A-031-DS Spike Recovery : All analytes within QC limits.

Refer to Laboratory Control Sample(s) for system verification.

000024

373 274

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
METALS - TCLP

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot
ETC Order # : 9807-092

QUALITY CONTROL

Matrix Spike / Matrix Spike Dup - Graphite Metals
9807-092-01 RPD : All analytes within QC limits.
RA-A-031-DS Spike Recovery : All analytes within QC limits.
Refer to Laboratory Control Sample(s) for system verification.

Matrix Spike / Matrix Spike Dup - Hg
9807-092-01 RPD : All analytes within QC limits.
RA-A-031-DS Spike Recovery : All analytes within QC limits.
Refer to Laboratory Control Sample(s) for system verification.

Dilution Test - Dilution result must agree within 10% of original
result when sample is diluted by a factor of 5.

Post Digestion Spike - Recovery must be +/-15% of expected value.


Laboratory Manager

000025

378 275

TCLP METHOD BLANK
METALS

Lab Name

Environmental Testing and Consulting, Inc

Laboratory ID ICP/GFAA Metals

V5-TC-67 BLK

QC Batch

Laboratory ID Mercury

V3-TC-15 BLK

V5-TC-67

V3-TC-15

Date Sample Prepared

07/07/98

ICP/GFAA Metals

07/07/98

Mercury

Metals	Concentration mg/L	Detection Limit mg/L	Date Analyzed	Method
Silver	<0 500	0 500	07/07/98	6010B
Aluminum				6010B
Arsenic	<0 500	0 500	07/07/98	6010B
Barium	<5 00	5 00	07/07/98	6010B
Beryllium				6010B
Calcium				6010B
Cadmium	<0 100	0 100	07/07/98	6010B
Cobalt				6010B
Chromium	<0 500	0 500	07/07/98	6010B
Copper				6010B
Iron				6010B
Potassium				6010B
Magnesium				6010B
Manganese				6010B
Sodium				6010B
Nickel				6010B
Lead	<0 500	0 500	07/07/98	6010B
Antimony				6010B
Selenium	<0 500	0 500	07/07/98	6010B
Thallium				6010B
Vanadium				6010B
Zinc				6010B
Mercury	<0 020	0 020	07/07/98	7470A

Metals Blank

9807-092 mqcBLANK

000026

TCLP LABORATORY CONTROL SAMPLE
METALS

Lab Name

Environmental Testing and Consulting, Inc

Laboratory Control ID

ICP/GFAA Metals V5-TC-67 LCS
Mercury V3-TC-15 LCS

QC Batch

V5-TC-67V3-TC-15

Date Prepared

ICP/GFAA Metals 07/07/98
Mercury 07/07/98

Metals	Spike Added mg/L	Found mg/L	% R	#	QC Limits
Silver	0.250	0.257	103	80	120
Aluminum				80	120
Arsenic	1.25	1.21	97	85	115
Barium	2.50	2.51	100	80	120
Beryllium				80	120
Calcium				80	120
Cadmium	0.250	0.249	100	80	120
Cobalt				80	120
Chromium	0.500	0.517	103	80	120
Copper				80	120
Iron				80	120
Potassium				80	120
Magnesium				80	120
Manganese				80	120
Sodium				80	120
Nickel				80	120
Lead	1.25	1.24	99	85	115
Antimony				80	120
Selenium	1.25	1.25	100	80	120
Thallium				80	120
Vanadium				80	120
Zinc				80	120
Mercury	0.0050	0.0059	118	80	120

Column to be used to flag recovery values with an asterisk
* Values outside of QC limits

Metals Laboratory Control Sample

9807-0020 000037

378 277

TCLP MATRIX SPIKE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP/GFAA Metals 9807-092-01 QC Batch V5-TC-67
Laboratory ID MS Mercury 9807-092-01 V3-TC-15

Date Sample Prepared 07/07/98 ICP/GFAA Metals
07/07/98 Mercury

Metals	SPIKE Added mg/L	SAMPLE Conc mg/L	MS Conc mg/L	RPD <20% #	MS % Rec #	QC Limits	
Silver	0.250	ND	0.251	0	100	50	150
Aluminum						50	150
Arsenic	1.25	ND	1.24	4	99	50	150
Barium	2.50	1.22	3.60	0	95	50	150
Beryllium						50	150
Calcium						50	150
Cadmium	0.250	ND	0.242	4	97	50	150
Cobalt						50	150
Chromium	0.500	ND	0.507	1	101	50	150
Copper						50	150
Iron						50	150
Potassium						50	150
Magnesium						50	150
Manganese						50	150
Sodium						50	150
Nickel						50	150
Lead	1.25	ND	1.19	3	95	50	150
Antimony						50	150
Selenium	1.25	ND	1.31	2	105	50	150
Thallium						50	150
Vanadium						50	150
Zinc						50	150
Mercury	0.0050	ND	0.0058	0	116	50	150

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits ND - Not Detected

Metals Matrix Spike

9807-092 mscMSMSC
000028

TCLP MATRIX SPIKE DUPLICATE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP/GFAA Metals	9807-092-01	QC Batch
Laboratory ID MS Mercury	9807-092-01	V5-TC-67
		V3-TC-15

Date Sample Prepared	07/07/98	ICP/GFAA Metals
	07/07/98	Mercury

Metals	SPIKE Added mg/L	SAMPLE Conc mg/L	MSD Conc mg/L		MSD % Rec	#	QC Limits
Silver	0 250	ND	0 250		100	50	150
Aluminum						50	150
Arsenic	1 25	ND	1 29		103	50	150
Barium	2 50	1 22	3 61		96	50	150
Beryllium						50	150
Calcium						50	150
Cadmium	0 250	ND	0 253		101	50	150
Cobalt						50	150
Chromium	0 500	ND	0 504		101	50	150
Copper						50	150
Iron						50	150
Potassium						50	150
Magnesium						50	150
Manganese						50	150
Sodium						50	150
Nickel						50	150
Lead	1 25	ND	1 23		98	50	150
Antimony						50	150
Selenium	1 25	ND	1 34		107	50	150
Thallium						50	150
Vanadium						50	150
Zinc						50	150
Mercury	0 0050	ND	0 0058		116	50	150

Column to be used to flag recovery values with an asterisk
 * Values outside of QC limits ND - Not Detected

Metals Matrix Spike Duplicate

9807-092 mqcMSMSD

000029

378-279

Environmental Testing & Consulting, Inc.

TCLP Organics

000030

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC/MS Volatiles

000031

378 281

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS VOLATILE COMPOUNDS - TCLP

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot

ETC Order # : 9807-092
Method (SW-846) : 1311/8260B

HOLDING TIMES

TCLP Extraction : All samples extracted within 14 days.
Sample Analysis : All VOC extracts analyzed within 14 days.

QUALITY CONTROL

QC Batch Form 4 Summary
V2070801 0708-V2BLK

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
0708-V2LCS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3 - Water
9807-092-01 RPD : All analytes within QC limits.
RA-A-031-DS Spike Recovery : All analytes within QC limits.*
*

Recoveries for multiple analytes were flagged outside QC Limits in the Matrix Spike and Matrix Spike Duplicate.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
0708-V2BLK

No Target Analytes detected above Practical Quantitation Limit.
Trace level is considered to be less than 2 times the detection limit.

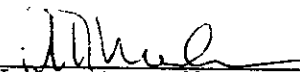
CALIBRATION

BFB Daily 12 Hour Tune : All criteria met. FORM 5
Initial Calibration : All criteria met. FORM 6
Daily Calibration : All criteria met. FORM 7A

Volatile Internal Standard Area and RT FORM 8
Daily Check Standard(s) Internal Standard Areas and Retention Times within QC limits.

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC, 5971MSD
Dilutions Required : No dilutions required.


Laboratory Manager

000032

FORM 2
WATER VOA-GCMS SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-092

	CLIENT SAMPLE NO.	SMC1 (DBF) #	SMC2 (TOL) #	SMC3 (BFB) #	OTHER	TOT OUT
01	0708-V2LCS	99	100	93		0
02	0708-V2BLK	99	100	101		0
03	9807-092-1T	103	101	106		0
04	9807-092-2T	102	101	105		0
05	9807-092-3T	102	102	107		0
06	9807-092-1TM	102	104	93		0
07	9807-092-1TM	102	102	92		0
08						
09						
10						
11						
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29						
30						

QC LIMITS

SMC1 (DBF) = Dibromofluoromethane (87-107)
 SMC2 (TOL) = Toluene-d8 (91-108)
 SMC3 (BFB) = Bromofluorobenzene (88-107)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

378 283

FORM 4
VOA-GCMS METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

Lab Name: ETC, INC.

0708-V2BLK

Lab Prep Batch: V2070801

SDG No.: 9807-092

Lab File ID: 0401003

Lab Prep Batch: V2070801

Date Analyzed: 07/08/98

Time Analyzed: 1335

GC Column: ID: 2 (mm)

Heated Purge: (Y/N) Y

Instrument ID: VOC2

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	0708-V2LCS		0301002LCS	1148
02	9807-092-1T		0601005	1502
03	9807-092-2T		0701006	1546
04	9807-092-3T		0801007	1629
05	9807-092-1TM		1601015	2221
06	9807-092-1TM		1701016	2304
07				
08				
09				
10				
11				
12				
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29				
30				

COMMENTS:

000034

378 284

FORM 1
VOA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

0708-V2BLK

Lab Name: ETC, INC.

SDG No.: 9807-092

Matrix: (soil/water) WATER

Lab Prep Batch: V2070801

Sample wt/vol: 10.00 (g/mL) ML

Lab File ID: 0401003

Level: (low/med) LOW

Date Analyzed: 07/08/98

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/Kg)	UG/L
			Q
75-01-4-----	Vinyl Chloride	1.00	U
75-35-4-----	1,1-Dichloroethene	1.00	U
78-93-3-----	Methyl-Ethyl Ketone	20.0	U
67-66-3-----	Chloroform	1.00	U
56-23-5-----	Carbon Tetrachloride	1.00	U
71-43-2-----	Benzene	1.00	U
107-06-2-----	1,2-Dichloroethane	1.00	U
79-01-6-----	Trichloroethene	1.00	U
108-88-3-----	Toluene	1.00	U
127-18-4-----	Tetrachloroethene	1.00	U
108-90-7-----	Chlorobenzene	1.00	U
106-46-7-----	1,4-Dichlorobenzene	1.00	U

FORM I VOA-GCMS

000035

FORM 3
WATER VOA-GCMS LAB CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V2070801

SDG No.: 9807-092

Matrix Spike - Sample No.: 0708-V2LCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Vinyl Chloride	100		80.9	81	65-134
1,1-Dichloroethene	100		96.6	97	69-121
Methyl-Ethyl Ketone	100		124	124	55-151
Chloroform	100		103	103	70-115
Carbon Tetrachloride	100		103	103	64-123
Benzene	100		104	104	72-124
1,2-Dichloroethane	100		111	111	62-124
Trichloroethene	100		98.9	99	75-113
Tetrachloroethene	100		83.9	84	77-115
Chlorobenzene	100		100	100	77-112
1,4-Dichlorobenzene	100		111	111	78-116

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 11 outside limits

COMMENTS:

FORM III VOA-GCMS

000036

FORM 3
WATER VOA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: V2070801

SDG No.: 9807-092

Matrix Spike - Sample No.: 9807-092-1T

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Vinyl Chloride	100	0.000	99.7	100	48-145
1,1-Dichloroethene	100	0.000	95.2	95	71-112
Methyl-Ethyl Ketone	100	0.000	109	109	70-130
Chloroform	100	0.000	96.1	96	68-132
Carbon Tetrachloride	100	0.000	88.6	89	66-116
Benzene	100	0.000	98.2	98	85-132
1,2-Dichloroethane	100	0.000	106	106	70-131
Trichloroethene	100	0.000	87.5	88	80-118
Tetrachloroethene	100	0.000	69.4	69*	88-126
Chlorobenzene	100	0.000	88.6	89	86-108
1,4-Dichlorobenzene	100	0.000	93.9	94	92-137

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
Vinyl Chloride	100	91.8	92	8	20	48-145
1,1-Dichloroethene	100	89.7	90	5	20	71-112
Methyl-Ethyl Ketone	100	123	123	12	20	70-130
Chloroform	100	93.4	93	3	20	68-132
Carbon Tetrachloride	100	85.2	85	4	20	66-116
Benzene	100	92.9	93	5	20	85-132
1,2-Dichloroethane	100	107	107	1	20	70-131
Trichloroethene	100	81.8	82	7	20	80-118
Tetrachloroethene	100	65.5	66*	4	20	88-126
Chlorobenzene	100	83.0	83*	7	20	86-108
1,4-Dichlorobenzene	100	90.5	90*	4	20	92-137

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 11 outside limits

Spike Recovery: 4 out of 22 outside limits

COMMENTS:

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC/MS Semi-Volatiles

000038

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - TCLP

Client Name : OHM Remediation Services Corp.,
Project Name : Defense Depot
ETC Order # : 9807-092
Method (SW-846) : 1311/8270C

HOLDING TIMES

TCLP Extraction : All samples extracted within 14 days.
Sample Extraction : All TCLP leachate/filtrates extracted within 7 days.
Sample Analysis : All Non-VOC extracts analyzed within 40 days.

QUALITY CONTROL

QC Batch Form 4 Summary
V21BAA19 0707-2BLK

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
0707-2LCS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3 - Water
9807-092-01 RPD : All analytes within QC limits.*
RA-A-031-DS Spike Recovery : All analytes within QC limits.
*
RPD for Pyridine was flagged as outside QC Limits.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
0707-2BLK

No Target Analytes detected above Practical Quantitation Limit.
Trace level is considered to be less than 2 times the detection limit.

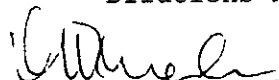
CALIBRATION

DFTPP Daily 12 Hour Tune : All criteria met. FORM 5
Initial Calibration : All criteria met. FORM 6
Daily Calibration : All criteria met. FORM 7A

Semi-Volatile Internal Standard Area and RT FORM 8
Daily Check Standard(s) Internal Standard Areas and Retention Times within QC limits.

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC, 5971MSD
Dilutions Required : No dilutions required.


Laboratory Manager

000039

378 289

FORM 2
WATER BNA-GCMS SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-092

	CLIENT SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	S7 #	S8 #	TOT OUT
01	0707-2BLK	40	31	74	76	87	78			
02	0707-2LCS	47	37	71	76	90	78			0
03	9807-092-1T	37	30	63	64	79	70			0
04	9807-092-2T	36	30	63	66	77	67			0
05	9807-092-3T	40	31	69	75	84	74			0
06	9807-092-1TM	49	39	75	77	91	79			0
07	9807-092-1TM	46	40	71	74	89	76			0
08										0
09										
10										
11										
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QC LIMITS

S1 (2FP) = 2-Fluorophenol (21- 73)
 S2 (PHL) = Phenol-d6 (12- 48)
 S3 (NBZ) = Nitrobenzene-d5 (35- 85)
 S4 (FBP) = 2-Fluorobiphenyl (46- 84)
 S5 (TBP) = 2,4,6-Tribromophenol (10-100)
 S6 (TPH) = Terphenyl-d14 (33-113)

Column to be used to flag recovery values
 * Values outside of contract required QC limits
 D Surrogate diluted out

000040

378 290

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

CLIENT SAMPLE NO

0707-2BLK

Lab Name: ETC, INC.

Lab Prep Batch: V21BAA19

Lab File ID: 1101011

Matrix: (soil/water) WATER

Level:(low/med) LOW

SDG No.: 9807-092

Instrument ID: BNA2

Date Analyzed: 07/07/98

Time Analyzed: 1712

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	0707-2LCS		1201012	07/07/98
02	9807-092-1T		1301013	07/07/98
03	9807-092-2T		1401014	07/07/98
04	9807-092-3T		1501015	07/07/98
05	9807-092-1TM		1601016	07/07/98
06	9807-092-1TM		1701017	07/07/98
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COMMENTS:

378 291

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: ETC, INC.

0707-2BLK

SDG No.: 9807-092

Matrix: (soil/water) WATER

Lab Prep Batch: V21BAA19

Sample wt/vol: 250.0 (g/mL) ML

Lab File ID: 1101011

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 07/07/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/L	Q
110-86-1-----	Pyridine	0.0080	U
106-46-7-----	1,4-Dichlorobenzene	0.0080	U
95-48-7-----	2-Methylphenol	0.0080	U
106-44-5-----	3&4-Methylphenol	0.0080	U
67-72-1-----	Hexachloroethane	0.0080	U
98-95-3-----	Nitrobenzene	0.0080	U
87-68-3-----	Hexachlorobutadiene	0.0080	U
88-06-2-----	2,4,6-Trichlorophenol	0.020	U
95-95-4-----	2,4,5-Trichlorophenol	0.020	U
121-14-2-----	2,4-Dinitrotoluene	0.0080	U
118-74-1-----	Hexachlorobenzene	0.0080	U
87-86-5-----	Pentachlorophenol	0.020	U

FORM I BNA-GCMS

000042

378 292

FORM 3
WATER BNA-GCMS LAB CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V21BAA19

SDG No.: 9807-092

Matrix Spike - Sample No.: 0707-2LCS

COMPOUND	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (mg/L)	LCS % REC #	QC. LIMITS REC.
Pyridine	0.10		0.050	50	10- 82
1,4-Dichlorobenzene	0.10		0.061	61	31- 97
2-Methylphenol	0.16		0.098	61	48-117
3&4-Methylphenol	0.16		0.089	56	46- 99
Hexachloroethane	0.10		0.058	58	37-100
Nitrobenzene	0.10		0.065	65	57-120
Hexachlorobutadiene	0.10		0.064	64	50-112
2,4,6-Trichlorophenol	0.16		0.12	75	30-163
2,4,5-Trichlorophenol	0.16		0.12	75	31-147
2,4-Dinitrotoluene	0.10		0.075	75	34-130
Hexachlorobenzene	0.10		0.090	90	65-133
Pentachlorophenol	0.16		0.12	75	22-171

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limitsRPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 12 outside limits

COMMENTS:

FORM III BNA-GCMS

000043

FORM 3
WATER BNA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: V21BAA19

SDG No.: 9807-092

Matrix Spike - Sample No.: 9807-092-1T

COMPOUND	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC #	QC. LIMITS REC.
Pyridine	0.40	0.00	0.18	45	10- 82
1,4-Dichlorobenzene	0.40	0.00	0.25	62	31- 97
2-Methylphenol	0.64	0.00	0.38	59	48-117
3&4-Methylphenol	0.64	0.00	0.35	55	46- 99
Hexachloroethane	0.40	0.00	0.24	60	37-100
Nitrobenzene	0.40	0.00	0.26	65	57-120
Hexachlorobutadiene	0.40	0.00	0.28	70	50-112
2,4,6-Trichlorophenol	0.64	0.00	0.47	73	30-163
2,4,5-Trichlorophenol	0.64	0.00	0.47	73	31-147
2,4-Dinitrotoluene	0.40	0.00	0.31	78	34-130
Hexachlorobenzene	0.40	0.00	0.36	90	65-133
Pentachlorophenol	0.64	0.00	0.50	78	22-171

COMPOUND	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
Pyridine	0.40	0.082	20	77*	20	10- 82
1,4-Dichlorobenzene	0.40	0.24	60	3	20	31- 97
2-Methylphenol	0.64	0.39	61	3	20	48-117
3&4-Methylphenol	0.64	0.34	53	4	20	46- 99
Hexachloroethane	0.40	0.22	55	9	20	37-100
Nitrobenzene	0.40	0.25	62	5	20	57-120
Hexachlorobutadiene	0.40	0.26	65	7	20	50-112
2,4,6-Trichlorophenol	0.64	0.46	72	1	20	30-163
2,4,5-Trichlorophenol	0.64	0.46	72	1	20	31-147
2,4-Dinitrotoluene	0.40	0.31	78	0	20	34-130
Hexachlorobenzene	0.40	0.37	92	2	20	65-133
Pentachlorophenol	0.64	0.51	80	2	20	22-171

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 1 out of 12 outside limits

Spike Recovery: 0 out of 24 outside limits

COMMENTS:

FORM III BNA-GCMS

000044

Environmental Testing & Consulting, Inc.

**Quality Control Reports
GC Pesticides**

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
PESTICIDE - TCLP

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot
ETC Order # : 9807-092
Method (SW-846) : 1311/8081A

HOLDING TIMES

TCLP Extraction : All samples extracted within 14 days.
Sample Extraction : All TCLP leachate/filtrates extracted within 7 days.
Sample Analysis : All Non-VOC extracts analyzed within 40 days.

QUALITY CONTROL

QC Batch Form 4 Summary
V13PSA16 0707-2BLK

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.*

*
Surrogate recovery for Decachlorobiphenyl was flagged as outside QC Limits in sample 9807-092-01MS (RA-A-031-DS) Review of the raw data showed no obvious matrix interference.

Laboratory Control Sample FORM 3
0707-2LCS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3 - Water
9807-092-01 RPD : All analytes within QC limits.
RA-A-031-DS Spike Recovery : All analytes within QC limits.*

*
Refer to Laboratory Control Samples for system verification.

Method Blank FORM 4
0707-2BLK

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Daily Calibration : All criteria met. FORM 7A

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.


Laboratory Manager

000046

FORM 2
WATER PESTICIDE SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-092

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	0707-2BLK	67	78							0
02	0707-2LCS	73	80							0
03	9807-092-1	36	40							0
04	9807-092-2	37	38							0
05	9807-092-3	41	42							0
06	9807-092-1MS	36	38							0
07	9807-092-1MS	37	30*							0
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QC LIMITS

S1 (TMX) = Tetrachloro-m-xylene (31- 96)
 S2 (DBC) = Decachlorobiphenyl (34-115)

Column to be used to flag recovery values
 * Values outside of contract required QC limits
 D Surrogate diluted out

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

0707-2BLK

Lab Prep Batch: V13PSA16

SDG No.: 9807-092

Lab File ID: S107081A-12R

Instrument ID: PEST1A

Matrix: (soil/water) WATER

Date Analyzed: 07/08/98

Level: (low/med) LOW

Time Analyzed: 2054

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	0707-2LCS		S107081A-13R	07/08/98
02	9807-092-1		S107081A-14R	07/08/98
03	9807-092-2		S107081A-15R	07/08/98
04	9807-092-3		S107081A-16R	07/08/98
05	9807-092-1MS		S107081A-17R	07/09/98
06	9807-092-1MS		S107081A-18R	07/09/98
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COMMENTS:

378 298

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

0707-2BLK

Lab Name: ETC, INC.

SDG No.: 9807-092

Matrix: (soil/water) WATER

Lab Prep Batch: V13PSA16

Sample wt/vol: 250.0 (g/mL) ML

Lab File ID: S107081A-12R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10 (mL)

Date Analyzed: 07/08/98

Injection Volume: 1.0 (uL)

Dilution Factor: 10.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6-----	alpha-BHC	1.60000	U
58-89-9-----	gamma-BHC (Lindane)	1.60000	U
319-85-7-----	beta-BHC	1.60000	U
76-44-8-----	Heptachlor	1.60000	U
319-86-8-----	delta-BHC	1.60000	U
309-00-2-----	Aldrin	1.60000	U
1024-57-3-----	Heptachlor epoxide	1.60000	U
5103-74-2-----	gamma-chlordane	1.60000	U
959-98-8/5103-71	Endosulfan I/alpha-chlordane	1.60000	U
72-55-9-----	4,4'-DDE	1.60000	U
60-57-1-----	Dieldrin	1.60000	U
72-20-8-----	Endrin	1.60000	U
72-54-8-----	4,4'-DDD	1.60000	U
33213-65-9-----	Endosulfan II	1.60000	U
50-29-3-----	4,4'-DDT	1.60000	U
7421-93-4-----	Endrin aldehyde	1.60000	U
1031-07-8-----	Endosulfan sulfate	1.60000	U
72-43-5-----	Methoxychlor	1.60000	U
53494-70-5-----	Endrin Ketone	1.60000	U

FORM I PESTICIDE

000049

FORM 3
WATER PESTICIDE LAB CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V13PSA16

SDG No.: 9807-092

Matrix Spike - Sample No.: 0707-21cs

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
alpha-BHC	1.00000		0.98178	98	41-102
gamma-BHC (Lindane)	1.00000		1.01072	101	41-102
beta-BHC	1.00000		1.04323	104	26-151
Heptachlor	1.00000		0.98725	99	43-114
delta-BHC	1.00000		0.80243	80	21- 92
Aldrin	1.00000		0.93227	93	34-105
Heptachlor epoxide	1.00000		1.01955	102	42-115
gamma-chlordane	1.00000		1.02687	103	50-108
Endosulfan I/alpha-chlo	2.00000		1.01376	51	48-117
4,4'-DDE	1.00000		1.02000	102	41-111
Dieldrin	1.00000		1.01178	101	42-111
Endrin	1.00000		1.08222	108	45-117
4,4'-DDD	1.00000		1.03766	104	39-124
Endosulfan II	1.00000		1.03062	103	52-114
4,4'-DDT	1.00000		1.08976	109	39-123
Endrin aldehyde	1.00000		1.07032	107	48-125
Endosulfan sulfate	1.00000		0.99246	99	46-111
Methoxychlor	1.00000		1.23602	124	39-140
Endrin Ketone	1.00000		1.05564	106	51-112

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 19 outside limits

COMMENTS:

FORM 3
WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: FTC, INC.

Lab Prep Batch: V13PSA16

SDG No.: 9807-092

Matrix Spike - Sample No.: 9807-092-1

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
gamma-BHC (Lindane)	4.00000	0.00000	3.64667	91	41-102
Heptachlor	4.00000	0.00000	3.55607	89	43-114
Endrin	4.00000	0.00000	4.13443	103	45-117
Methoxychlor	4.00000	0.00000	4.20155	105	39-140

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
gamma-BHC (Lindane)	4.00000	3.59926	90	1	20	41-102
Heptachlor	4.00000	3.62023	90	1	20	43-114
Endrin	4.00000	3.66589	92	11	20	45-117
Methoxychlor	4.00000	4.70392	118	12	20	39-140

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 4 outside limits

Spike Recovery: 0 out of 8 outside limits

COMMENTS:

FORM III PESTICIDE

000051

378 301

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC Herbicides

000052

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
HERBICIDE - TCLP

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot
ETC Order # : 9807-092
Method (SW-846) : 1311/8151A

HOLDING TIMES

TCLP Extraction : All samples extracted within 14 days.
Sample Extraction : All TCLP leachate/filtrates extracted
within 7 days.
Sample Analysis : All Non-VOC extracts analyzed within 40
days.

QUALITY CONTROL

QC Batch Form 4 Summary
V07HEB36 0707-1BLK

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
0707-1LCS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3 - Water
9807-092-01 RPD : All analytes within QC limits.*
RA-A-031-DS Spike Recovery : All analytes within QC limits.
*
RPD for Silvex was flagged as outside QC Limits.

Refer to Laboratory Control Samples for system verification.

Method Blank FORM 4
0707-1BLK

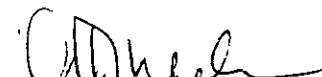
No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Daily Calibration : All criteria met. FORM 7A

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.


Laboratory Manager

378 303

FORM 2
WATER HERBICIDE SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 2807-092

	EPA GC SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	0707-1BLK	109								0
02	0707-1LCS	66								0
03	9807-092-1	118								0
04	9807-092-2	102								0
05	9807-092-3	114								0
06	9807-092-1MS	71								0
07	9807-092-1MS	57								0
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S1 = 2,4,5-T

QC LIMITS
(25-125)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

000054

378 304

FORM 4
HERBICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

0707-1BLK

Lab Name: ETC, INC.

Lab Prep Batch: V07HEB36

SDG No.: 9807-092

Lab File ID: S207081A-09R

Instrument ID: PEST2A

Matrix: (soil/water) WATER

Date Analyzed: 07/08/98

Level: (low/med) LOW

Time Analyzed: 1419

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	0707-1LCS		S207081A-10R	07/08/98
02	9807-092-1		S207081A-11R	07/08/98
03	9807-092-2		S207081A-12R	07/08/98
04	9807-092-3		S207081A-13R	07/08/98
05	9807-092-1MS		S207081A-14R	07/08/98
06	9807-092-1MS		S207081A-15R	07/08/98
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COMMENTS:

378 305

FORM 1
HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

0707-1BLK

SDG No.: 9807-092

Matrix: (soil/water) WATER

Lab Prep Batch: V07HEB36

Sample wt/vol: _____ (g/mL) ML

Lab File ID: S207081A-09R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10 (mL)

Date Analyzed: 07/08/98

Injection Volume: 1.0 (uL)

Dilution Factor: 5.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
94-75-7-----	2,4-D	2.00	U
93-72-1-----	Silvex	2.00	U

FORM I HERBICIDE

000056

FORM 3
WATER HERBICIDE LAB CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V07HEB36

SDG No.: 9807-092

Matrix Spike - Sample No.: 0707-11cs

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
2,4-D	2.50		1.95	78	25-125
Silvex	2.50		0.997	40	25-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 2 outside limits

COMMENTS:

FORM III HERBICIDE

000057

378 307

FORM 3
WATER HERBICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: V07HEB36

SDG No.: 9807-092

Matrix Spike - Sample No.: 9807-092-1

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
2,4-D	10.00	0.000	8.06	81	25-125
Silvex	10.00	0.000	4.18	42	25-125

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD REC.
2,4-D	10.00	6.82	68	17	20 25-125
Silvex	10.00	3.37	34	21*	20 25-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 1 out of 2 outside limits
Spike Recovery: 0 out of 4 outside limits

COMMENTS:

FORM III HERBICIDE

000058

**IMPORTED CLEAN BACKFILL (TOP SOIL)
CONFIRMATION SAMPLE**

Date Collected 07/22/98

RA-TS-001



ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334

Founded 1972

July 29, 1998

Ms. Elena Rodriguez
OHM Remediation Services
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Ref: Analytical Testing
ETC Order # 9807737
Project Description DDMT

Project # DACA45-96-D-0014 Defense Depot - Memphis, TN

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th/18th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136.

The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,


Nathan A. Pera, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT



OHM Remediation
Services Corp.
A Subsidiary of OHM Corporation

378 310

Chemical Analytical Data
Evaluation/Validation Checklist

SOUTHERN REGION

Project Name: DDMT

Project Number: 20560

Laboratory: ETC

Lab Project/Case Number: 9807737

Sample Number(s): RA-TS-001

Evaluated By: S. Paranjape

Date Evaluated: 8/14/98

Data Package Deliverables Requirement: ☐ OHM Minimum ☒ OHM Standard ☐ OHM Maximum

☐ Other, please describe _____

Quality Control Deliverables	Required	Received	Passed	Failed
POL, MDL, RL, etc meets DQOs			☒	
Comment:				
Holding Times			☒	
Comment:				
Sample Condition (preservatives, containers, temperature, etc)			☒	
Comment:				
Surrogate Recoveries			☒	
Comment:				
Lab Control Sample Recoveries			☒	
Comment:				
Lab Control Sample Duplicate or Other Spike Recoveries				
Comment:				
Lab Control Sample Duplicate or Other Laboratory Duplicate RPD				
Comment:				
Matrix Spike Recoveries			☒	
Comment:				
Matrix Spike Duplicate Recoveries			☒	
Comment:				
Matrix Spike / Matrix Spike Duplicate RPD			☒	
Comment:				
Laboratory Blanks			☒	
Comment:				
Field Blanks				
Comment:				
Field Duplicates RPD				
Comment:				

-over-

Quality Control Deliverables	Required	Received	Passed	Failed
Tentatively Identified Compounds (TICs)			✓	
Comment:				
Instrument Performance Check (Organics Only)			✓	
Comment:				
Initial Calibration			✓	
Comment:				
Continuing Calibration			✓	
Comment:				
Internal Standard Areas and Retention Times (Organics Only)			✓	
Comment:				
Chromatograms			✓	
Comment:				
Sample Prep Worksheets				
Comment:				
Raw Data Calculations				
Comment:				
Laboratory Duplicates			✓	
Comment:				
Comment:				
Comment:				
Comment:				

General Comments:

Summary [] See attached pages

- Check One
- ☒ The data, as reported by the laboratory, are acceptable.
- ☐ The data, with qualifiers as described in the "Summary" portion of this report, are acceptable.
- ☐ The data are unacceptable.
- ☐ Other _____

S. Pasanigap
Evaluator's Signature

8/14/98
Date

Environmental Testing & Consulting, Inc.
Data Qualifiers for Organic Reporting

Within the attached report, some analytical data may be reported as "Qualified Data" as indicated by a "Data Qualifier" next to the result. This table summarizes the possible "Data Qualifiers" that may be associated with this report.

Q	Surrogate Recovery Outside QC Limits
J	Estimated Value. Presence of the compound was confirmed but less than the reported detection limit.
E	Concentration exceeds the established method calibration range but is within the working range of the instrument.
B	Analyte detected in the associated Method Blank.
U	Reported result was unconfirmed. Refer to Case Narrative.
N	Non-Compliance Report associated with this sample or project.
C	Result reported from GC/MS confirmation analysis.
*	QC Data (percent recovery/RPD for a particular analyte was outside QC Limits)

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ANALYTICAL SUMMARY TABLE

Client Name OHM Remediation Services
 Site ID DDMT
 Memphis, TN

ETC Sample ID	Field ID	Matrix	Method	Method Description
980773701	RA-TS-001	SOIL	8081A	TCL Pesticides
980773701	RA-TS-001	SOIL	8082	PCBs
980773701	RA-TS-001	SOIL	8260B	TCL Volatiles
980773701	RA-TS-001	SOIL	8270C	TCL Semi-Volatiles
980773701	RA-TS-001	SOIL	6010B	Silver
980773701	RA-TS-001	SOIL	6010B	Aluminum
980773701	RA-TS-001	SOIL	7060A	Arsenic
980773701	RA-TS-001	SOIL	6010B	Barium
980773701	RA-TS-001	SOIL	6010B	Beryllium
980773701	RA-TS-001	SOIL	6010B	Calcium
980773701	RA-TS-001	SOIL	6010B	Cadmium
980773701	RA-TS-001	SOIL	9010A	Cyanide
980773701	RA-TS-001	SOIL	6010B	Cobalt
980773701	RA-TS-001	SOIL	6010B	Chromium
980773701	RA-TS-001	SOIL	6010B	Copper
980773701	RA-TS-001	SOIL	6010B	Iron
980773701	RA-TS-001	SOIL	7471A	Mercury
980773701	RA-TS-001	SOIL	6010B	Potassium
980773701	RA-TS-001	SOIL	6010B	Magnesium
980773701	RA-TS-001	SOIL	6010B	Manganese
980773701	RA-TS-001	SOIL	6010B	Sodium
980773701	RA-TS-001	SOIL	6010B	Nickel
980773701	RA-TS-001	SOIL	D2974-87	Fractional Organic Matter
980773701	RA-TS-001	SOIL	7421	Lead
980773701	RA-TS-001	SOIL	9045C	pH - Corrosivity
980773701	RA-TS-001	SOIL	6010B	Antimony
980773701	RA-TS-001	SOIL	7740	Selenium
980773701	RA-TS-001	SOIL	7841	Thallium
980773701	RA-TS-001	SOIL	6010B	Vanadium
980773701	RA-TS-001	SOIL	6010B	Zinc

378 314

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody

000003

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY

2178760

FORM 0019 REV 2-97

OHM LAB COORDINATOR		LAB COORDINATOR'S PHONE		LAB COORDINATOR'S FAX		LABORATORY SERVICE ID		LABORATORY CONTACT		MAIL REPORT (COMPANY NAME)						
Elena Rodriguez		770-734-8060		770-453-7716		ETC		Nathan Pera		OHM Remediation Services Corp						
PROJECT NAME		PROJECT LOCATION		PROJECT NUMBER		LABORATORY PHONE		LABORATORY FAX		RECIPIENT NAME						
DDMT		Memphis, TN		20560		901-327-2750		901-327-6334		Elena Rodriguez						
PROJECT CONTACT		PROJECT PHONE NUMBER		PROJECT FAX		LABORATORY ADDRESS		ADDRESS								
Steve Offner		901-743-1117		901-743-1048		2924 Walnut Grove Road		5445 Triangle Pkwy, #400								
PROJECT ADDRESS		CITY, STATE AND ZIP CODE		CLIENT		CITY, STATE AND ZIP CODE		CITY, STATE AND ZIP CODE								
1708 Dunn Ave.		Memphis, TN 38114		USACE		Memphis TN 38111		Norcross, GA 30092								
PROJECT MANAGER		PROJECT MANAGER'S FAX		PROJECT MANAGER'S FAX												
Steve Offner		770-326-2571		770-453-7716												
Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont	QC Level	Analyses	Comments							
1	RA-13-001		5/1	7/29/05	100	3 X 40-1 X 253 X 53	Shin	TC, PC, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM, AN, AO, AP, AQ, AR, AS, AT, AU, AV, AW, AX, AY, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GG, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MM, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NN, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VV, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ								
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7																
8																
9																
10																

COOLER TEMPERATURE UPON RECEIPT
 SAMPLE CONDITION UPON RECEIPT



OHM Remediation Services Corp
Subsidiary of OHM Corporation
U S Route 224 East • Findlay, Ohio 45840 • (419) 423-3526

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY
217877
FORM 1019 REV 6/97

Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont.	QC Level	TAT	Anal. ses	Lab. ID	Lab. Name	Lab. Phone	Lab. Fax	Lab. Address	Lab. City/State/Zip	Lab. Contact	OHM Recipient Name	OHM Address	OHM City/State/Zip	Comments
1	RA-TS-001	Soil	7/24/05	4:00	3 x 402 OHM 1 x 25g Standard				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2																				
3	316																			
4	78																			
5	33																			
6																				
7																				
8																				
9																				
10																				
SAMPLES COLLECTED BY: Steve GRAY		COPIES AND AIR BUILT NUMBER: DETAIL IN PERSON		RETURNED BY: [Signature]		DATE: 7/25/05		TIME: 1455		SAMPLE CONDITION UPON RECEIPT		COOLER TEMPERATURE UPON RECEIPT								
Distribution White - Laboratory (To be returned with Analytical Report), Goldenrod - Project File, Yellow - Project Data Manager																				

378 317

Environmental Testing & Consulting, Inc.

Cooler Receipt Form
Not available for this project

000005A

Environmental Testing & Consulting, Inc.

Sample Reports

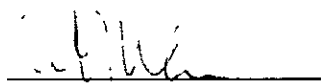
378 319

ENVIRONMENTAL TESTING & CONSULTING, INC.
Memphis, TN
INORGANIC ANALYSIS DATA SHEET
PERCENT SOLIDS

Client Name :OHM Remediation Services
Project Name :DDMT

Date Sample Received :07/23/98
Contract Laboratory Order Number :9807-737

<u>Contract Lab</u> <u>Sample No</u>	<u>Field</u> <u>ID</u>	<u>Date</u> <u>Sampled</u>	<u>Result</u> <u>Units : (%)</u>	<u>Date</u> <u>Analyzed</u>	<u>Method</u>	<u>By</u>
9807-737-01	RA-TS-001	07/22/98	83	07/24/98	160.3	MC


LABORATORY MANAGER

000007

378 320

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

INORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400

Project # **DACA45-96-D-0014**

Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

Date Arrived **07/23/98**

ETC Order Number **9807737**

ETC Lab ID **9807737-01**

Sample ID: RA-TS-001

Matrix : **SOIL**

Sample Date : **07/22/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	<1.00	mg/Kg	1.00	07/29/98	9010A	CY072998
Fractional Organic Matter	1 30	%	0	07/29/98	D2974-87	OM072998
pH - Corrosivity	6 7	SU		07/24/98	9045C	PH072498


LABORATORY MANAGER

000008

378 321

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

INORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

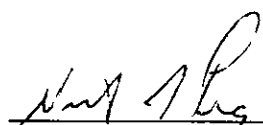
Site ID **DDMT**
 Project **#20560**

Date Arrived **07/23/98**
 ETC Order Number **9807737**

ETC Lab ID **9807737-01**
Sample ID: RA-TS-001

Matrix **:SOIL**
 Sample Date **:07/22/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE PREPARED	DATE ANALYZED	METHOD	QC BATCH
Metals Digestion Batch				07/24/98		3051	V7-SO-53
Mercury Digestion Batch				07/27/98		7471A	V4-SO-19
Silver	ND	mg/Kg	0.700	07/24/98	07/29/98	6010B	
Aluminum	10,700	mg/Kg	4.00	07/24/98	07/29/98	6010B	
Arsenic	3.41	mg/Kg	0.200	07/24/98	07/27/98	7060A	
Barium	60.4	mg/Kg	0.200	07/24/98	07/29/98	6010B	
Beryllium	0.687	mg/Kg	0.100	07/24/98	07/29/98	6010B	
Calcium	1,180	mg/Kg	1.00	07/24/98	07/29/98	6010B	
Cadmium	ND	mg/Kg	0.400	07/24/98	07/29/98	6010B	
Cobalt	4.93	mg/Kg	0.700	07/24/98	07/29/98	6010B	
Chromium	22.5	mg/Kg	0.700	07/24/98	07/29/98	6010B	
Copper	9.76	mg/Kg	0.600	07/24/98	07/29/98	6010B	
Iron	16,200	mg/Kg	0.700	07/24/98	07/29/98	6010B	
Mercury	0.024	mg/Kg	0.020	07/27/98	07/27/98	7471A	
Potassium	415	mg/Kg	20.0	07/24/98	07/29/98	6010B	
Magnesium	1,380	mg/Kg	3.00	07/24/98	07/29/98	6010B	
Manganese	208	mg/Kg	0.200	07/24/98	07/29/98	6010B	
Sodium	252	mg/Kg	20.0	07/24/98	07/29/98	6010B	
Nickel	11.9	mg/Kg	1.50	07/24/98	07/29/98	6010B	
Lead	6.99	mg/Kg	0.100	07/24/98	07/27/98	7421	
Antimony	ND	mg/Kg	3.20	07/24/98	07/29/98	6010B	
Selenium	ND	mg/Kg	0.200	07/24/98	07/27/98	7740	
Thallium	ND	mg/Kg	0.100	07/24/98	07/28/98	7841	
Vanadium	21.0	mg/Kg	0.800	07/24/98	07/29/98	6010B	
Zinc	28.0	mg/Kg	1.00	07/24/98	07/29/98	6010B	


 LABORATORY MANAGER

000009

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 322

Client Name OHM Remediation Services
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092
Site ID DDMT
Memphis, TN

Project DACA45-96-D-0014

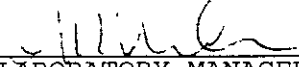
Date Arrived 07/23/98
ETC Order Number 9807737

ETC Lab ID 9807737-01
Sample ID: RA-TS-001
QC Batch : V2072401

Matrix :SOIL
Sample Date :07/22/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCL Volatiles				07/24/98	07/24/98	LS	8260B 5030B
Analysis Batch Method 5030	V2072401						
Acetone	ND		100				
Benzene	ND		4.00				
Bromodichloromethane	ND		4.00				
Bromoform	ND		4.00				
Bromomethane	ND		4.00				
Carbon Disulfide	ND		50				
Carbon Tetrachloride	ND		4.00				
Chlorobenzene	ND		4.00				
Chlorodibromomethane	ND		4.00				
Chloroethane	ND		4.00				
Chloroform	ND		4.00				
Chloromethane	ND		4.00				
1,1-Dichloroethane	ND		4.00				
1,2-Dichloroethane	ND		4.00				
1,1-Dichloroethene	ND		4.00				
trans-1,2-Dichloroethene	ND		4.00				
1,2-Dichloropropane	ND		4.00				
cis-1,3-Dichloropropene	ND		4.00				
trans-1,3-Dichloropropene	ND		4.00				
Ethylbenzene	ND		4.00				
2-Hexanone (MBK)	ND		100				
4-Methyl-2-pentanone (MIBK)	ND		100				
2-Butanone (MEK)	ND		100				
Methylene Chloride	ND		100				
Styrene	ND		4.00				
1,1,2,2-Tetrachloroethane	ND		4.00				
Tetrachloroethene	ND		4.00				
Toluene	ND		4.00				
1,1,1-Trichloroethane	ND		4.00				
1,1,2-Trichloroethane	ND		4.00				
Trichloroethene	ND		4.00				
Vinyl Acetate	ND		50				
Vinyl Chloride	ND		4.00				
o-Xylenes	ND		4.00				
m-Xylenes	ND		4.00				
p-Xylenes	ND		4.00				
cis-1,2-Dichloroethene	ND		4.00				

ND - Not Detected


LABORATORY MANAGER

000010

378 323

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

Project **DACA45-96-D-0014**

Date Arrived 07/23/98
ETC Order Number 9807737

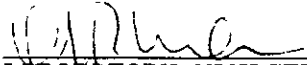
ETC Lab ID **9807737-01**
Sample ID: RA-TS-001
QC Batch : V2072401

Matrix :SOIL
Sample Date :07/22/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCL Volatiles				07/24/98	07/24/98	LS	8260B 5030B

Surrogate Standard	% Recovery	QC Limits
S1 - Dibromofluoromethane	106	85 119
S2 - Toluene-d8	102	87 114
S3 - 4-Bromofluorobenzene	107	75 111

ND - Not Detected


LABORATORY MANAGER

000011

FORM 1
VOA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

378 324
CLIENT SAMPLE NO.

9807-737-1

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-737

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 10.3 (g/mL) G

Lab File ID: 0401003

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 07/24/98

GC Column: ID: 2.00 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
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7.				
8.				
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FORM I VOA-GCMS-TIC

000012

378 325

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

Project **DACA45-96-D-0014**

Date Arrived **07/23/98**
 ETC Order Number **9807737**

ETC Lab ID **9807737-01**
Sample ID: RA-TS-001
QC Batch : P04006

Matrix : **SOIL**
 Sample Date : **07/22/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCL Semi-Volatiles				07/25/98	07/26/98	CB	8270C 3550B
Acenaphthene	ND	ug/Kg	170				
Acenaphthylene	ND	ug/Kg	170				
Anthracene	ND	ug/Kg	170				
Benzo(a)anthracene	ND	ug/Kg	170				
Benzo(b)fluoranthene	ND	ug/Kg	170				
Benzo(k)fluoranthene	ND	ug/Kg	170				
Benzo(g,h,i)perylene	ND	ug/Kg	170				
Benzo(a)pyrene	ND	ug/Kg	170				
Benzoic Acid	ND	ug/Kg	660				
Benzyl Alcohol	ND	ug/Kg	170				
Bis(2-chloroethoxy)methane	ND	ug/Kg	170				
Bis(2-chloroethyl)ether	ND	ug/Kg	170				
Bis(2-chloroisopropyl)ether	ND	ug/Kg	170				
Bis(2-ethylhexyl)phthalate	ND	ug/Kg	170				
4-Bromophenyl phenyl ether	ND	ug/Kg	170				
Butyl benzyl phthalate	ND	ug/Kg	170				
4-Chloroaniline	ND	ug/Kg	170				
2-Chloronaphthalene	ND	ug/Kg	170				
4-Chloro-3-methylphenol	ND	ug/Kg	170				
2-Chlorophenol	ND	ug/Kg	170				
4-Chlorophenyl phenyl ether	ND	ug/Kg	170				
Chrysene	ND	ug/Kg	170				
Dibenzo(a,h)anthracene	ND	ug/Kg	170				
Dibenzofuran	ND	ug/Kg	170				
Di-n-butyl phthalate	ND	ug/Kg	170				
1,2-Dichlorobenzene	ND	ug/Kg	170				
1,3-Dichlorobenzene	ND	ug/Kg	170				
1,4-Dichlorobenzene	ND	ug/Kg	170				
3,3'-Dichlorobenzidine	ND	ug/Kg	170				
2,4-Dichlorophenol	ND	ug/Kg	170				
2,6-Dichlorophenol	ND	ug/Kg	170				
Diethyl phthalate	ND	ug/Kg	170				
2,4-Dimethylphenol	ND	ug/Kg	170				
Dimethyl phthalate	ND	ug/Kg	170				
4,6-Dinitro-2-methylphenol	ND	ug/Kg	170				
2,4-Dinitrophenol	ND	ug/Kg	330				
2,4-Dinitrotoluene	ND	ug/Kg	170				
2,6-Dinitrotoluene	ND	ug/Kg	170				
Di-n-octyl phthalate	ND	ug/Kg	170				
Fluoranthene	ND	ug/Kg	170				
Fluorene	ND	ug/Kg	170				

ND - Not Detected


 LABORATORY MANAGER

000013

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 326

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

Project **DACA45-96-D-0014**

Date Arrived **07/23/98**
ETC Order Number **9807737**

ETC Lab ID **9807737-01**
Sample ID: RA-TS-001
QC Batch : P04006

Matrix : **SOIL**
Sample Date : **07/22/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCL Semi-Volatiles				07/25/98	07/26/98	CB	8270C 3550B
Hexachlorobenzene	ND	ug/Kg	170				
Hexachlorobutadiene	ND	ug/Kg	170				
Hexachlorocyclopentadiene	ND	ug/Kg	170				
Hexachloroethane	ND	ug/Kg	170				
Indeno(1,2,3-cd)pyrene	ND	ug/Kg	170				
Isophorone	ND	ug/Kg	170				
2-Methylnaphthalene	ND	ug/Kg	170				
2-Methylphenol (o-cresol)	ND	ug/Kg	170				
3-Methylphenol (m-cresol)	ND	ug/Kg	170				
4-Methylphenol (p-cresol)	ND	ug/Kg	170				
Naphthalene	ND	ug/Kg	170				
Nitrobenzene	ND	ug/Kg	170				
2-Nitroaniline	ND	ug/Kg	170				
3-Nitroaniline	ND	ug/Kg	170				
4-Nitroaniline	ND	ug/Kg	170				
2-Nitrophenol	ND	ug/Kg	170				
4-Nitrophenol	ND	ug/Kg	170				
N-Nitrosodiphenylamine	ND	ug/Kg	170				
N-Nitrosodipropylamine	ND	ug/Kg	170				
Pentachlorophenol	ND	ug/Kg	170				
Phenanthrene	ND	ug/Kg	170				
Phenol	ND	ug/Kg	170				
Pyrene	ND	ug/Kg	170				
1,2,4-Trichlorobenzene	ND	ug/Kg	170				
2,4,5-Trichlorophenol	ND	ug/Kg	170				
2,4,6-Trichlorophenol	ND	ug/Kg	170				

Surrogate Standard	% Recovery	QC Limits
S1 - Nitrobenzene-d5	64	39 80
S2 - 2-Fluorobiphenyl	68	43 84
S3 - 4-Terphenyl-d14	80	40 121
S4 - Phenol-d6	66	31 94
S5 - 2,4,6-Tribromophenol	88	17 91
S6 - 2-Fluorophenol	58	23 89

ND - Not Detected


LABORATORY MANAGER

000014

373 327

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9807-737-1

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-737

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.7 (g/mL) G

Lab File ID: 0501005

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 07/26/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

FORM I BNA-GCMS-TIC

000015

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 328

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

Project **DACA45-96-D-0014**

Date Arrived 07/23/98
ETC Order Number 9807737

ETC Lab ID **9807737-01**
Sample ID: RA-TS-001
QC Batch : P06006

Matrix :SOIL
Sample Date :07/22/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCL Pesticides				07/24/98	07/26/98	DC	8081A
Alpha-BHC	ND	ug/Kg	2.00				
Beta-BHC	ND	ug/Kg	2.00				
Delta-BHC	ND	ug/Kg	2.00				
Gamma-BHC (Lindane)	ND	ug/Kg	2.00				
Heptachlor	ND	ug/Kg	2.00				
Aldrin	ND	ug/Kg	2.00				
Heptachlor Epoxide	ND	ug/Kg	2.00				
Endosulfan I	ND	ug/Kg	2.00				
Dieldrin	ND	ug/Kg	2.00				
4,4'-DDE	ND	ug/Kg	2.00				
Endrin	ND	ug/Kg	2.00				
Endosulfan II	ND	ug/Kg	2.00				
4,4'-DDD	ND	ug/Kg	2.00				
Endosulfan Sulfate	ND	ug/Kg	2.00				
4,4'-DDT	ND	ug/Kg	2.00				
Endrin Aldehyde	ND	ug/Kg	2.00				
Endrin Ketone	ND	ug/Kg	2.00				
Methoxychlor	ND	ug/Kg	2.00				
alpha-Chlordane	ND	ug/Kg	2.00				
gamma-Chlordane	ND	ug/Kg	2.00				
Chlordane - Technical	ND	ug/Kg	25				
Toxaphene	ND	ug/Kg	35				
Surrogate Standard	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	82		64 154				
S2 - Tetrachloro-m-xylene	77		39 130				

ND - Not Detected

Michael Kruffman
LABORATORY MANAGER

000016

378 329

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project **DACA45-96-D-0014**

Site ID **DDMT**
Memphis, TN

Date Arrived **07/23/98**
ETC Order Number **9807737**

ETC Lab ID **9807737-01**
Sample ID: RA-TS-001
QC Batch : P08007

Matrix : **SOIL**
Sample Date : **07/22/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				07/24/98	07/24/98	RG	8082 3550B
PCB-1016	ND	ug/Kg	35				
PCB-1221	ND	ug/Kg	35				
PCB-1232	ND	ug/Kg	35				
PCB-1242	ND	ug/Kg	35				
PCB-1248	ND	ug/Kg	35				
PCB-1254	ND	ug/Kg	35				
PCB-1260	ND	ug/Kg	35				
Surrogate Standard							
	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	114		64	154			
S2 - Tetrachloro-m-xylene	80		39	130			

ND - Not Detected


LABORATORY MANAGER

000017

378 330

Environmental Testing & Consulting, Inc.

**Quality Control Reports
Inorganics**

000018

378 331

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
INORGANICS

Client Name : _OHM Remediation Services Corp.
Project Name : _Defense Depot Memphis TN
ETC Order # : _9807-737

HOLDING TIMES

Sample Analysis : All samples analyzed within Method Specified
Holding Times.

CALIBRATION

Laboratory Control Sample : All criteria met.

QUALITY CONTROL

Matrix Spike

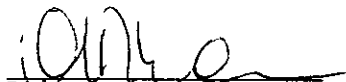
Spike Recovery : All analytes within QC limits

Duplicates

RPD : All analytes within QC limits

Method Blank

No Target Analytes detected above Detection Limit.


Laboratory Manager

000019

Environmental Testing & Consulting, Inc.
Inorganic QC Data Summary

378 332

Client Name OHM Remediation Services
Project Defense Depot- Memphis, TN

ETC Order Number 9807-737
File Name 9807-737 QC1

Method Blank

Analyte	Date Analyzed	Blank Concentration mg/Kg	QC Batch
Cyanide	07/29/98	<1 00	CY072998

Calibration Verification (CV)

Analyte	Date Analyzed	CV Conc mg/Kg	CV Conc Found	% Difference
Cyanide	07/29/98	0 200	0.213	7 0

Laboratory Control Sample (LCS)

Analyte	Date Analyzed	LCS Conc mg/Kg	LCS Conc Found	% Recovery
Cyanide	07/29/98	20 0	20 6	103

Matrix Spike/Matrix Spike Duplicate

Sample ID	Analyte	Spike mg/Kg	Sample mg/Kg	MS Conc Found	MS % Recovery	QC Limits	RPD
9807-738-01MS	Cyanide	17 9	<1 00	17 4	97	70-130	
9807-738-01MSD	Cyanide	18 5	<1 00	17.5	95	70-130	2

Duplicates

Sample ID	Analyte	Sample %	Duplicate %	RPD
9807-737-01	Organic Matter	1 62	0 97	50 0

000020

378 333

Environmental Testing & Consulting, Inc.

**Quality Control Reports
Metals
ICP/GFAA/CV**

000021

ENVIRONMENTAL TESTING AND CONSULTING, INC.

MEMPHIS, TN

CASE NARRATIVE

METALS - SOIL

378 334

Client Name : OHM Remediation Services Corp.

Project Name : Defense Depot Memphis TN

ETC Order # : 9807-737

HOLDING TIMESQC Batch(s) for this order : ICP/GFAA V7-SO-53
Mercury V4-SO-19Sample Analysis : All samples digested and analyzed within 180
days of collection.

Mercury Analysis : All samples analyzed within 28 days of collection.

CALIBRATION

Initial Calibration : All criteria met.

Continuing Calibration : All criteria met.

SAMPLE ANALYSISInstrumentation : Thermo Jarrell Ash Enviro-I ICP
Varian 640Z Zeeman Graphite Furnace
Perkin Elmer 5100ZL Graphite Furnace
Perkin Elmer 6000 Graphite Furnace
Thermo Jarrell Ash AA-Scan 4 Graphite Furnace
CETAC M-6000A Mercury Analyzer

Dilutions Required : No dilutions required.*

*
Dilutions were performed on several samples to bring the Target
Analyte(s) within calibration range (C) or to remove spectral
interference (I) as indicated.

Sample ID	Metal	Dilution Factor	Sample ID	Metal	Dilution Factor
9807-737-01	Aluminum	1:5 (C)	9807-737-01	Lead	1:2 (C)
9807-737-01	Iron	1:5 (C)			

Due to low recoveries and failing Post Digestion Spike, all Selenium
data was reported based on the Method of Standard Additions.**QUALITY CONTROL****9807-737.MQCBLANK**Method Blank

V7-SO-53BLK - ICP/GFAA Metals

V4-SO-19BLK - Mercury

Calcium identified in V7-SO-53BLK at 2.00 mg/Kg.

Iron identified in V7-SO-53BLK at 1.20 mg/Kg.

Sodium identified in V7-SO-53BLK at 3.20 mg/Kg.

9807-737.MQCLCSLaboratory Control Sample(s)

V7-SO-53LCS - ICP/GFAA Metals

V4-SO-19LCS - Mercury

All criteria met.

000022

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
METALS - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9807-737

QUALITY CONTROL

9807-737.MQCMSMSD

Matrix Spike / Matrix Spike Dup - ICP Metals

9807-737-01 RPD : All analytes within QC limits.*
RA-TS-001 Spike Recovery : All analytes within QC limits.*
*

Recoveries and RPD for Antimony were flagged as outside QC Limits in the Matrix Spike and Matrix Spike Duplicate. A Post Digestion Spike was performed for verification :

	mg/L	mg/L	%	QA
<u>Analyte</u>	<u>Expected</u>	<u>Found</u>	<u>Recovery</u>	<u>Evaluation</u>
Antimony	0.500	0.499	100	Pass

Recoveries for multiple analytes were flagged as outside QC Limits due to the level of these analytes present in the sample relative to the spike amounts. In addition, concentrations of other analytes were high relative to the spike amounts. Dilution Tests was performed for verification :

	No	1:5	1:25	%	QA
<u>Analyte</u>	<u>Dilution</u>	<u>Dilution</u>	<u>Dilution</u>	<u>Difference</u>	<u>Evaluation</u>
Aluminum	-----	10700 mg/Kg	10800 mg/Kg	1	Pass
Calcium	1180	1270	-----	8	Pass
Iron	-----	16200	16300	1	Pass
Magnesium	1380	1350	-----	2	Pass
Manganese	208	204	-----	2	Pass

Refer to Laboratory Control Sample(s) for system verification.

Matrix Spike / Matrix Spike Dup - Graphite Metals

9807-737-01 RPD : All analytes within QC limits.
RA-TS-001 Spike Recovery : All analytes within QC limits.*
*

Recoveries for Lead were flagged as outside QC Limits due to the level of this analyte present relative to the spike amount. A Dilution Test was performed for verification :

	1:2	1:10	%	QA
<u>Analyte</u>	<u>Dilution</u>	<u>Dilution</u>	<u>Difference</u>	<u>Evaluation</u>
Lead	6.99 mg/Kg	6.35 mg/Kg	9	Pass

Recoveries for Selenium were flagged as outside QC Limits in the Matrix Spike and Matrix Spike Duplicate. The Post Digestion Spike failed evaluation criteria. All data was reported based on MSA.

Recovery for Arsenic was flagged as outside QC Limits in the Matrix Spike. MSD recovery was within QC Limits.

Refer to Laboratory Control Sample(s) for system verification.

000023

MEMPHIS, TN
CASE NARRATIVE
METALS - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9807-737

QUALITY CONTROLMatrix Spike / Matrix Spike Dup - Hg

9807-737-01

RPD : All analytes within QC limits.

RA-TS-001

Spike Recovery : All analytes within QC limits.

Refer to Laboratory Control Sample(s) for system verification.

Dilution Test - Dilution result must agree within 10% of original
result when sample is diluted by a factor of 5.

Post Digestion Spike - Recovery must be +/-15% of expected value.


Laboratory Manager

000024

SOIL METHOD BLANK
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID ICP/GFAA Metals V7-SO-53 BLK QC Batch V7-SO-53

Laboratory ID Mercury V4-SO-19 BLK V4-SO-19

Date Sample Prepared 07/24/98 ICP/GFAA Metals

07/27/98 Mercury

Metals	Concentration mg/Kg	Detection Limit mg/Kg	Date Analyzed	Method
Silver	<0 700	0 700	07/29/98	6010B
Aluminum	<4 00	4 00	07/29/98	6010B
Arsenic	<0 200	0 200	07/27/98	7060A
Barium	<0 200	0 200	07/29/98	6010B
Beryllium	<0 100	0 100	07/29/98	6010B
Calcium	2 00	1 00	07/29/98	6010B
Cadmium	<0 400	0 40	07/29/98	6010B
Cobalt	<0 700	0 700	07/29/98	6010B
Chromium	<0 700	0 700	07/29/98	6010B
Copper	<0 600	0 600	07/29/98	6010B
Iron	1 20	0 700	07/29/98	6010B
Potassium	<20 0	20 0	07/29/98	6010B
Magnesium	<3 00	3 00	07/29/98	6010B
Manganese	<0 200	0 200	07/29/98	6010B
Sodium	3 20	3 00	07/29/98	6010B
Nickel	<1 50	1 50	07/29/98	6010B
Lead	<0 100	0 100	07/27/98	7421
Antimony	<3 20	3 20	07/29/98	6010B
Selenium	<0 200	0 200	07/27/98	7740
Thallium	<0 100	0 100	07/28/98	7841
Vanadium	<0 800	0 800	07/29/98	6010B
Zinc	<1 00	1 00	07/29/98	6010B
Mercury	<0 020	0 020	07/27/98	7470A

Metals Blank

9807-737 mqcBLANK

000025

SOIL LABORATORY CONTROL SAMPLE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory Control ID	ICP/GFAA Metals	V7-SO-53	LCS	QC Batch V7-SO-53
	Mercury	V4-SO-19	LCS	V4-SO-19

Date Prepared	ICP/GFAA Metals	07/24/98
	Mercury	07/27/98

Metals	Spike Added mg/Kg	Found mg/Kg	% R	#	QC Limits
Silver	20.0	18.5	93	80	120
Aluminum	200	192	96	80	120
Arsenic	5.00	4.67	93	85	115
Barium	200	189	95	80	120
Beryllium	20.0	18.8	94	80	120
Calcium	400	394	99	80	120
Cadmium	20.0	18.7	94	80	120
Cobalt	100	94.7	95	80	120
Chromium	40.0	37.5	94	80	120
Copper	40.0	37.5	94	80	120
Iron	200	199	100	80	120
Potassium	400	370	93	80	120
Magnesium	400	378	95	80	120
Manganese	20.0	19.5	98	80	120
Sodium	400	383	96	80	120
Nickel	100	96.9	97	80	120
Lead	2.00	1.77	89	85	115
Antimony	200	186	93	80	120
Selenium	5.00	4.73	95	85	115
Thallium	2.00	1.91	96	85	115
Vanadium	100	95.9	96	80	120
Zinc	20.0	21.3	107	80	120
Mercury	0.167	0.169	101	80	120

```
# Column to be used to flag recovery values with an asterisk
* Values outside of QC limits
```

Metals Laboratory Control Sample

9807-737 mqcLCS

000026

SOIL MATRIX SPIKE
METALS

Lab Name Environmental Testing and Consulting, Inc

	QC Batch
Laboratory ID MS ICP/GFAA Metals	9807-737-01 V7-SO-53
Laboratory ID MS Mercury	9807-737-01 V4-SO-19

Date Sample Prepared	07/24/98	ICP/GFAA Metals
	07/27/98	Mercury

Metals	SPIKE Added mg/Kg	SAMPLE Conc mg/Kg	MS Conc mg/Kg	RPD <20% #	MS % Rec #	QC Limits	
Silver	22 3	ND	21 3	0	96	75	125
Aluminum	223	10700	12200	6	673 *	75	125
Arsenic	5 58	3 41	6 99	17	64 *	70	130
Barium	223	60 4	286	1	101	75	125
Beryllium	22 3	0 687	22 5	2	98	75	125
Calcium	446	1180	1710	1	119	75	125
Cadmium	22 3	ND	21 5	1	96	75	125
Cobalt	112	4 93	112	2	96	75	125
Chromium	44 6	22 5	61 9	4	88	75	125
Copper	44 6	9 76	54 4	5	100	75	125
Iron	223	16200	16800	10	269 *	75	125
Potassium	446	415	935	1	117	75	125
Magnesium	446	1380	2050	3	150 *	75	125
Manganese	22 3	208	241	4	148 *	75	125
Sodium	446	252	684	2	97	75	125
Nickel	112	11 9	123	2	99	75	125
Lead	2 23	6 99	9 56	4	115	70	130
Antimony	223	ND	29 3	68 *	13 *	75	125
Selenium	5 58	ND	2 43	23 *	44 *	70	130
Thallium	2 23	ND	2 00	7	90	70	130
Vanadium	112	21 0	130	3	97	75	125
Zinc	22 3	28 0	50 5	5	101	75	125
Mercury	0 186	0 024	0 216	2	103	75	125

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits ND - Not Detected

Metals Matrix Spike

9807-737 mqcMSMSD

000027

SOIL MATRIX SPIKE DUPLICATE
METALS

Lab Name Environmental Testing and Consulting, Inc

		QC Batch
Laboratory ID MS ICP/GFAA Metals	9807-737-01	V7-SO-53
Laboratory ID MS Mercury	9807-737-01	V4-SO-19

Date Sample Prepared	07/24/98	ICP/GFAA Metals
	07/27/98	Mercury

Metals	SPIKE Added mg/Kg	SAMPLE Conc mg/Kg	MSD Conc mg/Kg		MSD % Rec	QC Limits	
						#	
Silver	21.9	ND	21.2		97	75	125
Aluminum	219	10700	12900		1005	*	75 125
Arsenic	6.02	3.41	8.25		80		70 130
Barium	219	60.4	282		101		75 125
Beryllium	21.9	0.687	22.0		97		75 125
Calcium	438	1180	1690		116		75 125
Cadmium	2.19	ND	21.2		968	*	75 125
Cobalt	110	4.93	110		96		75 125
Chromium	43.8	22.5	59.6		85		75 125
Copper	43.8	9.76	51.9		96		75 125
Iron	219	16200	15200		-457	*	75 125
Potassium	438	415	940		120		75 125
Magnesium	438	1380	1980		137	*	75 125
Manganese	21.9	208	232		110		75 125
Sodium	438	252	697		102		75 125
Nickel	110	11.9	120		98		75 125
Lead	2.41	6.99	9.16		90		70 130
Antimony	219	ND	14.4		7	*	75 125
Selenium	6.02	ND	3.05		51	*	70 130
Thallium	2.41	ND	2.14		89		70 130
Vanadium	110	21.0	126		96		75 125
Zinc	21.9	28.0	48.1		92		75 125
Mercury	0.184	0.024	0.212		102		75 125

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits ND - Not Detected

Metals Matrix Spike Duplicate

9807-737 mqcMSMSD

000028

378 341

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC/MS Volatiles

000029

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS VOLATILE COMPOUNDS - SOIL

378 342

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9807-737
Method (SW-846) : 8260B/5030B

HOLDING TIMES

Sample Analysis : All samples analyzed within 14 days of collection.

QUALITY CONTROL

QC Batch Form 4 Summary
V2072401 V207241LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
V207241BS

All criteria met.*

*

1,2-Dibromoethane was flagged for high recovery in V207241BS.
High recovery indicates that detection levels were not affected.
This compound was not a Target Analyte associated with this project.
The data was not affected.

Matrix Spike / Matrix Spike Dup FORM 3

9807-737-01

RPD : All analytes within QC limits.

RA-TS-001

Spike Recovery : All analytes within QC limits.*

*

Recoveries for multiple analytes were flagged outside QC Limits in the Matrix Spike and Matrix Spike Duplicate.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
V207241LB

No Target Analytes detected above the reporting limit.

CALIBRATION

BFB Daily 12 Hour Tune : All criteria met. FORM 5
Initial Calibration : All criteria met. FORM 6
Daily Calibration : All criteria met. FORM 7A

Volatile Internal Standard Area and RT FORM 8

Daily Check Standard(s) Internal Standard Areas and Retention Times within QC limits.

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC, 5971MSD
Dilutions Required : No dilutions required.


Laboratory Manager

000030

378 343

FORM 2
SOIL VOA-GCMS SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-737

Level:(low/med) LOW

	CLIENT SAMPLE NO.	SMC1 (DBF) #	SMC2 (TOL) #	SMC3 (BFB) #	OTHER	TOT OUT
01	V207241BS	103	105	91		0
02	V207241LB	110	102	106		0
03	9807-737-1	106	102	107		0
04	9807-737-1M	100	97	96		0
05	9807-737-1S	100	100	92		0
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30						

QC LIMITS

SMC1 (DBF) = Dibromofluoromethane (85-119)
 SMC2 (TOL) = Toluene-d8 (87-114)
 SMC3 (BFB) = Bromofluorobenzene (75-111)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

000031

FORM 4
VOA-GCMS METHOD BLANK SUMMARY

378 344
CLIENT SAMPLE NO.

V207241LB

Lab Name: ETC, INC.

Lab Prep Batch: V2072401

SDG No.: 9807-737

Lab File ID: 0302002

Lab Prep Batch: V2072401

Date Analyzed: 07/24/98

Time Analyzed: 1232

GC Column: ID: 2 (mm)

Heated Purge: (Y/N) Y

Instrument ID: VOC2

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	V207241BS		0201001LCS	1044
02	9807-737-1		0401003	1315
03	9807-737-1M		1501014	2114
04	9807-737-1S		1601015	2157
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COMMENTS:

378 345

FORM 1
VOA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

V207241LB

Lab Name: ETC, INC.

SDG No.: 9807-737

Matrix: (soil/water) SOIL

Lab Prep Batch: V2072401

Sample wt/vol: 10.0 (g/mL) G

Lab File ID: 0302002

Level: (low/med) LOW

Date Analyzed: 07/24/98

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
74-87-3	Chloromethane	2.00	U	
75-01-4	Vinyl Chloride	2.00	U	
74-83-9	Bromomethane	2.00	U	
75-00-3	Chloroethane	2.00	U	
67-64-1	Acetone	50.0	U	
75-35-4	1,1-Dichloroethene	2.00	U	
75-15-0	Carbon Disulfide	25.0	U	
75-09-2	Methylene Chloride	50.0	U	
156-60-5	trans-1,2-Dichloroethene	2.00	U	
108-05-4	Vinyl Acetate	25.0	U	
75-34-3	1,1-Dichloroethane	2.00	U	
78-93-3	Methyl-Ethyl Ketone	50.0	U	
156-59-4	cis-1,2-Dichloroethene	2.00	U	
67-66-3	Chloroform	2.00	U	
71-55-6	1,1,1-Trichloroethane	2.00	U	
56-23-5	Carbon Tetrachloride	2.00	U	
71-43-2	Benzene	2.00	U	
107-06-2	1,2-Dichloroethane	2.00	U	
79-01-6	Trichloroethene	2.00	U	
78-87-5	1,2-Dichloropropane	2.00	U	
75-27-4	Bromodichloromethane	2.00	U	
108-10-1	4-Methyl-2-Pentanone	50.0	U	
10061-01-5	cis-1,3-Dichloropropene	2.00	U	
108-88-3	Toluene	2.00	U	
10061-02-6	trans-1,3-Dichloropropene	2.00	U	
79-00-5	1,1,2-Trichloroethane	2.00	U	
591-78-6	2-Hexanone	50.0	U	
127-18-4	Tetrachloroethene	2.00	U	
124-48-1	Chlorodibromomethane	2.00	U	
108-90-7	Chlorobenzene	2.00	U	
1330-20-7	Xylene-mp	2.00	U	
100-41-4	Ethylbenzene	2.00	U	
95-47-6	Xylene-o	2.00	U	

FORM I VOA-GCMS

000033

FORM 1
VOA-GCMS ORGANICS ANALYSIS DATA SHEET

378 346
CLIENT SAMPLE NO.

V207241LB

Lab Name: ETC, INC.

SDG No.: 9807-737

Matrix: (soil/water) SOIL

Lab Prep Batch: V2072401

Sample wt/vol: 10.0 (g/mL) G

Lab File ID: 0302002

Level: (low/med) LOW

Date Analyzed: 07/24/98

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/Kg) UG/KG	Q
100-42-5-----	Styrene	2.00	U
75-25-2-----	Bromoform	2.00	U
79-34-5-----	1,1,2,2-Tetrachloroethane	2.00	U

FORM I VOA-GCMS

000034

378 347

FORM 3
WATER VOA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V2072401

SDG No.: 9807-737

Matrix Spike - Sample No.: V207241BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Acetone	100		144	144	59-151
Acetonitrile	1000		1100	110	57-143
Benzene	100		110	110	72-124
Bromobenzene	100		96.6	97	77-120
Bromochloromethane	100		112	112	74-120
Bromodichloromethane	100		106	106	68-119
Bromoform	100		108	108	66-136
Bromomethane	100		97.0	97	40-134
Methyl-Ethyl Ketone	100		121	121	55-151
n-Butylbenzene	100		101	101	69-129
sec-Butylbenzene	100		104	104	72-127
tert-Butylbenzene	100		99.7	100	73-126
Carbon Disulfide	100		110	110	60-133
Carbon Tetrachloride	100		107	107	64-123
Chlorobenzene	100		94.1	94	77-112
Chlorodibromomethane	100		114	114	72-118
Chloroethane	100		106	106	64-142
2-Chloroethyl vinyl Eth	100		94.5	94	22-165
Chloroform	100		107	107	70-115
Chloromethane	100		96.4	96	58-139
2-Chlorotoluene	100		89.7	90	65-132
4-Chlorotoluene	100		94.9	95	67-127
1,2-Dibromo-3-chloropro	100		108	108	56-134
1,2-Dibromoethane	100		121	121*	74-118
Dibromomethane	100		111	111	75-114
1,2-Dichlorobenzene	100		97.0	97	80-113
1,3-Dichlorobenzene	100		96.3	96	77-119
1,4-Dichlorobenzene	100		106	106	78-116

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS:

FORM 3
WATER VOA-GCMS LABORATORY CONTROL SAMPLE

378 348

Lab Name: ETC, INC.

Lab Prep Batch: V2072401

SDG No.: 9807-737

Matrix Spike - Sample No.: V207241BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Dichlorodifluoromethane	100		83.4	83	48-145
1,1-Dichloroethane	100		109	109	76-118
1,2-Dichloroethane	100		115	115	62-124
1,1-Dichloroethene	100		108	108	69-121
cis-1,2-Dichloroethene	100		108	108	76-114
trans-1,2-Dichloroethen	100		106	106	72-121
1,2-Dichloropropane	100		108	108	64-133
1,3-Dichloropropane	100		114	114	68-128
2,2-Dichloropropane	100		123	123	67-132
1,1-Dichloropropene	100		110	110	76-117
cis-1,3-Dichloropropene	100		114	114	77-120
trans-1,3-Dichloroprope	100		110	110	73-124
Ethylbenzene	100		92.9	93	77-111
Hexachlorobutadiene	100		102	102	69-137
2-Hexanone	100		127	127	53-144
Isopropylbenzene	100		101	101	74-125
4-Isopropyltoluene	100		103	103	72-127
Methylene Chloride	100		98.4	98	67-115
4-Methyl-2-Pentanone	100		125	125	42-144
Naphthalene	100		114	114	53-124
n-Propylbenzene	100		102	102	75-125
Styrene	100		93.3	93	77-117
1,1,1,2-Tetrachloroetha	100		99.4	99	79-113
1,1,2,2-Tetrachloroetha	100		112	112	67-126
Tetrachloroethene	100		89.9	90	77-115
Toluene	100		110	110	77-115
1,2,3-Trichlorobenzene	100		104	104	62-132
1,2,4-Trichlorobenzene	100		108	108	68-132

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS:

373 349

FORM 3
WATER VOA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V2072401

SDG No.: 9807-737

Matrix Spike - Sample No.: V207241BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
1,1,1-Trichloroethane	100		110	110	63-122
1,1,2-Trichloroethane	100		117	117	69-117
Trichloroethene	100		103	103	75-113
Trichlorofluoromethane	100		110	110	55-130
1,2,3-Trichloropropane	100		108	108	62-130
1,2,4-Trimethylbenzene	100		91.1	91	69-126
1,3,5-Trimethylbenzene	100		90.6	91	69-128
Vinyl Acetate	100		137	137	28-146
Vinyl Chloride	100		107	107	65-134
Xylene-mp	200		204	102	77-115
Xylene-o	100		92.6	93	77-115

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 1 out of 67 outside limits

COMMENTS:

FORM 3
SOIL VOA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

378 350

Lab Name: ETC, INC.

Lab Prep Batch: V2072401

SDG No.: 9807-737

Matrix Spike - Sample No.: 9807-737-1

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	100	0.000	76.8	77	69-121
Benzene	100	0.000	76.6	77	72-124
Trichloroethene	100	0.000	76.3	76	75-113
Toluene	100	0.000	78.4	78	77-115
Chlorobenzene	100	0.000	79.0	79	77-112

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
1,1-Dichloroethene	100	73.4	73	5	20	69-121
Benzene	100	76.8	77	0	20	72-124
Trichloroethene	100	75.4	75	1	20	75-113
Toluene	100	79.6	80	2	20	77-115
Chlorobenzene	100	77.2	77	2	20	77-112

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

COMMENTS:

FORM III VOA-GCMS

000038

378 351

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC/MS Semi-Volatiles

000039

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - SOIL

378 352

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9807-737
Method (SW-846) : 8270C/3550B

HOLDING TIMES

Sample Extraction : All soil samples extracted within 14 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
P04006 P04006LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P04006BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9807-737-01 RPD : All analytes within QC limits.
RA-TS-001 Spike Recovery : All analytes within QC limits.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
P04006LB

No Target Analytes detected above Practical Quantitation Limit.

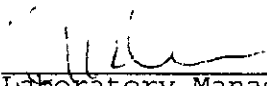
CALIBRATION

DFTPP Daily 12 Hour Tune : All criteria met. FORM 5
Initial Calibration : All criteria met. FORM 6
Daily Calibration : All criteria met. FORM 7A

Semi-Volatile Internal Standard Area and RT FORM 8
Daily Check Standard(s) Internal Standard Areas and Retention Times
within QC limits.

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC, 5971MSD
Dilutions Required : No dilutions required.


Laboratory Manager

000040

378 353

FORM 2
SOIL BNA-GCMS SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-737

Level:(low/med) LOW

	CLIENT SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	S7 #	S8 #	TOT OUT
01	P04006LB	52	59	56	64	76	86			0
02	P04006BS	76	78	51	63	86	79			0
03	9807-737-1	58	66	64	68	88	80			0
04	9807-737-1M	66	69	69	63	86	78			0
05	9807-737-1S	66	68	69	62	55	77			0
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QC LIMITS

S1 (2FP) = 2-Fluorophenol (23- 89)
 S2 (PHL) = Phenol-d6 (31- 94)
 S3 (NBZ) = Nitrobenzene-d5 (39- 80)
 S4 (FBP) = 2-Fluorobiphenyl (43- 84)
 S5 (TBP) = 2,4,6-Tribromophenol (17- 91)
 S6 (TPH) = Terphenyl-d14 (40-121)

Column to be used to flag recovery values
 * Values outside of contract required QC limits
 D Surrogate diluted out

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

378 354
CLIENT SAMPLE NO.

P04006LB

Lab Name: ETC, INC.

Lab Prep Batch: P04006

Lab File ID: 0301003

Matrix: (soil/water) SOIL

Level:(low/med) LOW

SDG No.: 9807-737

Instrument ID: BNA2

Date Analyzed: 07/26/98

Time Analyzed: 1032

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P04006BS		0401004	07/26/98
02	9807-737-1		0501005	07/26/98
03	9807-737-1M		0601006	07/26/98
04	9807-737-1S		0701007	07/26/98
05				
06				
07				
08				
09				
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COMMENTS:

378 355

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

P04006LB

Lab Name: ETC, INC.

SDG No.: 9807-737

Matrix: (soil/water) SOIL

Lab Prep Batch: P04006

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 0301003

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1(mL)

Date Analyzed: 07/26/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
83-32-9-----	Acenaphthene	167	U
208-96-8-----	Acenaphthylene	167	U
120-12-7-----	Anthracene	167	U
56-55-3-----	Benzo(a)Anthracene	167	U
205-99-2-----	Benzo(b)fluoranthene	167	U
207-08-9-----	Benzo(k)fluoranthene	167	U
191-24-2-----	Benzo(g,h,i)perylene	167	U
65-85-0-----	Benzoic Acid	660	U
50-32-8-----	Benzo(a)pyrene	167	U
100-51-6-----	Benzyl Alcohol	167	U
111-91-1-----	Bis(2-chloroethoxy)methane	167	U
111-44-4-----	bis(2-Chloroethyl)ether	167	U
39638-32-9-----	bis(2-Chloroisopropyl)ether	167	U
117-81-7-----	bis(2-ethylhexyl)Phthalate	167	U
101-55-3-----	4-Bromophenyl-phenylether	167	U
85-68-7-----	Butylbenzylphthalate	167	U
106-47-8-----	4-Chloroaniline	167	U
91-58-7-----	2-Chloronaphthalene	167	U
59-50-7-----	4-Chloro-3-Methylphenol	167	U
95-57-8-----	2-Chlorophenol	167	U
7005-72-3-----	4-Chlorophenyl-phenylether	167	U
218-01-9-----	Chrysene	167	U
53-70-3-----	Dibenzo(a,h)anthracene	167	U
132-64-9-----	Dibenzofuran	167	U
84-74-2-----	Di-n-Butylphthalate	167	U
95-50-1-----	1,2-Dichlorobenzene	167	U
541-73-1-----	1,3-Dichlorobenzene	167	U
106-46-7-----	1,4-Dichlorobenzene	167	U
91-94-1-----	3,3'-Dichlorobenzidine	167	U
120-83-2-----	2,4-Dichlorophenol	167	U
87-65-0-----	2,6-Dichlorophenol	167	U
84-66-2-----	Diethylphthalate	167	U
105-67-9-----	2,4-Dimethyphenol	167	U

FORM I BNA-GCMS

000043

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

378 356
CLIENT SAMPLE NO.

P04006LB

Lab Name: ETC, INC.

SDG No.: 9807-737

Matrix: (soil/water) SOIL

Lab Prep Batch: P04006

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 0301003

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 07/26/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
131-11-3	Dimethylphthalate	167	U
534-52-1	4,6-Dinitro-2-methylphenol	167	U
51-28-5	2,4-Dinitrophenol	330	U
121-14-2	2,4-Dinitrotoluene	167	U
606-20-2	2,6-Dinitrotoluene	167	U
117-84-0	Di-n-octylphthalate	167	U
206-44-0	Fluoranthene	167	U
86-73-7	Fluorene	167	U
118-74-1	Hexachlorobenzene	167	U
87-68-3	Hexachlorobutadiene	167	U
77-47-4	Hexachlorocyclopentadiene	167	U
67-72-1	Hexachloroethane	167	U
193-39-5	Indeno(1,2,3-cd)pyrene	167	U
78-59-1	Isophorone	167	U
91-57-6	2-Methylnaphthalene	167	U
95-48-7	2-Methylphenol	167	U
106-44-5	3&4-Methylphenol	167	U
91-20-3	Naphthalene	167	U
98-95-3	Nitrobenzene	167	U
88-74-4	2-Nitroaniline	167	U
99-09-2	3-Nitroaniline	167	U
100-01-6	4-Nitroaniline	167	U
88-75-5	2-Nitrophenol	167	U
100-02-7	4-Nitrophenol	167	U
86-30-6	Diphenylamine/n-NDPA	167	U
621-64-7	N-Nitrosodipropylamine	167	U
87-86-5	Pentachlorophenol	167	U
85-01-8	Phenanthrene	167	U
108-95-2	Phenol	167	U
129-00-0	Pyrene	167	U
120-82-1	1,2,4-Trichlorobenzene	167	U
95-95-4	2,4,5-Trichlorophenol	167	U
88-06-2	2,4,6-Trichlorophenol	167	U

FORM I BNA-GCMS

000044

FORM 3
SOIL BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P04006

SDG No.: 9807-737

Matrix Spike - Sample No.: P04006BS

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
Acenaphthene	1670		1490	89	34-126
Acenaphthylene	1670		1530	92	62-123
Anthracene	1670		1580	95	68-124
Benzo(a)Anthracene	1670		1670	100	60-133
Benzo(b)fluoranthene	1670		1620	97	67-126
Benzo(k)fluoranthene	1670		1570	94	75-131
Benzo(g,h,i)perylene	1670		1370	82	53-137
Benzo(a)pyrene	1670		1560	93	68-129
Benzoic Acid	3330		3270	98	37-251
Benzyl Alcohol	1670		1550	93	20-159
Bis(2-chloroethoxy)meth	1670		1390	83	37-153
bis(2-Chloroethyl)ether	1670		1530	92	25-147
bis(2-Chloroisopropyl)e	1670		640	38	35-138
bis(2-ethylhexyl)Phthal	1670		1680	100	60-150
4-Bromophenyl-phenyleth	1670		1660	99	59-130
Butylbenzylphthalate	1670		1690	101	71-137
4-Chloroaniline	1670		1030	62	27-106
2-Chloronaphthalene	1670		1440	86	62-126
4-Chloro-3-Methylphenol	3330		3020	91	33-147
2-Chlorophenol	3330		2710	81	35-138
4-Chlorophenyl-phenylet	1670		1480	89	60-128
Chrysene	1670		1650	99	67-131
Dibenzo(a,h)anthracene	1670		1480	89	51-138
Dibenzofuran	1670		1540	92	57-131
Di-n-Butylphthalate	1670		1920	115	39-179
1,2-Dichlorobenzene	1670		1310	78	58-110
1,3-Dichlorobenzene	1670		1270	76	55-109
1,4-Dichlorobenzene	1670		1280	77	26-121

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

COMMENTS:

FORM 3
SOIL BNA-GCMS LABORATORY CONTROL SAMPLE

378 358

Lab Name: ETC, INC.

Lab Prep Batch: P04006

SDG No.: 9807-737

Matrix Spike - Sample No.: P04006BS

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
3,3'-Dichlorobenzidine	3330		3910	117	18-191
2,4-Dichlorophenol	3330		2740	82	68-123
2,6-Dichlorophenol	3330		2800	84	45-157
Diethylphthalate	1670		1580	95	72-133
2,4-Dimethyphenol	3330		2630	79	53-121
Dimethylphthalate	1670		1590	95	64-132
4,6-Dinitro-2-methylphe	3330		2960	89	70-158
2,4-Dinitrophenol	3330		2640	79	31-186
2,4-Dinitrotoluene	1670		1580	95	22-139
2,6-Dinitrotoluene	1670		1520	91	64-142
Di-n-octylphthalate	1670		1740	104	42-172
Fluoranthene	1670		1620	97	71-132
Fluorene	1670		1520	91	65-126
Hexachlorobenzene	1670		1700	102	64-130
Hexachlorobutadiene	1670		1380	83	62-116
Hexachlorocyclopentadie	1670		1240	74	16-160
Hexachloroethane	1670		1290	77	58-110
Indeno(1,2,3-cd)pyrene	1670		1460	87	34-170
Isophorone	1670		1550	93	35-135
2-Methylnaphthalene	1670		1430	86	57-123
2-Methylphenol	3330		2590	78	56-132
3&4-Methylphenol	3330		2870	86	68-111
Naphthalene	1670		1330	80	62-113
Nitrobenzene	1670		1350	81	59-123
2-Nitroaniline	1670		1510	90	63-138
3-Nitroaniline	1670		1350	81	53-128
4-Nitroaniline	1670		1270	76	60-140
2-Nitrophenol	3330		2540	76	52-145

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

378 359

FORM 3
SOIL BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P04006

SDG No.: 9807-737

Matrix Spike - Sample No.: P04006BS

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
4-Nitrophenol	3330		1600	48	12-105
Diphenylamine/n-NDPA	1670		1640	98	72-118
N-Nitrosodinpropylamine	1670		1610	96	24-141
Pentachlorophenol	3330		3120	94	6-164
Phenanthrene	1670		1640	98	66-128
Phenol	3330		2480	74	22-127
Pyrene	1670		1650	99	33-155
1,2,4-Trichlorobenzene	1670		1400	84	30-127
2,4,5-Trichlorophenol	3330		2890	87	50-173
2,4,6-Trichlorophenol	3330		2780	83	46-161

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 66 outside limits

COMMENTS:

FORM 3
SOIL BNA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

378 360

Lab Name: ETC, INC.

Lab Prep Batch: P04006

SDG No.: 9807-737

Matrix Spike - Sample No.: 9807-737-1

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Acenaphthene	4100	0.00	2480	60	34-126
4-Chloro-3-Methylphenol	7500	0.00	4460	59	33-147
2-Chlorophenol	5330	0.00	4200	79	35-138
1,4-Dichlorobenzene	3210	0.00	2200	68	26-121
2,4-Dinitrotoluene	3330	0.00	2600	78	22-139
4-Nitrophenol	1610	0.00	1380	86	12-105
N-Nitrosodinpropylamine	4070	0.00	3700	91	24-141
Pentachlorophenol	5870	0.00	4750	81	6-164
Phenol	5330	0.00	3660	69	22-127
Pyrene	4100	0.00	2830	69	33-155
1,2,4-Trichlorobenzene	4130	0.00	2400	58	30-127

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
Acenaphthene	4090	2380	58	3	20	34-126
4-Chloro-3-Methylphenol	7480	4330	58	2	20	33-147
2-Chlorophenol	5320	4200	79	0	20	35-138
1,4-Dichlorobenzene	3200	2070	65	4	20	26-121
2,4-Dinitrotoluene	3320	2460	74	5	20	22-139
4-Nitrophenol	1600	1370	86	0	20	12-105
N-Nitrosodinpropylamine	4050	3560	88	3	20	24-141
Pentachlorophenol	5850	4790	82	1	20	6-164
Phenol	5320	3560	67	3	20	22-127
Pyrene	4090	2870	70	1	20	33-155
1,2,4-Trichlorobenzene	4120	2310	56	4	20	30-127

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 11 outside limits

Spike Recovery: 0 out of 22 outside limits

COMMENTS:

FORM III BNA-GCMS

000048

378 361

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC Pesticides

000019

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

378 362

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9807-737
Method (SW-846) : 8081A/3550B

HOLDING TIMES

Sample Extraction : All soil samples extracted within 14 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
P06006 P06006LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P06006BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9807-737-01 RPD : All analytes within QC limits.
RA-TS-001 Spike Recovery : All analytes within QC limits.*
*

Recoveries for multiple analytes were flagged outside QC Limits in
the Matrix Spike and Matrix Spike Duplicate.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
P06006LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Daily Calibration : All criteria met. FORM 7A
Endrin/Breakdown : All criteria met. FORM 7*
*

PEM for Endrin (Sequence S107251B) was noted at 24.49% which is
greater than the normal 15% or less breakdown for the Confirmation
analysis.

PEM for Endrin (Sequence S107251A) was noted at 6.74% for the Primary
analysis in which the final results were reported.

000050

378 363

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9807-737
Method (SW-846) : 8081A/3550B

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.


Laboratory Manager

000051

FORM 2
SOIL PESTICIDE SURROGATE RECOVERY

378 364

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-737

Level: (low/med) LOW

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P06006LB	88	91							0
02	P06006BS	92	107							0
03	9807-737-1	77	82							0
04	9807-737-1MS	96	80							0
05	9807-737-1MS	96	81							0
06										
07										
08										
09										
10										
11										
12										
13										
14										
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24										
25										
26										
27										
28										
29										
30										

QC LIMITS

S1 (TMX) = Tetrachloro-m-xylene (39-130)

S2 (DBC) = Decachlorobiphenyl (64-154)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

000052

378 365

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

P06006LB

Lab Name: ETC, INC.

Lab Prep Batch: P06006

SDG No.: 9807-737

Lab File ID: P207251A-11R

Instrument ID: PEST2A

Matrix: (soil/water) SOIL

Date Analyzed: 07/25/98

Level:(low/med) LOW

Time Analyzed: 2113

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P06006BS		P207251A-12R	07/25/98
02	9807-737-1		P107251A-18R	07/26/98
03	9807-737-1MS		P107251A-22R	07/26/98
04	9807-737-1MS		P107251A-23R	07/26/98
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

378 366
EPA GC SAMPLE NO.

P06006LB

Lab Name: ETC, INC.

SDG No.: 9807-737

Matrix: (soil/water) SOIL

Lab Prep Batch: P06006

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P207251A-11R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10 (mL)

Date Analyzed: 07/25/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

309-00-2-----	Aldrin	1.33333	U
319-84-6-----	alpha-BHC	1.33333	U
319-85-7-----	beta-BHC	1.33333	U
319-86-8-----	delta-BHC	1.33333	U
58-89-9-----	gamma-BHC (Lindane)	1.33333	U
5103-71-9	alpha-chlordane	1.33333	U
5103-74-2-----	gamma-chlordane	1.33333	U
72-54-8-----	4,4'-DDD	1.33333	U
72-55-9-----	4,4'-DDE	1.33333	U
50-29-3-----	4,4'-DDT	1.33333	U
60-57-1-----	Dieldrin	1.33333	U
959-98-8/5103-71	Endosulfan I	1.33333	U
33213-65-9-----	Endosulfan II	1.33333	U
1031-07-8-----	Endosulfan sulfate	1.33333	U
72-20-8-----	Endrin	1.33333	U
7421-93-4-----	Endrin aldehyde	1.33333	U
53494-70-5-----	Endrin Ketone	1.33333	U
76-44-8-----	Heptachlor	1.33333	U
1024-57-3-----	Heptachlor epoxide	1.33333	U
72-43-5-----	Methoxychlor	1.33333	U
57-74-9-----	Chlordane-total	8.33333	U
8001-35-2-----	Toxaphene	83.33333	U

FORM I PESTICIDE

000054

378 367 FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

P06006LB

Lab Name: ETC, INC.

SDG No.: 9807-737

Matrix: (soil/water) SOIL

Lab Prep Batch: P06006

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P207251A-11R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 07/25/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
309-00-2-----	Aldrin	1.33333	U
319-84-6-----	alpha-BHC	1.33333	U
319-85-7-----	beta-BHC	1.33333	U
319-86-8-----	delta-BHC	1.33333	U
58-89-9-----	gamma-BHC (Lindane)	1.33333	U
5103-71-9	alpha-chlordane	1.33333	U
5103-74-2-----	gamma-chlordane	1.33333	U
72-54-8-----	4,4'-DDD	1.33333	U
72-55-9-----	4,4'-DDE	1.33333	U
50-29-3-----	4,4'-DDT	1.33333	U
60-57-1-----	Dieldrin	1.33333	U
959-98-8/5103-71	Endosulfan I	1.33333	U
33213-65-9-----	Endosulfan II	1.33333	U
1031-07-8-----	Endosulfan sulfate	1.33333	U
72-20-8-----	Endrin	1.33333	U
7421-93-4-----	Endrin aldehyde	1.33333	U
53494-70-5-----	Endrin Ketone	1.33333	U
76-44-8-----	Heptachlor	1.33333	U
1024-57-3-----	Heptachlor epoxide	1.33333	U
72-43-5-----	Methoxychlor	1.33333	U
57-74-9-----	Chlordane-total	8.33333	U
8001-35-2-----	Toxaphene	83.33333	U

FORM I PESTICIDE

000055

FORM 3
SOIL PESTICIDE BLANK SPIKE SAMPLE

378 368

Lab Name: ETC, INC.

Lab Prep Batch: P06006

SDG No.: 9807-737

Matrix Spike - Sample No.: P06006BS

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
Aldrin	33.33333		33.76230	101	31-111
alpha-BHC	33.33333		32.36501	97	22-112
beta-BHC	33.33333		35.00194	105	54-120
delta-BHC	33.33333		27.42060	82	10- 96
gamma-BHC (Lindane)	33.33333		32.97033	99	26-113
alpha-chlordane	33.33333		32.83593	98	49-103
gamma-chlordane	33.33333		34.86012	104	50-106
4,4'-DDD	33.33333		33.21933	100	47-112
4,4'-DDE	33.33333		35.05764	105	36-117
4,4'-DDT	33.33333		36.29161	109	49-124
Dieldrin	33.33333		35.05764	105	44-108
Endosulfan I	33.33333		31.53922	95	49-103
Endosulfan II	33.33333		36.65577	110	53-115
Endosulfan sulfate	33.33333		34.42645	103	51-110
Endrin	33.33333		35.73794	107	44-118
Endrin aldehyde	33.33333		35.35426	106	48-128
Endrin Ketone	33.33333		36.23790	109	38-130
Heptachlor	33.33333		37.17687	112	47-113
Heptachlor epoxide	33.33333		36.96523	111	47-112
Methoxychlor	33.33333		39.16043	117	39-147

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 19 outside limits

COMMENTS:

378 369

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P06006

SDG No.: 9807-737

Matrix Spike - Sample No.: 9807-737-1

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Aldrin	32.67973	0.00000	33.17674	102	31-111
alpha-BHC	32.67973	0.00000	34.44963	105	22-112
beta-BHC	32.67973	0.00000	36.61763	112	54-120
delta-BHC	32.67973	0.00000	30.14926	92	10- 96
gamma-BHC (Lindane)	32.67973	0.00000	35.57618	109	26-113
alpha-chlordane	32.67973	0.00000	33.34357	102	49-103
gamma-chlordane	32.67973	0.00000	34.91975	107*	50-106
4,4'-DDD	32.67973	0.00000	33.13807	101	47-112
4,4'-DDE	32.67973	0.00000	32.16502	98	36-117
4,4'-DDT	32.67973	0.73532	40.72120	122	49-124
Dieldrin	32.67973	0.00000	31.94273	98	44-108
Endosulfan I	32.67973	0.00000	32.99314	101	49-103
Endosulfan II	32.67973	0.00000	33.81297	103	53-115
Endosulfan sulfate	32.67973	0.33886	33.93062	103	39-147
Endrin	32.67973	0.00000	35.33287	108	44-118
Endrin aldehyde	32.67973	0.40175	39.22878	119	48-128
Endrin Ketone	32.67973	0.41025	39.11046	118	38-130
Heptachlor	32.67973	0.44802	39.50789	120*	47-113
Heptachlor epoxide	32.67973	0.00000	34.33601	105	47-112
Methoxychlor	32.67973	0.00000	46.47323	142*	49-113

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS:

378 370

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P06006

SDG No.: 9807-737

Matrix Spike - Sample No.: 9807-737-1

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Aldrin	33.33333	35.54201	107	5	20	31-111
alpha-BHC	33.33333	35.29312	106	1	20	22-112
beta-BHC	33.33333	38.54291	116	4	20	54-120
delta-BHC	33.33333	31.46961	94	2	20	10- 96
gamma-BHC (Lindane)	33.33333	37.53113	112	3	20	26-113
alpha-chlordane	33.33333	36.52169	110*	8	20	49-103
gamma-chlordane	33.33333	37.17967	112*	4	20	50-106
4,4'-DDD	33.33333	37.02644	111	9	20	47-112
4,4'-DDE	33.33333	35.15951	105	7	20	36-117
4,4'-DDT	33.33333	44.71815	132*	8	20	49-124
Dieldrin	33.33333	36.08552	108	10	20	44-108
Endosulfan I	33.33333	35.86191	108*	7	20	49-103
Endosulfan II	33.33333	37.97914	114	10	20	53-115
Endosulfan sulfate	33.33333	38.77738	115	11	20	39-147
Endrin	33.33333	37.22830	112	4	20	44-118
Endrin aldehyde	33.33333	41.93908	125	5	20	48-128
Endrin Ketone	33.33333	43.52393	129	9	20	38-130
Heptachlor	33.33333	40.88391	121*	1	20	47-113
Heptachlor epoxide	33.33333	36.83989	110	5	20	47-112
Methoxychlor	33.33333	48.74648	146*	3	20	49-113

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 20 outside limits

Spike Recovery: 9 out of 40 outside limits

COMMENTS:

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC PCBs

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PCBs - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9807-737
Method (SW-846) : 8082/3550B

HOLDING TIMES

Sample Extraction : All soil samples extracted within 14 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
P08007 P08007LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.*
*

Surrogate recoveries were flagged as outside QC Limits in samples
9807-765-05(75816-G3D+6) and MS/MSD associated with this project.

Laboratory Control Sample FORM 3
P08007BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9807-765-05 RPD : All analytes within QC limits.*
75816-G3D+6 Spike Recovery : All analytes within QC limits.*
*
Arochlor 1242 was not recovered in the MS/MSD due to the required
dilutions.

Recoveries and RPD for Arochlor 1260 were flagged outside QC Limits
in the Matrix Spike and Matrix Spike Duplicate due to the level
of this analyte present in the sample relative to the spike amount.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
P08007LB

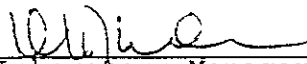
No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration	: All criteria met. FORM 6
Daily Calibration	: All criteria met. FORM 7A
Endrin/Breakdown	: All criteria met. FORM 7

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.


Laboratory Manager

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-737

Level: (low/med) LOW

[illegible]

S1 (TMX) = Tetrachloro-m-xylene
S2 (DBC) = Decachlorobiphenyl

QC LIMITS
(39-130)
(64-154)

```
# Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out
```

FORM 4
PCB METHOD BLANK SUMMARY

378 374
EPA GC SAMPLE NO.

P08007-LB

Lab Name: ETC, INC.

Lab Prep Batch: P08007

Lab File ID: C407241A-09R

Matrix: (soil/water) SOIL

Level: (low/med) LOW

SDG No.: 9807-737

Instrument ID: PEST4A

Date Analyzed: 07/24/98

Time Analyzed: 2049

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P08007-BS		C407241A-10R	07/24/98
02	9807-737-1		C407241A-11R	07/24/98
03	9807-765-5		C407241A-16R	07/25/98
04	9807-765-5M		C407241A-17R	07/25/98
05	9807-765-5S		C407241A-18R	07/25/98
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
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30				

COMMENTS:

378 375

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

P08007-LB

SDG No.: 9807-737

Matrix: (soil/water) SOIL

Lab Prep Batch: P08007

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: C407241A-09R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10 (mL)

Date Analyzed: 07/24/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/Kg) UG/KG	Q
12674-11-2-----	Aroclor 1016	16.67	U
11104-28-2-----	Aroclor 1221	16.67	U
11141-16-5-----	Aroclor 1232	16.67	U
53469-21-9-----	Aroclor 1242	16.67	U
11097-69-1-----	Aroclor 1254	16.67	U
11096-82-5-----	Aroclor 1260	16.67	U
12672-29-6-----	Aroclor 1248	16.67	U

FORM I PCB

000063

FORM 3
SOIL PCB LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P08007

SDG No.: 9807-737

Matrix Spike - Sample No.: P08007-BS

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
Aroclor 1242	333.3		353.1	106	25-125
Aroclor 1260	333.3		358.3	108	25-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 2 outside limits

COMMENTS:

FORM III PCB

000064

378.377

FORM 3
SOIL PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P08007

SDG No.: 9807-737

Matrix Spike - Sample No.: 9807-765-5

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	M CONCENTRATION (ug/Kg)	M % REC #	QC. LIMITS REC.
Aroclor 1242	328.9	0.000	0.000	0*	25-125
Aroclor 1260	328.9	12070	8898	-964*	25-125

COMPOUND	SPIKE ADDED (ug/Kg)	S CONCENTRATION (ug/Kg)	S % REC #	% RPD #	QC LIMITS RPD REC.
Aroclor 1242	323.6	0.000	0*		20 25-125
Aroclor 1260	323.6	9523	-787*	-20	20 25-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 2 outside limits
Spike Recovery: 4 out of 4 outside limits

COMMENTS:

FORM III PCB

000065



ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6331

Founded 1972

378 378

August 5, 1998

Ms. Elena Rodriguez
OHM Remediation Services
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Ref: Analytical Testing
ETC Order # 9808055
Project Description DDMT
Memphis, TN
Project # DACA45-96-D-0014

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th/18th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136.

The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Nathan A. Pera, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT

Certifications

Tennessee #TN02027
Arkansas
Alabama #40730
Kentucky #90047
North Carolina #415
South Carolina #84002002

Mississippi
Oklahoma #9311
Virginia #00106
Washington #C248
US Army Corps of Engineers

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody

000001

1 of 2
9800-730 1/8/90

OHM Remediation Services Corp				CHAIN-OF-CUSTODY RECORD				LABORATORY COPY	
Subsidiary of OHM Corporation U S Route 224 East • Findlay, Ohio 45840 • (419) 423-3526				217876				FORM 0019 REV 2-97	
OHM LAB COORDINATOR Elena Rodriguez		LAB COORDINATOR'S PHONE 770-734-8060		LAB COORDINATOR'S FAX 770-453-7716		LABORATORY SERVICE ID ETC		MAIL REPORT (COMPANY NAME) OHM Remediation Services Corp	
PROJECT NAME DDMT		PROJECT LOCATION Memphis, TN		PROJECT NUMBER 20560		LABORATORY PHONE 901-327-2750		RECIPIENT NAME Elena Rodriguez	
PROJECT CONTACT Steve Offner		PROJECT PHONE NUMBER 901-743-1117		PROJECT FAX 901-743-1048		LABORATORY ADDRESS 2924 Walnut Grove Road Memphis TN 38111		ADDRESS 5445 Triangle Pkwy, #400 CITY STATE AND ZIP CODE Norcross, GA 30092	
PROJECT ADDRESS 1708 Dunn Ave.		CITY STATE AND ZIP CODE Memphis, TN 38114		CLIENT USACE		CITY STATE AND ZIP CODE Memphis TN 38111			
PROJECT MANAGER Steve Offner		PROJECT MANAGER'S PHONE 770-326-2571		PROJECT MANAGER'S FAX 770-453-7716					
Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont	OC Level	TAT	Comments
1	RA-15-001	Soil	7/20/05	10:05	4	3 x 402 1 x 250 2 x 50	Oil in 1 x 250 2 x 50	70 min	Please fax results on DUE DATE to SITE and to Lab Coordinator.
2									
3									
4									
5									
6									
7									
8									
9									
10									
SAMPLES COLLECTED BY Steve Glast		COURIER AND AIR BILL NUMBER		Delivered in person		TIME		COOLER TEMPERATURE UPON RECEIPT	
RELINQUISHED BY		RECEIVED BY		DATE		TIME		SAMPLE'S CONDITION UPON RECEIPT	
Steve Glast		Dagmar Bandy		7/21/05		10:00		378	
								380	

378 381

Environmental Testing & Consulting, Inc.

Sample Reports

000003

378 382

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

INORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project # **DACA45-96-**

Site ID **DDMT**
Memphis, TN

Date Arrived 08/04/98

ETC Order Number 9808055

ETC Lab ID 9808055-01

Sample ID: RA-TS-001

Matrix :SOIL

Sample Date :07/22/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Fractional Organic Matter	1 43	%	0	08/05/98	D2974-87	OM080598


LABORATORY MANAGER

000004

378 383

Environmental Testing & Consulting, Inc.

**Quality Control Reports
Inorganics**

000005

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
INORGANICS

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-055

HOLDING TIMES

Sample Analysis : All samples analyzed within Method Specified
Holding Times.

QUALITY CONTROL

Duplicates

RPD : All analytes within QC limits


Laboratory Manager

378 385

Environmental Testing & Consulting, Inc.
Inorganic QC Data Summary

Client Name OHM Remediation Services
Project Defense Depot Memphis Tennessee

ETC Order Number 9808-055
File Name 9808-055 1

Duplicates		Sample Result	Duplicate Result	% RPD
Sample ID	Analysis	%	%	<20%
9808-055	Organic Matter	1.43	1.50	5.0

**COMPOSITE CONFIRMATION SAMPLES COLLECTED
FOLLOWING EXCAVATION IN AREA A**

Date Collected 07/23/98

RA-A-001 (Composite of Grids A10, A11, A21 & A22)

RA-A-002 (Composite of Grids A8, A9, A18 & A19)

RA-A-EQ-001-CS (Equip. Blank)



378 387
ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334
Founded 1972

July 29, 1998

Ms. Elena Rodriguez
OHM Remediation Services
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Ref: Analytical Testing
ETC Order # 9807738
Project Description DDMT

Project # DACA45-96-D-0014 Defense Depot - Memphis, TN

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th/18th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136.

The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Nathan A. Pera IV
Nathan A. Pera, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT



OHM Remediation
Services Corp.
A subsidiary of OHM Corporation

378 388

Chemical Analytical Data
Evaluation/Validation Checklist

SOUTHERN REGION

Project Name: DDMT

Project Number: 20560

Laboratory: ETC

Lab Project/Case Number: 9807738

Sample Number(s): RA-A-001, 002, RA-A-EQ-001-CS

Evaluated By: S. Paranjape

Date Evaluated: 8/19/98

Data Package Deliverables Requirement: ☐ OHM Minimum ☒ OHM Standard ☐ OHM Maximum

☐ Other, please describe _____

Quality Control Deliverables	Required	Received	Passed	Failed
POL, MDL, RL, etc meets DQOs			☒	
Comment:				
Holding Times			☒	
Comment:				
Sample Condition (preservatives, containers, temperature, etc)			☒	
Comment:				
Surrogate Recoveries			☒	
Comment:				
Lab Control Sample Recoveries			☒	
Comment:				
Lab Control Sample Duplicate or Other Spike Recoveries				
Comment:				
Lab Control Sample Duplicate or Other Laboratory Duplicate RPD				
Comment:				
Matrix Spike Recoveries			☒	
Comment:				
Matrix Spike Duplicate Recoveries			☒	
Comment:				
Matrix Spike / Matrix Spike Duplicate RPD			☒	
Comment:				
Laboratory Blanks			☒	
Comment:				
Field Blanks				
Comment:				
Field Duplicates RPD				
Comment:				

-over-

Chemical Analytical Data Evaluation / Validation Checklist
-continued-

Quality Control Deliverables	Required	Received	Passed	Failed
Tentatively Identified Compounds (TICs)			☒	
Comment:				
Instrument Performance Check (Organics Only)				
Comment:				
Initial Calibration				
Comment:				
Continuing Calibration				
Comment:				
Internal Standard Areas and Retention Times (Organics Only)				
Comment:				
Chromatograms			☒	
Comment:				
Sample Prep Worksheets				
Comment:				
Raw Data Calculations				
Comment:				
Laboratory Duplicates			☒	
Comment:				
Comment:				
Comment:				
Comment:				

General Comments:

Summary: ☐ See attached pages

- Check One. ☒ The data, as reported by the laboratory, are acceptable.
☐ The data, with qualifiers as described in the "Summary" portion of this report, are acceptable.
☐ The data are unacceptable.
☐ Other _____

S. Tazewell

Evaluator's Signature

8/14/98

Date

Environmental Testing & Consulting, Inc.
Data Qualifiers for Organic Reporting

Within the attached report, some analytical data may be reported as "Qualified Data" as indicated by a "Data Qualifier" next to the result. This table summarizes the possible "Data Qualifiers" that may be associated with this report.

Q	Surrogate Recovery Outside QC Limits
J	Estimated Value. Presence of the compound was confirmed but less than the reported detection limit.
E	Concentration exceeds the established method calibration range but is within the working range of the instrument.
B	Analyte detected in the associated Method Blank.
U	Reported result was unconfirmed. Refer to Case Narrative.
N	Non-Compliance Report associated with this sample or project.
C	Result reported from GC/MS confirmation analysis.
*	QC Data (percent recovery/RPD for a particular analyte was outside QC Limits)

378 391

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ANALYTICAL SUMMARY TABLE

Client Name OHM Remediation Services
 Site ID DDMT
 Memphis, TN

<u>ETC</u>	<u>Sample ID</u>	<u>Field ID</u>	<u>Matrix</u>	<u>Method</u>	<u>Method Description</u>
	980773801	RA-A-001	SOIL	8081A	TCL Pesticides
	980773801	RA-A-001	SOIL	8082	PCBs
	980773801	RA-A-001	SOIL	8270C	Semi-Volatile PAH
	980773801	RA-A-001	SOIL	6010B	Silver
	980773801	RA-A-001	SOIL	6010B	Aluminum
	980773801	RA-A-001	SOIL	7060A	Arsenic
	980773801	RA-A-001	SOIL	6010B	Barium
	980773801	RA-A-001	SOIL	6010B	Beryllium
	980773801	RA-A-001	SOIL	6010B	Calcium
	980773801	RA-A-001	SOIL	6010B	Cadmium
	980773801	RA-A-001	SOIL	9010A	Cyanide
	980773801	RA-A-001	SOIL	6010B	Cobalt
	980773801	RA-A-001	SOIL	6010B	Chromium
	980773801	RA-A-001	SOIL	6010B	Copper
	980773801	RA-A-001	SOIL	6010B	Iron
	980773801	RA-A-001	SOIL	7471A	Mercury
	980773801	RA-A-001	SOIL	6010B	Potassium
	980773801	RA-A-001	SOIL	6010B	Magnesium
	980773801	RA-A-001	SOIL	6010B	Manganese
	980773801	RA-A-001	SOIL	6010B	Sodium
	980773801	RA-A-001	SOIL	6010B	Nickel
	980773801	RA-A-001	SOIL	7421	Lead
	980773801	RA-A-001	SOIL	6010B	Antimony
	980773801	RA-A-001	SOIL	7740	Selenium
	980773801	RA-A-001	SOIL	7841	Thallium
	980773801	RA-A-001	SOIL	6010B	Vanadium
	980773801	RA-A-001	SOIL	6010B	Zinc
	980773802	RA-A-002	SOIL	8081A	TCL Pesticides
	980773802	RA-A-002	SOIL	8082	PCBs
	980773802	RA-A-002	SOIL	8270C	Semi-Volatile PAH
	980773802	RA-A-002	SOIL	6010B	Silver
	980773802	RA-A-002	SOIL	6010B	Aluminum
	980773802	RA-A-002	SOIL	7060A	Arsenic
	980773802	RA-A-002	SOIL	6010B	Barium
	980773802	RA-A-002	SOIL	6010B	Beryllium
	980773802	RA-A-002	SOIL	6010B	Calcium
	980773802	RA-A-002	SOIL	6010B	Cadmium
	980773802	RA-A-002	SOIL	9010A	Cyanide
	980773802	RA-A-002	SOIL	6010B	Cobalt
	980773802	RA-A-002	SOIL	6010B	Chromium
	980773802	RA-A-002	SOIL	6010B	Copper
	980773802	RA-A-002	SOIL	6010B	Iron
	980773802	RA-A-002	SOIL	7471A	Mercury
	980773802	RA-A-002	SOIL	6010B	Potassium
	980773802	RA-A-002	SOIL	6010B	Magnesium
	980773802	RA-A-002	SOIL	6010B	Manganese
	980773802	RA-A-002	SOIL	6010B	Sodium
	980773802	RA-A-002	SOIL	6010B	Nickel
	980773802	RA-A-002	SOIL	7421	Lead
	980773802	RA-A-002	SOIL	6010B	Antimony
	980773802	RA-A-002	SOIL	7740	Selenium
	980773802	RA-A-002	SOIL	7841	Thallium
	980773802	RA-A-002	SOIL	6010B	Vanadium
	980773802	RA-A-002	SOIL	6010B	Zinc
	980773803	RA-A-EQ-001-CS	AQUEOUS	8081	Pesticides

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ANALYTICAL SUMMARY TABLE

378 392

Client Name OHM Remediation Services
Site ID DDMT
Memphis, TN

ETC

<u>Sample ID</u>	<u>Field ID</u>	<u>Matrix</u>	<u>Method</u>	<u>Method Description</u>
980773803	RA-A-EQ-001-CS	AQUEOUS	8082	PCBs
980773803	RA-A-EQ-001-CS	AQUEOUS	8270C	Semi-Volatile PAH
980773803	RA-A-EQ-001-CS	AQUEOUS	6010B	Silver
980773803	RA-A-EQ-001-CS	AQUEOUS	6010B	Aluminum
980773803	RA-A-EQ-001-CS	AQUEOUS	7060A	Arsenic
980773803	RA-A-EQ-001-CS	AQUEOUS	6010B	Barium
980773803	RA-A-EQ-001-CS	AQUEOUS	6010B	Beryllium
980773803	RA-A-EQ-001-CS	AQUEOUS	6010B	Calcium
980773803	RA-A-EQ-001-CS	AQUEOUS	6010B	Cadmium
980773803	RA-A-EQ-001-CS	AQUEOUS	9010A	Total Cyanide
980773803	RA-A-EQ-001-CS	AQUEOUS	6010B	Cobalt
980773803	RA-A-EQ-001-CS	AQUEOUS	6010B	Chromium
980773803	RA-A-EQ-001-CS	AQUEOUS	6010B	Copper
980773803	RA-A-EQ-001-CS	AQUEOUS	6010B	Iron
980773803	RA-A-EQ-001-CS	AQUEOUS	7470A	Mercury
980773803	RA-A-EQ-001-CS	AQUEOUS	6010B	Potassium
980773803	RA-A-EQ-001-CS	AQUEOUS	6010B	Magnesium
980773803	RA-A-EQ-001-CS	AQUEOUS	6010B	Manganese
980773803	RA-A-EQ-001-CS	AQUEOUS	6010B	Sodium
980773803	RA-A-EQ-001-CS	AQUEOUS	6010B	Nickel
980773803	RA-A-EQ-001-CS	AQUEOUS	7421	Lead
980773803	RA-A-EQ-001-CS	AQUEOUS	6010B	Antimony
980773803	RA-A-EQ-001-CS	AQUEOUS	7740	Selenium
980773803	RA-A-EQ-001-CS	AQUEOUS	7841	Thallium
980773803	RA-A-EQ-001-CS	AQUEOUS	6010B	Vanadium
980773803	RA-A-EQ-001-CS	AQUEOUS	6010B	Zinc



OHM Remediation Services Corp
Subsidiary of OHM Corporation
U.S. Route 224 East • Findlay, Ohio 45840 • (419) 423-3526

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY
217879

FORM 0019 REV 5/97

21800-938

000005

OHM LAB COORDINATOR Elena Rodriguez		LAB COORDINATOR'S PHONE 770-734-8060		LAB COORDINATOR'S FAX 770-453-7716		LABORATORY SERVICE ID ETC		LABORATORY CONTACT Nathan Pera		MAIL REPORT (COMPANY NAME) OHM Remediation Services Corp			
PROJECT NAME DMT		PROJECT LOCATION Memphis TN		PROJECT NUMBER 20560		LABORATORY PHONE 901-327-2750		LABORATORY FAX 901-327-6334		RECIPIENT NAME Elena Rodriguez			
PROJECT CONTACT Steve Offner		PROJECT PHONE NUMBER 901-743-1117		PROJECT FAX 901-743-1048		LABORATORY ADDRESS 2924 Walnut Grove Road		CITY STATE AND ZIP CODE Memphis, TN 38111		ADDRESS 5445 Triangle Pkwy, #400			
PROJECT ADDRESS 1708 Dunn Ave.		CITY STATE AND ZIP CODE Memphis, TN 38114		CLIENT USACE		PROJECT MANAGER'S FAX 770-453-7716		CITY STATE AND ZIP CODE Memphis, TN 38111		CITY STATE AND ZIP CODE Norcross, GA 30092			
PROJECT MANAGER Steve Offner		PROJECT PHONE NUMBER 770-326-2571		PROJECT MANAGER'S FAX 770-453-7716		LABORATORY ADDRESS 2924 Walnut Grove Road		CITY STATE AND ZIP CODE Memphis, TN 38111		CITY STATE AND ZIP CODE Norcross, GA 30092			
Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont.	QC Level	TAT	Analyses Tel. Results 3/30/01 Tel. PCBs 3/30/01 Tel. PAH 8/22/01 Tel. Metals 3/30/01 Tel. Cyanide 8/22/01 Tel. Volatiles 3/30/01			Comments	
1	PA-A-001		5/1	7/23/01	NA	4/302	3	7044	-1	-1	-1	-1	Please fax results on DUE DATE to SITE and to Lab Coordinator
2	PA-A-002		5/1	7/23/01	NA	4/302	3	7044	-1	-1	-1	-1	
3	PA-A-EA-001-CS		1/9/02	7/23/01	7	3	7044	-1	-1	-1	-1	-1	
4													
5													
6													
7													
8													
9													
10													
SAMPLES COLLECTED BY Steve Offner		COPIES AND AIR BILL NUMBER Delivered in 10/20/01		RECEIVED BY Nathan Pera		DATE 10/20/01		TIME 1:55		COOLER TEMPERATURE UPON RECEIPT		SAMPLE'S CONDITION UPON RECEIPT	
Distribution White - Laboratory (To be returned with Analytical Report), Goldenrod - Project File, Yellow - Project Data Manager													

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody

378, 395

Environmental Testing & Consulting, Inc.

Cooler Receipt Form
Not available for this project

000006

Environmental Testing & Consulting, Inc.

Sample Reports

000007

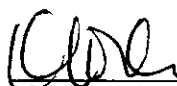
378 397

ENVIRONMENTAL TESTING & CONSULTING, INC.
Memphis, TN
INORGANIC ANALYSIS DATA SHEET
PERCENT SOLIDS

Client Name :OHM Remediation Services
Project Name :DDMT

Date Sample Received :07/23/98
Contract Laboratory Order Number :9807-738

<u>Contract Lab</u> <u>Sample No</u>	<u>Field</u> <u>ID</u>	<u>Date</u> <u>Sampled</u>	<u>Result</u> <u>Units : (%)</u>	<u>Date</u> <u>Analyzed</u>	<u>Method</u>	<u>By</u>
9807-738-01	RA-A-001	07/23/98	89	07/28/98	160.3	MC
9807-738-02	RA-A-002	07/23/98	98	07/28/98	160.3	MC


LABORATORY MANAGER

000008

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

INORGANIC ANALYSIS DATA SHEET

Client Name OHM Remediation Services
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400

Project # DACA45-96-D-0014

Site ID Norcross, GA 30092
DDMT
Memphis, TN

Date Arrived 07/23/98
ETC Order Number 9807738

ETC Lab ID 9807738-01
Sample ID: RA-A-001

Matrix :SOIL
Sample Date :07/23/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	<1.00	mg/Kg	1 00	07/29/98	9010A	CY072998


LABORATORY MANAGER

000009

378 399

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

INORGANIC ANALYSIS DATA SHEET

Client Name OHM Remediation Services
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project # DACA45-96-D-0014

Site ID DDMT
Memphis, TN

Date Arrived 07/23/98

ETC Order Number 9807738

ETC Lab ID 9807738-02

Sample ID: RA-A-002

Matrix :SOIL

Sample Date :07/23/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	<1.00	mg/Kg	1.00	07/29/98	9010A	CY072998


LABORATORY MANAGER

000010

378 400

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

INORGANIC ANALYSIS DATA SHEET

Client Name OHM Remediation Services
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092
Site ID DDMT
Memphis, TN

Project # DAC45-96-D-0014

Date Arrived 07/23/98
ETC Order Number 9807738

ETC Lab ID 9807738-03
Sample ID: RA-A-EQ-001-CS

Matrix :AQUEOUS
Sample Date :07/23/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Total Cyanide	<0.010	mg/L	0.010	07/28/98	9010A	CY072898


LABORATORY MANAGER

000011

378 401

ENVIRONMENTAL TESTING & CONSULTING, INC.
 2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
INORGANIC ANALYSIS DATA SHEET

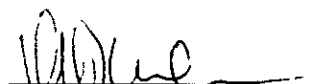
Client Name **OHM Remediation Services** Site ID **DDMT**
Defense Depot - Memphis, TN
5445 Triangle Parkway Project #20560
Suite 400
Norcross, GA 30092

Date Arrived 07/23/98
 ETC Order Number 9807738

ETC Lab ID 9807738-01
Sample ID: RA-A-001

Matrix :SOIL
 Sample Date :07/23/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE PREPARED	DATE ANALYZED	METHOD	QC BATCH
Metals Digestion Batch				07/24/98		3051	V7-SO-53
Mercury Digestion Batch				07/27/98		7471A	V4-SO-19
Silver	ND	mg/Kg	0.700	07/24/98	07/29/98	6010B	
Aluminum	10,900	mg/Kg	4.00	07/24/98	07/29/98	6010B	
Arsenic	12.9	mg/Kg	0.200	07/24/98	07/27/98	7060A	
Barium	147	mg/Kg	0.200	07/24/98	07/29/98	6010B	
Beryllium	0.518	mg/Kg	0.100	07/24/98	07/29/98	6010B	
Calcium	1,870	mg/Kg	1.00	07/24/98	07/29/98	6010B	
Cadmium	ND	mg/Kg	0.400	07/24/98	07/29/98	6010B	
Cobalt	7.71	mg/Kg	0.700	07/24/98	07/29/98	6010B	
Chromium	13.4	mg/Kg	0.700	07/24/98	07/29/98	6010B	
Copper	16.0	mg/Kg	0.600	07/24/98	07/29/98	6010B	
Iron	19,000	mg/Kg	0.700	07/24/98	07/29/98	6010B	
Mercury	0.061	mg/Kg	0.020	07/27/98	07/27/98	7471A	
Potassium	1,040	mg/Kg	20.0	07/24/98	07/29/98	6010B	
Magnesium	2,190	mg/Kg	3.00	07/24/98	07/29/98	6010B	
Manganese	587	mg/Kg	0.200	07/24/98	07/29/98	6010B	
Sodium	92.7	mg/Kg	20.0	07/24/98	07/29/98	6010B	
Nickel	16.8	mg/Kg	1.50	07/24/98	07/29/98	6010B	
Lead	21.7	mg/Kg	0.100	07/24/98	07/27/98	7421	
Antimony	ND	mg/Kg	3.20	07/24/98	07/29/98	6010B	
Selenium	0.412	mg/Kg	0.200	07/24/98	07/27/98	7740	
Thallium	0.173	mg/Kg	0.100	07/24/98	07/28/98	7841	
Vanadium	21.4	mg/Kg	0.800	07/24/98	07/29/98	6010B	
Zinc	69.3	mg/Kg	1.00	07/24/98	07/29/98	6010B	


 LABORATORY MANAGER

000012

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

INORGANIC ANALYSIS DATA SHEET

Client Name OHM Remediation Services Site ID DDMT
 Defense Depot - Memphis, TN
 5445 Triangle Parkway Project #20560
 Suite 400
 Norcross, GA 30092

Date Arrived 07/23/98
 ETC Order Number 9807738

ETC Lab ID 9807738-02
Sample ID: RA-A-002

Matrix :SOIL
 Sample Date :07/23/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE PREPARED	DATE ANALYZED	METHOD	QC BATCH
Metals Digestion Batch				07/24/98		3051	V7-SO-53
Mercury Digestion Batch				07/27/98		7471A	V4-SO-19
Silver	ND	mg/Kg	0.700	07/24/98	07/29/98	6010B	
Aluminum	11,000	mg/Kg	4.00	07/24/98	07/29/98	6010B	
Arsenic	12.9	mg/Kg	0.200	07/24/98	07/27/98	7060A	
Barium	140	mg/Kg	0.200	07/24/98	07/29/98	6010B	
Beryllium	0.558	mg/Kg	0.100	07/24/98	07/29/98	6010B	
Calcium	1,570	mg/Kg	1.00	07/24/98	07/29/98	6010B	
Cadmium	ND	mg/Kg	0.400	07/24/98	07/29/98	6010B	
Cobalt	8.33	mg/Kg	0.700	07/24/98	07/29/98	6010B	
Chromium	14.5	mg/Kg	0.700	07/24/98	07/29/98	6010B	
Copper	17.8	mg/Kg	0.600	07/24/98	07/29/98	6010B	
Iron	20,400	mg/Kg	0.700	07/24/98	07/29/98	6010B	
Mercury	0.050	mg/Kg	0.020	07/27/98	07/27/98	7471A	
Potassium	960	mg/Kg	20.0	07/24/98	07/29/98	6010B	
Magnesium	2,300	mg/Kg	3.00	07/24/98	07/29/98	6010B	
Manganese	681	mg/Kg	0.200	07/24/98	07/29/98	6010B	
Sodium	67.5	mg/Kg	20.0	07/24/98	07/29/98	6010B	
Nickel	18.5	mg/Kg	1.50	07/24/98	07/29/98	6010B	
Lead	14.6	mg/Kg	0.100	07/24/98	07/27/98	7421	
Antimony	ND	mg/Kg	3.20	07/24/98	07/29/98	6010B	
Selenium	0.224	mg/Kg	0.200	07/24/98	07/27/98	7740	
Thallium	0.195	mg/Kg	0.100	07/24/98	07/28/98	7841	
Vanadium	21.6	mg/Kg	0.800	07/24/98	07/29/98	6010B	
Zinc	64.9	mg/Kg	1.00	07/24/98	07/29/98	6010B	


 LABORATORY MANAGER

000013

378 403

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

INORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services** Site ID **DDMT**
Defense Depot - Memphis, TN
5445 Triangle Parkway Project #20560
Suite 400
Norcross, GA 30092

Date Arrived 07/23/98
 ETC Order Number 9807738

ETC Lab ID 9807738-03
Sample ID: RA-A-EQ-001-CS

Matrix :AQUEOUS
 Sample Date :07/23/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE PREPARED	DATE ANALYZED	METHOD	QC BATCH
Metals Digestion Batch				07/24/98		3015	V10-AQ-84
Mercury Digestion Batch				07/27/98		7470A	V4-AQ-24
Silver	ND	mg/L	0.009	07/24/98	07/29/98	6010B	
Aluminum	ND	mg/L	0.060	07/24/98	07/29/98	6010B	
Arsenic	ND	mg/L	0.003	07/24/98	07/27/98	7060A	
Barium	ND	mg/L	0.003	07/24/98	07/29/98	6010B	
Beryllium	ND	mg/L	0.002	07/24/98	07/29/98	6010B	
Calcium	0.030	mg/L	0.015	07/24/98	07/29/98	6010B	
Cadmium	ND	mg/L	0.005	07/24/98	07/29/98	6010B	
Cobalt	ND	mg/L	0.009	07/24/98	07/29/98	6010B	
Chromium	ND	mg/L	0.009	07/24/98	07/29/98	6010B	
Copper	ND	mg/L	0.008	07/24/98	07/29/98	6010B	
Iron	ND	mg/L	0.009	07/24/98	07/29/98	6010B	
Mercury	ND	mg/L	0.0002	07/27/98	07/27/98	7470A	
Potassium	ND	mg/L	0.250	07/24/98	07/29/98	6010B	
Magnesium	ND	mg/L	0.040	07/24/98	07/29/98	6010B	
Manganese	ND	mg/L	0.003	07/24/98	07/29/98	6010B	
Sodium	ND	mg/L	0.050	07/24/98	07/29/98	6010B	
Nickel	ND	mg/L	0.020	07/24/98	07/29/98	6010B	
Lead	ND	mg/L	0.002	07/24/98	07/25/98	7421	
Antimony	ND	mg/L	0.040	07/24/98	07/29/98	6010B	
Selenium	ND	mg/L	0.003	07/24/98	07/27/98	7740	
Thallium	ND	mg/L	0.002	07/24/98	07/28/98	7841	
Vanadium	ND	mg/L	0.010	07/24/98	07/29/98	6010B	
Zinc	ND	mg/L	0.010	07/24/98	07/29/98	6010B	


 LABORATORY MANAGER

000014

ENVIRONMENTAL TESTING & CONSULTING, INC. 378 404
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

Project **DACA45-96-D-0014**

Date Arrived **07/23/98**
ETC Order Number **9807738**

ETC Lab ID **9807738-01**
Sample ID: RA-A-001
QC Batch : P04006

Matrix : **SOIL**
Sample Date : **07/23/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Semi-Volatile PAH				07/25/98	07/26/98	CB	8270C 3550B
Acenaphthene	ND	ug/Kg	67				
Acenaphthylene	ND	ug/Kg	67				
Anthracene	ND	ug/Kg	67				
Benzo(a)anthracene	ND	ug/Kg	67				
Benzo(b)fluoranthene	92.7	ug/Kg	67				
Benzo(k)fluoranthene	ND	ug/Kg	67				
Benzo(g,h,i)perylene	ND	ug/Kg	67				
Benzo(a)pyrene	ND	ug/Kg	67				
Chrysene	96.9	ug/Kg	67				
Dibenzo(a,h)anthracene	ND	ug/Kg	67				
Fluoranthene	119	ug/Kg	67				
Fluorene	ND	ug/Kg	67				
Indeno(1,2,3-cd)pyrene	ND	ug/Kg	67				
Naphthalene	ND	ug/Kg	67				
Phenanthrene	ND	ug/Kg	67				
Pyrene	125	ug/Kg	67				
Surrogate Standard	% Recovery		QC Limits				
S1 - Nitrobenzene-d5	39		39	80			
S2 - 2-Fluorobiphenyl	51		43	84			
S3 - 4-Terphenyl-d14	54		40	121			

ND - Not Detected


LABORATORY MANAGER

000015

378 405

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9807-738-1

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-738

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: 0801008

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 07/26/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 84-74-2	DIBUTYL PHTHALATE	11.90	322	NJ
2. 3424-82-6	O,P'-DDE	13.66	444	NJ
3. 8017-34-3	TECHNICAL CHLOROPHENOTHANE	14.35	134	NJ
4. 50-29-3	CHLOROPHENOTHANE	14.90	1020	NJ
5. 27554-26-3	1,2-BENZENEDICARBOXYLIC ACID	16.05	608	NJ
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FORM I BNA-GCMS-TIC

000016

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 406

Client Name OHM Remediation Services
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project DACA45-96-D-0014

Site ID DDMT
Memphis, TN

Date Arrived 07/23/98

ETC Order Number 9807738

ETC Lab ID 9807738-02

Sample ID: RA-A-002**QC Batch : 13:37**

Matrix :SOIL

Sample Date :07/23/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				07/25/98	07/26/98	CB	8270C 3550B
QC Batch	P04006	ug/Kg					
Acenaphthene	ND	ug/Kg	67				
Acenaphthylene	ND	ug/Kg	67				
Anthracene	ND	ug/Kg	67				
Benzo(a)anthracene	216	ug/Kg	67				
Benzo(b)fluoranthene	539	ug/Kg	67				
Benzo(k)fluoranthene	199	ug/Kg	67				
Benzo(g,h,i)perylene	164	ug/Kg	67				
Benzo(a)pyrene	229	ug/Kg	67				
Chrysene	360	ug/Kg	67				
Dibenzo(a,h)anthracene	ND	ug/Kg	67				
Fluoranthene	293	ug/Kg	67				
Fluorene	ND	ug/Kg	67				
Indeno(1,2,3-cd)pyrene	213	ug/Kg	67				
Naphthalene	ND	ug/Kg	67				
Phenanthrene	79.2	ug/Kg	67				
Pyrene	427	ug/Kg	67				

Surrogate Standard	% Recovery	QC Limits
S1 - Nitrobenzene-d5	44	39 80
S2 - 2-Fluorobiphenyl	60	43 84
S3 - 4-Terphenyl-d14	61	40 121

ND - Not Detected


LABORATORY MANAGER

000017

378 407

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

Lab Name: ETC, INC.

Contract:

9807-738-2

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-738

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: 0901009

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1(mL)

Date Analyzed: 07/26/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 57-10-3	HEXADECANOIC ACID	11.93	337	NJ
2. 57-11-4	OCTADECANOIC ACID	13.49	173	NJ
3. 3424-82-6	O,P'-DDE	13.67	467	NJ
4. 50-29-3	CHLOROPHENOTHANE	14.91	2350	NJ
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FORM I BNA-GCMS-TIC

000018

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 408

Client Name OHM Remediation Services
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project DACA45-96-D-0014

Site ID DDMT
Memphis, TN

Date Arrived 07/23/98

ETC Order Number 9807738

ETC Lab ID 9807738-03

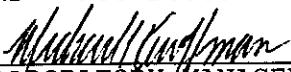
Sample ID: RA-A-EQ-001-CS**QC Batch : P05011**

Matrix :AQUEOUS

Sample Date :07/23/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Semi-Volatile PAH				07/27/98	07/28/98	CB	8270C 3510C
Acenaphthene	ND	ug/L	2.00				
Acenaphthylene	ND	ug/L	2.00				
Anthracene	ND	ug/L	2.00				
Benzo(a)anthracene	ND	ug/L	2.00				
Benzo(b)fluoranthene	ND	ug/L	2.00				
Benzo(k)fluoranthene	ND	ug/L	2.00				
Benzo(g,h,i)perylene	ND	ug/L	2.00				
Benzo(a)pyrene	ND	ug/L	2.00				
Chrysene	ND	ug/L	2.00				
Dibenzo(a,h)anthracene	ND	ug/L	2.00				
Fluoranthene	ND	ug/L	2.00				
Fluorene	ND	ug/L	2.00				
Indeno(1,2,3-cd)pyrene	ND	ug/L	2.00				
Naphthalene	ND	ug/L	2.00				
Phenanthrene	ND	ug/L	2.00				
Pyrene	ND	ug/L	2.00				
Surrogate Standard	% Recovery		QC Limits				
S1 - Nitrobenzene-d5	51		35 85				
S2 - 2-Fluorobiphenyl	59		46 84				
S3 - 4-Terphenyl-d14	86		33 113				

ND - Not Detected


LABORATORY MANAGER

000019

378 409

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9807-738-3

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-738

Matrix: (soil/water) WATER

Lab Sample ID:

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: 0601006

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 07/28/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I BNA-GCMS-TIC

000020

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 410

Client Name OHM Remediation Services
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project DACA45-96-D-0014

Site ID DDMT
Memphis, TN

Date Arrived 07/23/98
ETC Order Number 9807738

ETC Lab ID 9807738-01
Sample ID: RA-A-001
QC Batch : P06006

Matrix :SOIL
Sample Date :07/23/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCL Pesticides				07/24/98	07/26/98	DC	8081A
Alpha-BHC	ND	ug/Kg	2.00				
Beta-BHC	ND	ug/Kg	2.00				
Delta-BHC	ND	ug/Kg	2.00				
Gamma-BHC (Lindane)	ND	ug/Kg	2.00				
Heptachlor	ND	ug/Kg	2.00				
Aldrin	ND	ug/Kg	2.00				
Heptachlor Epoxide	4.12	ug/Kg	2.00				
Endosulfan I	2.15	ug/Kg	2.00				
Dieldrin	159	ug/Kg	2.00				
4,4'-DDE	107	ug/Kg	2.00				
Endrin	ND	ug/Kg	2.00				
Endosulfan II	ND	ug/Kg	2.00				
4,4'-DDD	11.5	ug/Kg	2.00				
Endosulfan Sulfate	3.51	ug/Kg	2.00				
4,4'-DDT	730	ug/Kg	2.00				
Endrin Aldehyde	10.4	ug/Kg	2.00				
Endrin Ketone	ND	ug/Kg	2.00				
Methoxychlor	ND	ug/Kg	2.00				
alpha-Chlordane	49.9	ug/Kg	2.00				
gamma-Chlordane	33.1	ug/Kg	2.00				
Chlordane - Technical	396	ug/Kg	25				
Toxaphene	ND	ug/Kg	35				
Surrogate Standard	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	84		64 154				
S2 - Tetrachloro-m-xylene	84		39 130				

ND - Not Detected


LABORATORY MANAGER

000021

378 411

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project **DACA45-96-D-0014**

Site ID **DDMT**
Memphis, TN

Date Arrived **07/23/98**
 ETC Order Number **9807738**

ETC Lab ID **9807738-02**
Sample ID: RA-A-002
QC Batch : P06006

Matrix : **SOIL**
 Sample Date : **07/23/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCL Pesticides				07/24/98	07/26/98	DC	8081A
Alpha-BHC	ND	ug/Kg	2.00				
Beta-BHC	ND	ug/Kg	2.00				
Delta-BHC	ND	ug/Kg	2.00				
Gamma-BHC (Lindane)	ND	ug/Kg	2.00				
Heptachlor	ND	ug/Kg	2.00				
Aldrin	ND	ug/Kg	2.00				
Heptachlor Epoxide	ND	ug/Kg	2.00				
Endosulfan I	ND	ug/Kg	2.00				
Dieldrin	30.5	ug/Kg	2.00				
4,4'-DDE	27.5	ug/Kg	2.00				
Endrin	ND	ug/Kg	2.00				
Endosulfan II	ND	ug/Kg	2.00				
4,4'-DDD	15.4	ug/Kg	2.00				
Endosulfan Sulfate	ND	ug/Kg	2.00				
4,4'-DDT	67.9	ug/Kg	2.00				
Endrin Aldehyde	3.01	ug/Kg	2.00				
Endrin Ketone	ND	ug/Kg	2.00				
Methoxychlor	ND	ug/Kg	2.00				
alpha-Chlordane	7.93	ug/Kg	2.00				
gamma-Chlordane	4.97	ug/Kg	2.00				
Chlordane - Technical	69.3	ug/Kg	25				
Toxaphene	ND	ug/Kg	35				
Surrogate Standard	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	80		64 154				
S2 - Tetrachloro-m-xylene	86		39 130				

ND - Not Detected

Michael W. Thompson
 LABORATORY MANAGER

000022

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 412

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project **DACA45-96-D-0014**

Site ID **DDMT**
Memphis, TN

Date Arrived **07/23/98**
ETC Order Number **9807738**

ETC Lab ID **9807738-03**
Sample ID: RA-A-EQ-001-CS
QC Batch : P07004

Matrix : **AQUEOUS**
Sample Date : **07/23/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Pesticides				07/24/98	07/26/98	DC	8081 Requi
Alpha-BHC	ND	ug/L	0.04				
Beta-BHC	ND	ug/L	0.04				
Delta-BHC	ND	ug/L	0.04				
Gamma-BHC (Lindane)	ND	ug/L	0.04				
Heptachlor	ND	ug/L	0.04				
Aldrin	ND	ug/L	0.04				
Heptachlor Epoxide	ND	ug/L	0.04				
Endosulfan I	ND	ug/L	0.04				
Dieldrin	ND	ug/L	0.04				
4,4'-DDE	ND	ug/L	0.04				
Endrin	ND	ug/L	0.04				
Endosulfan II	ND	ug/L	0.04				
4,4'-DDD	ND	ug/L	0.04				
Endosulfan Sulfate	ND	ug/L	0.04				
4,4'-DDT	ND	ug/L	0.04				
Endrin Aldehyde	ND	ug/L	0.04				
Methoxychlor	ND	ug/L	0.16				
alpha - Chlordane	ND	ug/L	0.04				
gamma - Chlordane	ND	ug/L	0.04				
Chlordane - Technical	ND	ug/L	0.50				
Toxaphene	ND	ug/L	2.50				
Surrogate Standard	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	70		34 115				
S2 - Tetrachloro-m-xylene	59		31 96				

ND - Not Detected


LABORATORY MANAGER

000023

378 413

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project **DACA45-96-D-0014**

Site ID **DDMT**
Memphis, TN

Date Arrived 07/23/98

ETC Order Number 9807738

ETC Lab ID **9807738-01****Sample ID: RA-A-001****QC Batch : P08007**Matrix : **SOIL**Sample Date : **07/23/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				07/24/98	07/25/98	RG	8082 3550B
PCB-1016	ND	ug/Kg	35				
PCB-1221	ND	ug/Kg	35				
PCB-1232	ND	ug/Kg	35				
PCB-1242	ND	ug/Kg	35				
PCB-1248	ND	ug/Kg	35				
PCB-1254	ND	ug/Kg	35				
PCB-1260	41.7	ug/Kg	35				
Surrogate Standard	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	109		64	154			
S2 - Tetrachloro-m-xylene	78		39	130			

ND - Not Detected


LABORATORY MANAGER

000024

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 414

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project **DACA45-96-D-0014**

Site ID **DDMT**
Memphis, TN

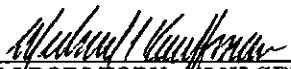
Date Arrived **07/23/98**
ETC Order Number **9807738**

ETC Lab ID **9807738-02**
Sample ID: RA-A-002
QC Batch : P08007

Matrix : **SOIL**
Sample Date : **07/23/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				07/24/98	07/25/98	RG	8082 3550B
PCB-1016	ND	ug/Kg	35				
PCB-1221	ND	ug/Kg	35				
PCB-1232	ND	ug/Kg	35				
PCB-1242	ND	ug/Kg	35				
PCB-1248	ND	ug/Kg	35				
PCB-1254	ND	ug/Kg	35				
PCB-1260	14.4J	ug/Kg	35				
Surrogate Standard			% Recovery	QC Limits			
S1 - Decachlorobiphenyl	122		64	154			
S2 - Tetrachloro-m-xylene	79		39	130			

ND - Not Detected


LABORATORY MANAGER

000025

378 415

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name OHM Remediation Services
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project DACA45-96-D-0014

Site ID DDMT
Memphis, TN

Date Arrived 07/23/98
ETC Order Number 9807738

ETC Lab ID 9807738-03
Sample ID: RA-A-EQ-001-CS
QC Batch : P09003

Matrix :AQUEOUS
Sample Date :07/23/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				07/25/98	07/25/98	DC	8082 3510C
PCB-1016	ND	ug/L	0.50				
PCB-1221	ND	ug/L	0.50				
PCB-1232	ND	ug/L	0.50				
PCB-1242	ND	ug/L	0.50				
PCB-1248	ND	ug/L	0.50				
PCB-1254	ND	ug/L	0.50				
PCB-1260	ND	ug/L	0.50				
<u>Surrogate Standard</u>			<u>% Recovery</u>	<u>QC Limits</u>			
S1 - Decachlorobiphenyl	103			34	115		
S2 - Tetrachloro-m-xylene	73			31	96		

ND - Not Detected


LABORATORY MANAGER

000026

Environmental Testing & Consulting, Inc.

**Quality Control Reports
Inorganics**

378 417

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
INORGANICS

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9807-738

HOLDING TIMES

Sample Analysis : All samples analyzed within Method Specified
Holding Times.

CALIBRATION

Laboratory Control Sample : All criteria met.

QUALITY CONTROL

Matrix Spike
Spike Recovery : All analytes within QC limits

Duplicates
RPD : All analytes within QC limits

Method Blank
No Target Analytes detected above Detection Limit.


Laboratory Manager

000028

Environmental Testing & Consulting, Inc.
Inorganic QC Data Summary

Client Name OHM Remediation Services
Project Defense Depot- Memphis, TN

ETC Order Number 9807-738
File Name 9807-738 QC2

Method Blank

Analyte	Date Analyzed	Blank Concentration	QC Batch
Cyanide	07/28/98	<0.010 mg/L	CY072898
Cyanide	07/29/98	<1.00 mg/Kg	CY072998

Calibration Verification (CV)

Analyte	Date Analyzed	CV Conc mg/L	CV Conc Found	% Difference
Cyanide	07/28/98	0.200	0.204	2
Cyanide	07/29/98	0.200	0.213	7

Laboratory Control Sample (LCS)

Analyte	Date Analyzed	LCS Conc	LCS Conc Found	% Recovery	Units
Cyanide	07/28/98	0.200	0.196	98	mg/L
Cyanide	07/29/98	0.200	0.206	103	mg/Kg

Matrix Spikes/Matrix Spike Duplicates

Sample ID	Analyte	Spike mg/Kg	Sample mg/Kg	MS Conc Found	MS % Recovery	QC Limits	RPD
9807-738-01MS	Cyanide	17.9	<1.00	17.4	97	70-130	
9807-738-01MSD	Cyanide	18.5	<1.00	17.5	95	70-130	2

Matrix Spikes/Matrix Spike Duplicates

Sample ID	Analyte	Spike mg/L	Sample mg/L	MS Conc Found	MS % Recovery	QC Limits	RPD
9807-738-03MS	Cyanide	0.200	<0.010	0.205	103	68-114	
9807-738-03MSD	Cyanide	0.200	<0.010	0.207	104	68-114	1

000029

Environmental Testing & Consulting, Inc.

**Quality Control Reports
Metals
ICP/GFAA/CV**

000030

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
METALS - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9807-738

HOLDING TIMES

QC Batch(s) for this order : ICP/GFAA V7-SO-53
Mercury V4-SO-19

Sample Analysis : All samples digested and analyzed within 180 days of collection.
Mercury Analysis : All samples analyzed within 28 days of collection.

CALIBRATION

Initial Calibration : All criteria met.
Continuing Calibration : All criteria met.

SAMPLE ANALYSIS

Instrumentation : Thermo Jarrell Ash Enviro-I ICP
Varian 640Z Zeeman Graphite Furnace
Perkin Elmer 5100ZL Graphite Furnace
Perkin Elmer 6000 Graphite Furnace
Thermo Jarrell Ash AA-Scan 4 Graphite Furnace
CETAC M-6000A Mercury Analyzer
Dilutions Required : No dilutions required.*

*
Dilutions were performed on several samples to bring the Target Analyte(s) within calibration range (C) or to remove spectral interference (I) as indicated.

Sample ID	Metal	Dilution Factor	Sample ID	Metal	Dilution Factor
9807-738-01	Aluminum	1:5(C)	9807-738-02	Aluminum	1:5(C)
9807-738-01	Arsenic	1:2(C)	9807-738-02	Arsenic	1:2(C)
9807-738-01	Iron	1:5(C)	9807-738-02	Iron	1:5(C)
9807-738-01	Lead	1:5(C)	9807-738-02	Lead	1:5(C)

Due to low recoveries and failing Post Digestion Spike, all Selenium data was reported based on the Method of Standard Additions.

QUALITY CONTROL**9807-738.MQ1BLANK**Method Blank

V7-SO-53BLK - ICP/GFAA Metals
V4-SO-19BLK - Mercury

Calcium identified in V7-SO-53BLK at 2.00 mg/Kg.
Iron identified in V7-SO-53BLK at 1.20 mg/Kg.
Sodium identified in V7-SO-53BLK at 3.20 mg/Kg.

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
METALS - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN

ETC Order # : 9807-738

QUALITY CONTROL

9807-738.MQ1LCS

Laboratory Control Sample(s)
V7-SO-53LCS - ICP/GFAA Metals
V4-SO-19LCS - Mercury

All criteria met.

9807-738.MQ1MSMSD

Matrix Spike / Matrix Spike Dup - ICP Metals

9807-737-01

RPD : All analytes within QC limits.*

RA-TS-001

Spike Recovery : All analytes within QC limits.*

*

Recoveries and RPD for Antimony were flagged as outside QC Limits in the Matrix Spike and Matrix Spike Duplicate. A Post Digestion Spike was performed for verification :

Analyte	mg/L Expected	mg/L Found	% Recovery	QA Evaluation
Antimony	0.500	0.499	100	Pass

Recoveries for multiple analytes were flagged as outside QC Limits due to the level of these analytes present in the sample relative to the spike amounts. In addition, concentrations of other analytes were high relative to the spike amounts. Dilution Tests was performed for verification :

Analyte	No Dilution	1:5 Dilution	1:25 Dilution	% Difference	QA Evaluation
Aluminum	-----	10700 mg/Kg	10800 mg/Kg	1	Pass
Calcium	1180	1270	-----	8	Pass
Iron	-----	16200	16300	1	Pass
Magnesium	1380	1350	-----	2	Pass
Manganese	208	204	-----	2	Pass

Refer to Laboratory Control Sample(s) for system verification.

Matrix Spike / Matrix Spike Dup - Graphite Metals

9807-737-01

RPD : All analytes within QC limits.

RA-TS-001

Spike Recovery : All analytes within QC limits.*

*

Recoveries for Lead were flagged as outside QC Limits due to the level of this analyte present relative to the spike amount. A Dilution Test was performed for verification :

Analyte	1:2 Dilution	1:10 Dilution	% Difference	QA Evaluation
Lead	6.99 mg/Kg	6.35 mg/Kg	9	Pass

Recoveries for Selenium were flagged as outside QC Limits in the Matrix Spike and Matrix Spike Duplicate. The Post Digestion Spike failed evaluation criteria. All data was reported based on MSA.

000032

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
METALS - SOIL

378 422

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9807-738

QUALITY CONTROL

Recovery for Arsenic was flagged as outside QC Limits in the Matrix Spike. MSD recovery was within QC Limits.

Refer to Laboratory Control Sample(s) for system verification.

Matrix Spike / Matrix Spike Dup - Hg

9807-737-01 RPD : All analytes within QC limits.
RA-TS-001 Spike Recovery : All analytes within QC limits.

Refer to Laboratory Control Sample(s) for system verification.

Dilution Test - Dilution result must agree within 10% of original result when sample is diluted by a factor of 5.

Post Digestion Spike - Recovery must be +/-15% of expected value.


Laboratory Manager

000033

SOIL METHOD BLANK
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID ICP/GFAA Metals	<u>V7-SO-53</u> BLK	QC Batch <u>V7-SO-53</u>
Laboratory ID Mercury	<u>V4-SO-19</u> BLK	<u>V4-SO-19</u>

Date Sample Prepared	<u>07/24/98</u>	ICP/GFAA Metals
	<u>07/27/98</u>	Mercury

Metals	Concentration mg/Kg	Detection Limit mg/Kg	Date Analyzed	Method
Silver	<0 700	0 700	07/29/98	6010B
Aluminum	<4 00	4 00	07/29/98	6010B
Arsenic	<0 200	0 200	07/29/98	7060A
Barium	<0 200	0 200	07/29/98	6010B
Beryllium	<0 100	0 100	07/29/98	6010B
Calcium	2 00	1 00	07/29/98	6010B
Cadmium	<0 400	0 40	07/29/98	6010B
Cobalt	<0 700	0 700	07/29/98	6010B
Chromium	<0 700	0 700	07/29/98	6010B
Copper	<0 600	0 600	07/29/98	6010B
Iron	1 20	0 700	07/29/98	6010B
Potassium	<20 0	20 0	07/29/98	6010B
Magnesium	<3 00	3 00	07/29/98	6010B
Manganese	<0 200	0 200	07/29/98	6010B
Sodium	3 20	3 00	07/29/98	6010B
Nickel	<1 50	1 50	07/29/98	6010B
Lead	<0 100	0 100	07/29/98	7421
Antimony	<3 20	3 20	07/29/98	6010B
Selenium	<0 200	0 200	07/29/98	7740
Thallium	<0 100	0 100	07/29/98	7841
Vanadium	<0 800	0 800	07/29/98	6010B
Zinc	<1 00	1 00	07/29/98	6010B
Mercury	<0 020	0 020	07/29/98	7470A

Metals Blank

9807-738 mq1BLANK

000034

SOIL LABORATORY CONTROL SAMPLE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory Control ID	ICP/GFAA Metals	<u>V7-SO-53</u>	LCS	QC Batch
	Mercury	<u>V4-SO-19</u>	LCS	<u>V7-SO-53</u>
				<u>V4-SO-19</u>

Date Prepared	ICP/GFAA Metals	<u>07/24/98</u>	
	Mercury	<u>07/27/98</u>	

Metals	Spike Added mg/Kg	Found mg/Kg	% R	#	QC Limits
Silver	20 0	18 5	93		80 120
Aluminum	200	192	96		80 120
Arsenic	5 00	4 67	93		85 115
Barium	200	189	95		80 120
Beryllium	20 0	18 8	94		80 120
Calcium	400	394	99		80 120
Cadmium	20 0	18 7	94		80 120
Cobalt	100	94 7	95		80 120
Chromium	40 0	37 5	94		80 120
Copper	40 0	37 5	94		80 120
Iron	200	199	100		80 120
Potassium	400	370	93		80 120
Magnesium	400	378	95		80 120
Manganese	20 0	19 5	98		80 120
Sodium	400	383	96		80 120
Nickel	100	96 9	97		80 120
Lead	2 00	1 77	89		85 115
Antimony	200	186	93		80 120
Selenium	5 00	4 73	95		85 115
Thallium	2 00	1 91	96		85 115
Vanadium	100	95 9	96		80 120
Zinc	20 0	21 3	107		80 120
Mercury	0 167	0 169	101		80 120

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits

Metals Laboratory Control Sample

9807-738 mq1LCS

000035

SOIL MATRIX SPIKE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP/GFAA Metals	9807-737-01	QC Batch
Laboratory ID MS Mercury	9807-737-01	V7-SO-53
		V4-SO-19

Date Sample Prepared	07/24/98	ICP/GFAA Metals
	07/27/98	Mercury

Metals	SPIKE Added mg/Kg	SAMPLE Conc mg/Kg	MS Conc mg/Kg	RPD <20% #	MS % Rec #	QC Limits	
Silver	22 3	ND	21 3	0	96	75	125
Aluminum	223	10700	12200	6	673 *	75	125
Arsenic	5 58	3 41	6 99	17	64 *	70	130
Barium	223	60 4	286	1	101	75	125
Beryllium	22 3	0 687	22 5	2	98	75	125
Calcium	446	1180	1710	1	119	75	125
Cadmium	22 3	ND	21 5	1	96	75	125
Cobalt	112	4 93	112	2	96	75	125
Chromium	44 6	22 5	61 9	4	88	75	125
Copper	44 6	9 76	54 4	5	100	75	125
Iron	223	16200	16800	10	269 *	75	125
Potassium	446	415	935	1	117	75	125
Magnesium	446	1380	2050	3	150 *	75	125
Manganese	22 3	208	241	4	148 *	75	125
Sodium	446	252	684	2	97	75	125
Nickel	112	11 9	123	2	99	75	125
Lead	2 23	6 99	9 56	4	115	70	130
Antimony	223	ND	29 3	68 *	13 *	75	125
Selenium	5 58	ND	2 43	23 *	44 *	70	130
Thallium	2 23	ND	2 00	7	90	70	130
Vanadium	112	21 0	130	3	97	75	125
Zinc	22 3	28 0	50 5	5	101	75	125
Mercury	0 186	0 024	0 216	2	103	75	125

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits ND - Not Detected

Metals Matrix Spike

9807-738 mq1MSMSD

000036

SOIL MATRIX SPIKE DUPLICATE METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP/GFAA Metals 9807-737-01 QC Batch V7-SO-53
 Laboratory ID MS Mercury 9807-737-01 V4-SO-19

Date Sample Prepared 07/24/98 ICP/GFAA Metals
 07/27/98 Mercury

Metals	SPIKE Added mg/Kg	SAMPLE Conc mg/Kg	MSD Conc mg/Kg	MSD % Rec	#	QC Limits	
Silver	21.9	ND	21.2	97		75	125
Aluminum	219	10700	12900	1005	*	75	125
Arsenic	6.02	3.41	8.25	80		70	130
Barium	219	60.4	282	101		75	125
Beryllium	21.9	0.687	22.0	97		75	125
Calcium	438	1180	1690	116		75	125
Cadmium	2.19	ND	21.2	968	*	75	125
Cobalt	110	4.93	110	96		75	125
Chromium	43.8	22.5	59.6	85		75	125
Copper	43.8	9.76	51.9	96		75	125
Iron	219	16200	15200	-457	*	75	125
Potassium	438	415	940	120		75	125
Magnesium	438	1380	1980	137	*	75	125
Manganese	21.9	208	232	110		75	125
Sodium	438	252	697	102		75	125
Nickel	110	11.9	120	98		75	125
Lead	2.41	6.99	9.16	90		70	130
Antimony	219	ND	14.4	7	*	75	125
Selenium	6.02	ND	3.05	51	*	70	130
Thallium	2.41	ND	2.14	89		70	130
Vanadium	110	21.0	126	96		75	125
Zinc	21.9	28.0	48.1	92		75	125
Mercury	0.184	0.024	0.212	102		75	125

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits ND - Not Detected

Metals Matrix Spike Duplicate

9807-738 mq1MSMSD

000037

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
METALS - AQUEOUS

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN

ETC Order # : 9807-738

HOLDING TIMES

QC Batch(s) for this order : ICP/GFAA V10-AQ-84
Mercury V4-AQ-24

Sample Analysis : All samples digested and analyzed within 180
days of collection.

Mercury Analysis : All samples analyzed within 28 days of collection.

CALIBRATION

Initial Calibration : All criteria met.
Continuing Calibration : All criteria met.

SAMPLE ANALYSIS

Instrumentation : Thermo Jarrell Ash Enviro-I ICP
Varian 640Z Zeeman Graphite Furnace
Perkin Elmer 5100ZL Graphite Furnace
Perkin Elmer 6000 Graphite Furnace
Thermo Jarrell Ash AA-Scan 4 Graphite Furnace
CETAC M-6000A Mercury Analyzer
Dilutions Required : No dilutions required.

QUALITY CONTROL

9807-738.MQCBLANK

Method Blank

V10-AQ-84BLK - ICP/GFAA Metals
V4-AQ-24BLK - Mercury

No analytes detected in the Method Blank.

9807-738.MQCLCS

Laboratory Control Sample(s)

V10-AQ-84LCS - ICP/GFAA Metals
V4-AQ-24LCS - Mercury

All criteria met.

9807-738.MQCMSMSD

Matrix Spike / Matrix Spike Dup - ICP Metals

9807-738-03 RPD : All analytes within QC limits.
RA-A-EQ-001-CS Spike Recovery : All analytes within QC limits.

Refer to Laboratory Control Sample(s) for system verification.

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
METALS - AQUEOUS

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9807-738

QUALITY CONTROL

Matrix Spike / Matrix Spike Dup - Graphite Metals
9807-738-03 RPD : All analytes within QC limits.
RA-A-EQ-001-CS Spike Recovery : All analytes within QC limits.
Refer to Laboratory Control Sample(s) for system verification.

Matrix Spike / Matrix Spike Dup - Hg
9807-738-03 RPD : All analytes within QC limits.
RA-A-EQ-001-CS Spike Recovery : All analytes within QC limits.
Refer to Laboratory Control Sample(s) for system verification.

Dilution Test - Dilution result must agree within 10% of original
result when sample is diluted by a factor of 5.

Post Digestion Spike - Recovery must be +/-15% of expected value.


Laboratory Manager

AQUEOUS METHOD BLANK
METALS

Lab Name	Environmental Testing and Consulting, Inc		
Laboratory ID ICP/GFAA Metals	<u>V10-AQ-84</u> BLK	QC Batch <u>V10-AQ-84</u>	
Laboratory ID Mercury	<u>V4-AQ-24</u> BLK	<u>V4-AQ-24</u>	
Date Sample Prepared	<u>07/24/98</u> <u>07/27/98</u>	ICP/GFAA Metals Mercury	

Metals	Concentration mg/L	Detection Limit mg/L	Date Analyzed	Method
Silver	<0 009	0 009	07/29/98	6010B
Aluminum	<0 060	0 060	07/29/98	6010B
Arsenic	<0 003	0 003	07/27/98	7060A
Barium	<0 003	0 003	07/29/98	6010B
Beryllium	<0 002	0 002	07/29/98	6010B
Calcium	<0 015	0 015	07/29/98	6010B
Cadmium	<0 005	0 005	07/29/98	6010B
Cobalt	<0 009	0 009	07/29/98	6010B
Chromium	<0 009	0 009	07/29/98	6010B
Copper	<0 008	0 008	07/29/98	6010B
Iron	<0 009	0 009	07/29/98	6010B
Potassium	<0 250	0 250	07/29/98	6010B
Magnesium	<0 040	0 040	07/29/98	6010B
Manganese	<0 003	0 003	07/29/98	6010B
Sodium	<0 040	0 040	07/29/98	6010B
Nickel	<0 020	<0 020	07/29/98	6010B
Lead	<0 002	0 002	07/27/98	7421
Antimony	<0 040	0 040	07/29/98	6010B
Selenium	<0 003	0 003	07/27/98	7740
Thallium	<0 002	0 002	07/29/98	7841
Vanadium	<0 010	0 010	07/29/98	6010B
Zinc	<0 010	0 010	07/29/98	6010B
Mercury	<0 0002	0 0002	07/27/98	7470A

Metals Blank

9807-738 mqcBLANK

000040

AQUEOUS LABORATORY CONTROL SAMPLE
METALS

Lab Name

Environmental Testing and Consulting, Inc

Laboratory Control ID

 ICP/GFAA Metals V10-AQ-84 LCS
 Mercury V4-AQ-24 LCS

QC Batch

 V10-AQ-84
 V4-AQ-24

Date Prepared

 ICP/GFAA Metals 07/24/98
 Mercury 07/27/98

Metals	Spike Added mg/L	Found mg/L	% R	#	QC Limits
Silver	0.250	0.273	109	80	120
Aluminum	2.50	2.81	112	80	120
Arsenic	0.063	0.060	95	85	115
Barium	2.50	2.74	110	80	120
Beryllium	0.250	0.266	106	80	120
Calcium	5.00	5.49	110	80	120
Cadmium	0.250	0.268	107	80	120
Cobalt	1.25	1.34	107	80	120
Chromium	0.500	0.544	109	80	120
Copper	0.500	0.550	110	80	120
Iron	2.50	2.76	110	80	120
Potassium	5.00	5.78	116	80	120
Magnesium	5.00	5.38	108	80	120
Manganese	0.250	0.277	111	80	120
Sodium	5.00	5.72	114	80	120
Nickel	1.25	1.38	110	80	120
Lead	0.025	0.023	92	85	115
Antimony	2.50	2.66	106	80	120
Selenium	0.063	0.063	100	85	115
Thallium	0.025	0.025	100	85	115
Vanadium	1.25	1.38	110	80	120
Zinc	0.250	0.273	109	80	120
Mercury	0.0050	0.0056	112	80	120

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits

Metals Laboratory Control Sample

9807-738.mqcLCS

000041

AQUEOUS MATRIX SPIKE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP/GFAA Metals	9807-738-03	QC Batch
Laboratory ID MS Mercury	9807-738-03	V10-AQ-84
		V4-AQ-24

Date Sample Prepared	07/24/98	ICP/GFAA Metals
	07/27/98	Mercury

Metals	SPIKE Added mg/L	SAMPLE Conc mg/L	MS Conc mg/L	RPD <20% #	MS % Rec #	QC Limits	
Silver	0.250	ND	0.280	1	112	75	125
Aluminum	2.50	ND	2.81	1	112	75	125
Arsenic	0.063	ND	0.059	2	94	85	115
Barium	2.50	ND	2.75	0	110	75	125
Beryllium	0.250	ND	0.274	1	110	75	125
Calcium	5.00	0.030	5.80	3	115	75	125
Cadmium	0.250	ND	0.277	3	111	75	125
Cobalt	1.25	ND	1.40	2	112	75	125
Chromium	0.500	ND	0.557	2	111	75	125
Copper	0.500	ND	0.551	1	110	75	125
Iron	2.50	ND	2.85	2	114	75	125
Potassium	5.00	ND	5.33	3	107	75	125
Magnesium	5.00	ND	5.53	2	111	75	125
Manganese	0.250	ND	0.286	2	114	75	125
Sodium	5.00	ND	5.41	1	108	75	125
Nickel	1.25	ND	1.43	2	114	75	125
Lead	0.025	ND	0.024	4	96	85	115
Antimony	2.50	ND	2.71	1	108	75	125
Selenium	0.063	ND	0.062	2	98	85	115
Thallium	0.025	ND	0.026	0	104	85	115
Vanadium	1.25	ND	1.42	1	114	75	125
Zinc	0.250	ND	0.282	1	113	75	125
Mercury	0.0050	ND	0.0055	0	110	75	125

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits ND - Not Detected

Metals Matrix Spike

9807-738.mqcMSMSD

000042

AQUEOUS MATRIX SPIKE DUPLICATE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP/GFAA Metals	9807-738-03	QC Batch
Laboratory ID MS Mercury	9807-738-03	V10-AQ-84
		V4-AQ-24

Date Sample Prepared	07/24/98	ICP/GFAA Metals
	07/27/98	Mercury

Metals	SPIKE Added mg/L	SAMPLE Conc mg/L	MSD Conc mg/L		MSD % Rec #	QC Limits	
Silver	0.250	ND	0.276		110	75	125
Aluminum	2.50	ND	2.78		111	75	125
Arsenic	0.063	ND	0.058		92	85	115
Barium	2.50	ND	2.76		110	75	125
Beryllium	0.250	ND	0.270		108	75	125
Calcium	5.00	0.030	5.62		112	75	125
Cadmium	0.250	ND	0.269		108	75	125
Cobalt	1.25	ND	1.37		110	75	125
Chromium	0.500	ND	0.548		110	75	125
Copper	0.500	ND	0.547		109	75	125
Iron	2.50	ND	2.80		112	75	125
Potassium	5.00	ND	5.50		110	75	125
Magnesium	5.00	ND	5.43		109	75	125
Manganese	0.250	ND	0.281		112	75	125
Sodium	5.00	ND	5.48		110	75	125
Nickel	1.25	ND	1.40		112	75	125
Lead	0.025	ND	0.025		100	85	115
Antimony	2.50	ND	2.73		109	75	125
Selenium	0.063	ND	0.061		97	85	115
Thallium	0.025	ND	0.026		104	85	115
Vanadium	1.25	ND	1.40		112	75	125
Zinc	0.250	ND	0.278		111	75	125
Mercury	0.0050	ND	0.0055		110	75	125

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits ND - Not Detected

Metals Matrix Spike Duplicate

9807-738 mqcMSMSD

000043

378 433

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC/MS Semi-Volatiles

0000-14

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN

ETC Order # : 9807-738
Method (SW-846) : 8270C/3550B

HOLDING TIMES

Sample Extraction : All soil samples extracted within 14 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
P04006 P04006LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P04006BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9807-737-01 RPD : All analytes within QC limits.
RA-TS-001 Spike Recovery : All analytes within QC limits.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
P04006LB

No Target Analytes detected above Practical Quantitation Limit.

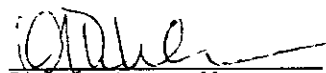
CALIBRATION

DFTPP Daily 12 Hour Tune : All criteria met. FORM 5
Initial Calibration : All criteria met. FORM 6
Daily Calibration : All criteria met. FORM 7A

Semi-Volatile Internal Standard Area and RT FORM 8
Daily Check Standard(s) Internal Standard Areas and Retention Times
within QC limits.

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC, 5971MSD
Dilutions Required : No dilutions required.


Laboratory Manager

FORM 2
SOIL BNA-GCMS SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-738

Level: (low/med) LOW

	CLIENT SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	S7 #	S8 #	TOT OUT
01	P04006LB	52	59	56	64	76	86			0
02	P04006BS	76	78	51	64	86	79			0
03	9807-737-1	58	66	64	68	88	80			0
04	9807-737-1M	66	69	69	63	86	78			0
05	9807-737-1S	66	68	69	62	55	77			0
06	9807-738-1	0	0	39	51	0	54			0
07	9807-738-2	0	0	44	60	0	61			0
08										
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QC LIMITS

S1 (2FP) = 2-Fluorophenol (23- 89)
 S2 (PHL) = Phenol-d6 (31- 94)
 S3 (NBZ) = Nitrobenzene-d5 (39- 80)
 S4 (FBP) = 2-Fluorobiphenyl (43- 84)
 S5 (TBP) = 2,4,6-Tribromophenol (17- 91)
 S6 (TPH) = Terphenyl-d14 (40-121)

Column to be used to flag recovery values
 * Values outside of contract required QC limits
 D Surrogate diluted out

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

378 436
CLIENT SAMPLE NO

P04006LB

Lab Name: ETC, INC.

Lab Prep Batch: P04006

Lab File ID: 0301003

Matrix: (soil/water) SOIL

Level:(low/med) LOW

SDG No.: 9807-738

Instrument ID: BNA2

Date Analyzed: 07/26/98

Time Analyzed: 1032

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P04006BS		0401004	07/26/98
02	9807-737-1		0501005	07/26/98
03	9807-737-1M		0601006	07/26/98
04	9807-737-1S		0701007	07/26/98
05	9807-738-1		0801008	07/26/98
06	9807-738-2		0901009	07/26/98
07				
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COMMENTS:

378 437

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: ETC, INC.

P04006LB

SDG No.: 9807-738

Matrix: (soil/water) SOIL

Lab Prep Batch: P04006

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 0301003

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 07/26/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
83-32-9	Acenaphthene	167	U	
208-96-8	Acenaphthylene	167	U	
120-12-7	Anthracene	167	U	
56-55-3	Benzo(a)Anthracene	167	U	
205-99-2	Benzo(b)fluoranthene	167	U	
207-08-9	Benzo(k)fluoranthene	167	U	
191-24-2	Benzo(g,h,i)perylene	167	U	
65-85-0	Benzoic Acid	660	U	
50-32-8	Benzo(a)pyrene	167	U	
100-51-6	Benzyl Alcohol	167	U	
111-91-1	Bis(2-chloroethoxy)methane	167	U	
111-44-4	bis(2-Chloroethyl) ether	167	U	
39638-32-9	bis(2-Chloroisopropyl) ether	167	U	
117-81-7	bis(2-ethylhexyl) Phthalate	167	U	
101-55-3	4-Bromophenyl-phenylether	167	U	
85-68-7	Butylbenzylphthalate	167	U	
106-47-8	4-Chloroaniline	167	U	
91-58-7	2-Chloronaphthalene	167	U	
59-50-7	4-Chloro-3-Methylphenol	167	U	
95-57-8	2-Chlorophenol	167	U	
7005-72-3	4-Chlorophenyl-phenylether	167	U	
218-01-9	Chrysene	167	U	
53-70-3	Dibenzo(a,h)anthracene	167	U	
132-64-9	Dibenzofuran	167	U	
84-74-2	Di-n-Butylphthalate	167	U	
95-50-1	1,2-Dichlorobenzene	167	U	
541-73-1	1,3-Dichlorobenzene	167	U	
106-46-7	1,4-Dichlorobenzene	167	U	
91-94-1	3,3'-Dichlorobenzidine	167	U	
120-83-2	2,4-Dichlorophenol	167	U	
87-65-0	2,6-Dichlorophenol	167	U	
84-66-2	Diethylphthalate	167	U	
105-67-9	2,4-Dimethylphenol	167	U	

FORM I BNA-GCMS

000048

378 438

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

P04006LB

Lab Name: ETC, INC.

SDG No.: 9807-738

Matrix: (soil/water) SOIL

Lab Prep Batch: P04006

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 0301003

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 07/26/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
131-11-3	Dimethylphthalate	167	U
534-52-1	4,6-Dinitro-2-methylphenol	167	U
51-28-5	2,4-Dinitrophenol	330	U
121-14-2	2,4-Dinitrotoluene	167	U
606-20-2	2,6-Dinitrotoluene	167	U
117-84-0	Di-n-octylphthalate	167	U
206-44-0	Fluoranthene	167	U
86-73-7	Fluorene	167	U
118-74-1	Hexachlorobenzene	167	U
87-68-3	Hexachlorobutadiene	167	U
77-47-4	Hexachlorocyclopentadiene	167	U
67-72-1	Hexachloroethane	167	U
193-39-5	Indeno(1,2,3-cd)pyrene	167	U
78-59-1	Isophorone	167	U
91-57-6	2-Methylnaphthalene	167	U
95-48-7	2-Methylphenol	167	U
106-44-5	3&4-Methylphenol	167	U
91-20-3	Naphthalene	167	U
98-95-3	Nitrobenzene	167	U
88-74-4	2-Nitroaniline	167	U
99-09-2	3-Nitroaniline	167	U
100-01-6	4-Nitroaniline	167	U
88-75-5	2-Nitrophenol	167	U
100-02-7	4-Nitrophenol	167	U
86-30-6	Diphenylamine/n-NDPA	167	U
621-64-7	N-Nitrosodipropylamine	167	U
87-86-5	Pentachlorophenol	167	U
85-01-8	Phenanthrene	167	U
108-95-2	Phenol	167	U
129-00-0	Pyrene	167	U
120-82-1	1,2,4-Trichlorobenzene	167	U
95-95-4	2,4,5-Trichlorophenol	167	U
88-06-2	2,4,6-Trichlorophenol	167	U

FORM I BNA-GCMS

000049

378 439

FORM 3
SOIL BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P04006

SDG No.: 9807-738

Matrix Spike - Sample No.: P04006BS

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
Acenaphthene	1670		1490	89	34-126
Acenaphthylene	1670		1530	92	62-123
Anthracene	1670		1580	95	68-124
Benzo(a)Anthracene	1670		1670	100	60-133
Benzo(b)fluoranthene	1670		1620	97	67-126
Benzo(k)fluoranthene	1670		1570	94	75-131
Benzo(g,h,i)perylene	1670		1370	82	53-137
Benzo(a)pyrene	1670		1560	93	68-129
Benzoic Acid	3330		3270	98	37-251
Benzyl Alcohol	1670		1550	93	20-159
Bis(2-chloroethoxy)meth	1670		1390	83	37-153
bis(2-Chloroethyl)ether	1670		1530	92	25-147
bis(2-Chloroisopropyl)e	1670		640	38	35-138
bis(2-ethylhexyl)Phthal	1670		1680	100	60-150
4-Bromophenyl-phenyleth	1670		1660	99	59-130
Butylbenzylphthalate	1670		1690	101	71-137
4-Chloroaniline	1670		1030	62	27-106
2-Chloronaphthalene	1670		1440	86	62-126
4-Chloro-3-Methylphenol	3330		3020	91	33-147
2-Chlorophenol	3330		2710	81	35-138
4-Chlorophenyl-phenylet	1670		1480	89	60-128
Chrysene	1670		1650	99	67-131
Dibenzo(a,h)anthracene	1670		1480	89	51-138
Dibenzofuran	1670		1540	92	57-131
Di-n-Butylphthalate	1670		1920	115	39-179
1,2-Dichlorobenzene	1670		1310	78	58-110
1,3-Dichlorobenzene	1670		1270	76	55-109
1,4-Dichlorobenzene	1670		1280	77	26-121

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

FORM 3
SOIL BNA-GCMS LABORATORY CONTROL SAMPLE

378 440

Lab Name: ETC, INC.

Lab Prep Batch: P04006

SDG No.: 9807-738

Matrix Spike - Sample No.: P04006BS

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
3,3'-Dichlorobenzidine	3330		3910	117	18-191
2,4-Dichlorophenol	3330		2740	82	68-123
2,6-Dichlorophenol	3330		2800	84	45-157
Diethylphthalate	1670		1580	95	72-133
2,4-Dimethyphenol	3330		2630	79	53-121
Dimethylphthalate	1670		1590	95	64-132
4,6-Dinitro-2-methylphe	3330		2960	89	70-158
2,4-Dinitrophenol	3330		2640	79	31-186
2,4-Dinitrotoluene	1670		1580	95	22-139
2,6-Dinitrotoluene	1670		1520	91	64-142
Di-n-octylphthalate	1670		1740	104	42-172
Fluoranthene	1670		1620	97	71-132
Fluorene	1670		1520	91	65-126
Hexachlorobenzene	1670		1700	102	64-130
Hexachlorobutadiene	1670		1380	83	62-116
Hexachlorocyclopentadie	1670		1240	74	16-160
Hexachloroethane	1670		1290	77	58-110
Indeno(1,2,3-cd)pyrene	1670		1460	87	34-170
Isophorone	1670		1550	93	35-135
2-Methylnaphthalene	1670		1430	86	57-123
2-Methylphenol	3330		2590	78	56-132
3&4-Methylphenol	3330		2870	86	68-111
Naphthalene	1670		1330	80	62-113
Nitrobenzene	1670		1350	81	59-123
2-Nitroaniline	1670		1510	90	63-138
3-Nitroaniline	1670		1350	81	53-128
4-Nitroaniline	1670		1270	76	60-140
2-Nitrophenol	3330		2540	76	52-145

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS:

378 441

FORM 3
SOIL BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P04006

SDG No.: 9807-732

Matrix Spike - Sample No.: P04006BS

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
4-Nitrophenol	3330		1600	48	12-105
Diphenylamine/n-NDPA	1670		1640	98	72-118
N-Nitrosodipropylamine	1670		1610	96	24-141
Pentachlorophenol	3330		3120	94	6-164
Phenanthrene	1670		1640	98	66-128
Phenol	3330		2480	74	22-127
Pyrene	1670		1650	99	33-155
1,2,4-Trichlorobenzene	1670		1400	84	30-127
2,4,5-Trichlorophenol	3330		2890	87	50-173
2,4,6-Trichlorophenol	3330		2780	83	46-161

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 66 outside limits

COMMENTS:

FORM 3
SOIL BNA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

378 442

Lab Name: ETC, INC.

Lab Prep Batch: P04006

SDG No.: 9807-738

Matrix Spike - Sample No.: 9807-737-1

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Acenaphthene	4100	0.00	2480	60	34-126
4-Chloro-3-Methylphenol	7500	0.00	4460	59	33-147
2-Chlorophenol	5330	0.00	4200	79	35-138
1,4-Dichlorobenzene	3210	0.00	2200	68	26-121
2,4-Dinitrotoluene	3330	0.00	2600	78	22-139
4-Nitrophenol	1610	0.00	1380	86	12-105
N-Nitrosodipropylamine	4070	0.00	3700	91	24-141
Pentachlorophenol	5870	0.00	4750	81	6-164
Phenol	5330	0.00	3660	69	22-127
Pyrene	4100	0.00	2830	69	33-155
1,2,4-Trichlorobenzene	4130	0.00	2400	58	30-127

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
Acenaphthene	4090	2380	58	3	20	34-126
4-Chloro-3-Methylphenol	7480	4330	58	2	20	33-147
2-Chlorophenol	5320	4200	79	0	20	35-138
1,4-Dichlorobenzene	3200	2070	65	4	20	26-121
2,4-Dinitrotoluene	3320	2460	74	5	20	22-139
4-Nitrophenol	1600	1370	86	0	20	12-105
N-Nitrosodipropylamine	4050	3560	88	3	20	24-141
Pentachlorophenol	5850	4790	82	1	20	6-164
Phenol	5320	3560	67	3	20	22-127
Pyrene	4090	2870	70	1	20	33-155
1,2,4-Trichlorobenzene	4120	2310	56	4	20	30-127

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 11 outside limits
Spike Recovery: 0 out of 22 outside limits

COMMENTS:

FORM III BNA-GCMS

000053

378 443

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - AQUEOUS

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN

ETC Order # : 9807-738
Method (SW-846) : 8270C/3510C

HOLDING TIMES

Sample Extraction : All aqueous samples extracted within 7 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
P05011 P05011LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P05011BS
P05011BD

All criteria met.*

*

2,4-Dimethylphenol was flagged for high recovery in P05011BS/BD.
This compound was not a Target Analyte associated with this project.
The data was not affected.

Matrix Spike / Matrix Spike Dup FORM 3

RPD : NA*

Spike Recovery : NA*

*

Due to the limited amount of sample available, no MS/MSD were
extracted.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
P05011LB

Bis(2-ethylhexyl)phthalate identified in P05011LB at 37.7 ug/L.

CALIBRATION

DFTPP Daily 12 Hour Tune : All criteria met. FORM 5
Initial Calibration : All criteria met. FORM 6
Daily Calibration : All criteria met. FORM 7A

Semi-Volatile Internal Standard Area and RT FORM 8
Daily Check Standard(s) Internal Standard Areas and Retention Times
within QC limits.

000054

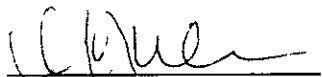
ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - AQUEOUS

378 444

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9807-738
Method (SW-846) : 8270C/3510C

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC, 5971MSD
Dilutions Required : No dilutions required.


Laboratory Manager

000055

378,445

FORM 2
WATER BNA-GCMS SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-738

	CLIENT SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	S7 #	S8 #	TOT OUT
01	P05011LB	40	28	46	58	76	87			0
02	P05011BS	52	38	58	69	91	90			0
03	P05011BD	58	39	57	70	92	96			0
04	9807-738-3	0	0	51	59	0	86			0
05										
06										
07										
08										
09										
10										
11										
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28										
29										
30										

S1 (2FP) = 2-Fluorophenol	QC LIMITS
S2 (PHL) = Phenol-d6	(21- 73)
S3 (NBZ) = Nitrobenzene-d5	(12- 48)
S4 (FBP) = 2-Fluorobiphenyl	(35- 85)
S5 (TBP) = 2,4,6-Tribromophenol	(46- 84)
S6 (TPH) = Terphenyl-d14	(10-100)
	(33-113)

Column to be used to flag recovery values
 * Values outside of contract required QC limits
 D Surrogate diluted out

000056

378 446

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

CLIENT SAMPLE NO

P05011LB

Lab Name: ETC, INC.

Lab Prep Batch: P05011

SDG No.: 9807-738

Lab File ID: 0301003

Instrument ID: BNA2

Matrix: (soil/water) WATER

Date Analyzed: 07/28/98

Level: (low/med) LOW

Time Analyzed: 1347

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P05011BS		0401004	07/28/98
02	P05011BD		0501005	07/28/98
03	9807-738-3		0601006	07/28/98
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

378 447

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

P05011LB

Lab Name: ETC, INC.

SDG No.: 9807-738

Matrix: (soil/water) WATER

Lab Prep Batch: P05011

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: 0301003

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 07/28/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
83-32-9	Acenaphthene	5.0 U	
208-96-8	Acenaphthylene	5.0 U	
120-12-7	Anthracene	5.0 U	
56-55-3	Benzo(a) Anthracene	5.0 U	
205-99-2	Benzo(b) fluoranthene	5.0 U	
207-08-9	Benzo(k) fluoranthene	5.0 U	
191-24-2	Benzo(g,h,i) perylene	5.0 U	
65-85-0	Benzoic Acid	20.0 U	
50-32-8	Benzo(a) pyrene	5.0 U	
100-51-6	Benzyl Alcohol	5.0 U	
111-91-1	Bis(2-chloroethoxy) methane	5.0 U	
111-44-4	bis(2-Chloroethyl) ether	5.0 U	
39638-32-9	bis(2-Chloroisopropyl) ether	5.0 U	
117-81-7	bis(2-ethylhexyl) Phthalate	5.0 U	
101-55-3	4-Bromophenyl-phenylether	5.0 U	
85-68-7	Butylbenzylphthalate	5.0 U	
106-47-8	4-Chloroaniline	5.0 U	
91-58-7	2-Chloronaphthalene	5.0 U	
59-50-7	4-Chloro-3-Methylphenol	5.0 U	
95-57-8	2-Chlorophenol	5.0 U	
7005-72-3	4-Chlorophenyl-phenylether	5.0 U	
218-01-9	Chrysene	5.0 U	
53-70-3	Dibenzo(a,h) anthracene	5.0 U	
132-64-9	Dibenzofuran	5.0 U	
84-74-2	Di-n-Butylphthalate	5.0 U	
95-50-1	1,2-Dichlorobenzene	5.0 U	
541-73-1	1,3-Dichlorobenzene	5.0 U	
106-46-7	1,4-Dichlorobenzene	5.0 U	
91-94-1	3,3'-Dichlorobenzidine	5.0 U	
120-83-2	2,4-Dichlorophenol	5.0 U	
87-65-0	2,6-Dichlorophenol	5.0 U	
84-66-2	Diethylphthalate	5.0 U	
105-67-9	2,4-Dimethyphenol	5.0 U	

FORM I BNA-GCMS

000058

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

378 448
CLIENT SAMPLE NO.

P05011LB

Lab Name: ETC, INC.

SDG No.: 9807-738

Matrix: (soil/water) WATER

Lab Prep Batch: P05011

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: 0301003

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1(mL)

Date Analyzed: 07/28/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
131-11-3-----	Dimethylphthalate	5.0 U	
534-52-1-----	4,6-Dinitro-2-methylphenol	5.0 U	
51-28-5-----	2,4-Dinitrophenol	10.0 U	
121-14-2-----	2,4-Dinitrotoluene	5.0 U	
606-20-2-----	2,6-Dinitrotoluene	5.0 U	
117-84-0-----	Di-n-octylphthalate	5.0 U	
206-44-0-----	Fluoranthene	5.0 U	
86-73-7-----	Fluorene	5.0 U	
118-74-1-----	Hexachlorobenzene	5.0 U	
87-68-3-----	Hexachlorobutadiene	5.0 U	
77-47-4-----	Hexachlorocyclopentadiene	5.0 U	
67-72-1-----	Hexachloroethane	5.0 U	
193-39-5-----	Indeno(1,2,3-cd)pyrene	5.0 U	
78-59-1-----	Isophorone	5.0 U	
91-57-6-----	2-Methylnaphthalene	5.0 U	
95-48-7-----	2-Methylphenol	5.0 U	
106-44-5-----	3&4-Methylphenol	5.0 U	
91-20-3-----	Naphthalene	5.0 U	
98-95-3-----	Nitrobenzene	5.0 U	
88-74-4-----	2-Nitroaniline	5.0 U	
99-09-2-----	3-Nitroaniline	5.0 U	
100-01-6-----	4-Nitroaniline	5.0 U	
88-75-5-----	2-Nitrophenol	5.0 U	
100-02-7-----	4-Nitrophenol	5.0 U	
86-30-6-----	Diphenylamine/n-NDPA	5.0 U	
621-64-7-----	N-Nitrosodipropylamine	5.0 U	
87-86-5-----	Pentachlorophenol	5.0 U	
85-01-8-----	Phenanthrene	5.0 U	
108-95-2-----	Phenol	5.0 U	
129-00-0-----	Pyrene	5.0 U	
120-82-1-----	1,2,4-Trichlorobenzene	5.0 U	
95-95-4-----	2,4,5-Trichlorophenol	5.0 U	
88-06-2-----	2,4,6-Trichlorophenol	5.0 U	

FORM I BNA-GCMS

000059

378 449

FORM 3
WATER BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P05011

SDG No.: 9807-738

Matrix Spike - Sample No.: P05011BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
Acenaphthene	50.0		41.9	84	37-123
Acenaphthylene	50.0		42.4	85	67-118
Anthracene	50.0		45.1	90	68-124
Benzo(a)Anthracene	50.0		46.3	93	69-125
Benzo(b)fluoranthene	50.0		48.9	98	68-127
Benzo(k)fluoranthene	50.0		45.1	90	73-128
Benzo(g,h,i)perylene	50.0		46.9	94	53-138
Benzo(a)pyrene	50.0		44.7	89	73-125
Benzoic Acid	100		56.2	56	0-100
Benzyl Alcohol	50.0		38.5	77	23-142
Bis(2-chloroethoxy)meth	50.0		38.8	78	45-135
bis(2-Chloroethyl)ether	50.0		41.3	83	51-120
bis(2-Chloroisopropyl)e	50.0		17.4	35	34-137
bis(2-ethylhexyl)Phthal	50.0		48.0	96	61-151
4-Bromophenyl-phenyleth	50.0		46.2	92	61-131
Butylbenzylphthalate	50.0		48.6	97	65-138
4-Chloroaniline	50.0		32.7	65	20-120
2-Chloronaphthalene	50.0		41.7	83	63-121
4-Chloro-3-Methylphenol	100		82.5	82	33-134
2-Chlorophenol	100		78.5	78	17-134
4-Chlorophenyl-phenylet	50.0		42.2	84	58-126
Chrysene	50.0		46.6	93	70-124
Dibenzo(a,h)anthracene	50.0		45.0	90	57-136
Dibenzofuran	50.0		42.6	85	64-122
Di-n-Butylphthalate	50.0		49.2	98	63-140
1,2-Dichlorobenzene	50.0		30.8	62	39-101
1,3-Dichlorobenzene	50.0		29.9	60	38- 98
1,4-Dichlorobenzene	50.0		29.9	60	31- 97

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

FORM 3
WATER BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P05011

SDG No.: 9807-738

Matrix Spike - Sample No.: P05011BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
3,3'-Dichlorobenzidine	100		128	128	35-165
2,4-Dichlorophenol	100		83.0	83	13-146
2,6-Dichlorophenol	100		84.4	84	5-162
Diethylphthalate	50.0		44.5	89	52-135
2,4-Dimethylphenol	50.0		76.7	153*	51-118
Dimethylphthalate	50.0		45.9	92	8-166
4,6-Dinitro-2-methylphe	100		95.8	96	0-100
2,4-Dinitrophenol	100		102	102	12-182
2,4-Dinitrotoluene	50.0		44.8	90	34-130
2,6-Dinitrotoluene	50.0		42.9	86	62-135
Di-n-octylphthalate	50.0		45.3	91	46-148
Fluoranthene	50.0		47.2	94	55-135
Fluorene	50.0		44.1	88	66-121
Hexachlorobenzene	50.0		43.9	88	65-133
Hexachlorobutadiene	50.0		33.6	67	50-112
Hexachlorocyclopentadie	50.0		34.7	69	21-141
Hexachloroethane	50.0		27.6	55	37-100
Indeno(1,2,3-cd)pyrene	50.0		47.1	94	57-140
Isophorone	50.0		43.1	86	13-146
2-Methylnaphthalene	50.0		38.0	76	50-124
2-Methylphenol	100		74.3	74	48-117
3&4-Methylphenol	100		68.0	68	46- 99
Naphthalene	50.0		37.3	75	55-113
Nitrobenzene	50.0		39.1	78	57-120
2-Nitroaniline	50.0		44.1	88	63-129
3-Nitroaniline	50.0		41.6	83	61-120
4-Nitroaniline	50.0		46.2	92	60-126
2-Nitrophenol	100		82.0	82	27-137

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS:

378 451

FORM 3
WATER BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P05011

SDG No.: 9807-738

Matrix Spike - Sample No.: P05011BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
4-Nitrophenol	100		43.2	43	20- 75
Diphenylamine/n-NDPA	50.0		44.2	88	76-131
N-Nitrosodipropylamine	50.0		42.2	84	30-131
Pentachlorophenol	100		96.4	96	22-171
Phenanthrene	50.0		47.2	94	65-126
Phenol	100		39.6	40	12- 57
Pyrene	50.0		46.7	93	40-149
1,2,4-Trichlorobenzene	50.0		34.6	69	29-116
2,4,5-Trichlorophenol	100		87.8	88	31-147
2,4,6-Trichlorophenol	100		84.8	85	4-163

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS:

FORM 3
WATER BNA-GCMS LABORATORY CONTROL SAMPLE

378 452

Lab Name: ETC, INC.

Lab Prep Batch: P05011

SDG No.: 9807-738

Matrix Spike - Sample No.: P05011BD

COMPOUND	SPIKE ADDED (ug/L)	BD CONCENTRATION (ug/L)	BD % REC #	% RPD #	QC LIMITS RPD	REC.
Acenaphthene	50.0	42.5	85	1	20	37-123
Acenaphthylene	50.0	43.3	87	2	20	67-118
Anthracene	50.0	48.4	97	7	20	68-124
Benzo(a)Anthracene	50.0	50.8	102	9	20	69-125
Benzo(b)fluoranthene	50.0	56.4	113	14	20	68-127
Benzo(k)fluoranthene	50.0	50.5	101	12	20	73-128
Benzo(g,h,i)perylene	50.0	54.1	108	14	20	53-138
Benzo(a)pyrene	50.0	52.5	105	16	20	73-125
Benzoic Acid	100	54.9	55	2	20	0-100
Benzyl Alcohol	50.0	38.8	78	1	20	23-142
Bis(2-chloroethoxy)meth	50.0	38.0	76	2	20	45-135
bis(2-Chloroethyl)ether	50.0	39.7	79	5	20	51-120
bis(2-Chloroisopropyl)e	50.0	17.1	34	3	20	34-137
bis(2-ethylhexyl)Phthal	50.0	52.0	104	8	20	61-151
4-Bromophenyl-phenyleth	50.0	46.6	93	1	20	61-131
Butylbenzylphthalate	50.0	52.7	105	8	20	65-138
4-Chloroaniline	50.0	35.7	71	9	20	20-120
2-Chloronaphthalene	50.0	40.3	81	2	20	63-121
4-Chloro-3-Methylphenol	100	83.1	83	1	20	33-134
2-Chlorophenol	100	76.9	77	1	20	17-134
4-Chlorophenyl-phenylet	50.0	43.2	86	2	20	58-126
Chrysene	50.0	51.3	103	10	20	70-124
Dibenzo(a,h)anthracene	50.0	54.7	109	19	20	57-136
Dibenzofuran	50.0	43.1	86	1	20	64-122
Di-n-Butylphthalate	50.0	56.2	112	13	20	63-140
1,2-Dichlorobenzene	50.0	30.6	61	2	20	39-101
1,3-Dichlorobenzene	50.0	29.6	59	2	20	38- 98
1,4-Dichlorobenzene	50.0	29.4	59	2	20	31- 97

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

378 453

FORM 3
WATER BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P05011

SDG No.: 9807-738

Matrix Spike - Sample No.: P05011BD

COMPOUND	SPIKE ADDED (ug/L)	BD CONCENTRATION (ug/L)	BD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
3,3'-Dichlorobenzidine	100	146	146	13	20	35-165
2,4-Dichlorophenol	100	80.4	80	4	20	13-146
2,6-Dichlorophenol	100	82.2	82	2	20	5-162
Diethylphthalate	50.0	47.4	95	6	20	52-135
2,4-Dimethyphenol	50.0	75.0	150*	2	20	51-118
Dimethylphthalate	50.0	48.1	96	4	20	8-166
4,6-Dinitro-2-methylphe	100	98.5	98	2	20	0-100
2,4-Dinitrophenol	100	105	105	3	20	12-182
2,4-Dinitrotoluene	50.0	47.6	95	5	20	34-130
2,6-Dinitrotoluene	50.0	45.4	91	6	20	62-135
Di-n-octylphthalate	50.0	49.1	98	7	20	46-148
Fluoranthene	50.0	51.5	103	9	20	55-135
Fluorene	50.0	46.0	92	4	20	66-121
Hexachlorobenzene	50.0	47.1	94	6	20	65-133
Hexachlorobutadiene	50.0	32.5	65	3	20	50-112
Hexachlorocyclopentadie	50.0	33.8	68	1	20	21-141
Hexachloroethane	50.0	28.0	56	2	20	37-100
Indeno(1,2,3-cd)pyrene	50.0	52.8	106	12	20	57-140
Isophorone	50.0	42.9	86	0	20	13-146
2-Methylnaphthalene	50.0	37.2	74	3	20	50-124
2-Methylphenol	100	70.0	70	6	20	48-117
3&4-Methylphenol	100	64.7	65	4	20	46- 99
Naphthalene	50.0	36.9	74	1	20	55-113
Nitrobenzene	50.0	38.0	76	2	20	57-120
2-Nitroaniline	50.0	44.6	89	1	20	63-129
3-Nitroaniline	50.0	44.9	90	8	20	61-120
4-Nitroaniline	50.0	50.4	101	9	20	60-126
2-Nitrophenol	100	76.8	77	6	20	27-137

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS:

FORM 3
WATER BNA-GCMS LABORATORY CONTROL SAMPLE

378 454

Lab Name: ETC, INC.

Lab Prep Batch: P05011

SDG No.: 9807-738

Matrix Spike -- Sample No.: P05011BD

COMPOUND	SPIKE ADDED (ug/L)	BD CONCENTRATION (ug/L)	BD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
4-Nitrophenol	100	43.5	44	2	20	20- 75
Diphenylamine/n-NDPA	50.0	47.7	95	8	20	76-131
N-Nitrosodipropylamine	50.0	42.3	85	1	20	30-131
Pentachlorophenol	100	101	101	5	20	22-171
Phenanthrene	50.0	49.6	99	5	20	65-126
Phenol	100	39.7	40	0	20	12- 57
Pyrene	50.0	50.8	102	9	20	40-149
1,2,4-Trichlorobenzene	50.0	34.8	70	1	20	29-116
2,4,5-Trichlorophenol	100	89.8	90	2	20	31-147
2,4,6-Trichlorophenol	100	84.4	84	1	20	4-163

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 66 outside limits
Spike Recovery: 2 out of 132 outside limits

COMMENTS:

378 455

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC Pesticides

000066

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN

ETC Order # : 9807-738
Method (SW-846) : 8081A/3550B

HOLDING TIMES

Sample Extraction : All soil samples extracted within 14 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
P06006 P06006LB

System Monitoring Compounds FORM 2

Surrogate recoveries within QC limits.*

*

Surrogate recovery was flagged as outside QC Limits in sample 9807-738-01(RA-A-001). Review of the raw data showed interference from Target Analytes present in the sample. This sample was re-analyzed for verification with recoveries within QC Limits.

Laboratory Control Sample FORM 3

P06006BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3

9807-737-01

RPD : All analytes within QC limits.

RA-TS-001

Spike Recovery : All analytes within QC limits.*

*

Recoveries for multiple analytes were flagged outside QC Limits in the Matrix Spike and Matrix Spike Duplicate.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4

P06006LB

No Target Analytes detected above Practical Quantitation Limit.

378 457

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN

ETC Order # : 9807-738
Method (SW-846) : 8081A/3550B

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Daily Calibration : All criteria met. FORM 7A
Endrin/Breakdown : All criteria met. FORM 7*

*
PEM for DDT (Sequence P807251A) was noted at 16.99% which is greater than the normal 15% or less breakdown for the Primary analysis in which the final results were reported.

PEM for DDT (Sequence P807251B) was noted at 11.59% for the Confirmation analysis.

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.


Laboratory Manager

000068

FORM 2
SOIL PESTICIDE SURROGATE RECOVERY

378 458

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-738

Level: (low/med) LOW

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P06006LB	88	91							0
02	P06006BS	92	107							0
03	9807-737-1	77	82							0
04	9807-738-1	84	84							0
05	9807-738-2	86	80							0
06	9807-737-1MS	94	61							0
07	9807-737-1MS	94	63							0
08	9807-738-1	-7D	-240D							2
09	9807-738-1	51	45							0
10	9807-738-2	56	44							0
11										
12										
13										
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QC LIMITS

S1 (TMX) = Tetrachloro-m-xylene (39-130)

S2 (DBC) = Decachlorobiphenyl (64-154)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

000088

378 459

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

P06006LB

Lab Prep Batch: P06006

SDG No.: 9807-738

Lab File ID: P207251A-11R

Instrument ID: PEST2A

Matrix: (soil/water) SOIL

Date Analyzed: 07/25/98

Level:(low/med) LOW

Time Analyzed: 2113

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P06006BS		P207251A-12R	07/25/98
02	9807-737-1		P107251A-18R	07/26/98
03	9807-738-1		P107251A-19R	07/26/98
04	9807-738-2		P107251A-20R	07/26/98
05	9807-737-1MS		P107251A-22R	07/26/98
06	9807-737-1MS		P107251A-23R	07/26/98
07	9807-738-1		P107271A-13R	07/28/98
08	9807-738-1		P107271A-14R	07/28/98
09	9807-738-2		P107271A-15R	07/28/98
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COMMENTS:

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

378 460
EPA GC SAMPLE NO.

P06006LB

Lab Name: ETC, INC.

SDG No.: 9807-738

Matrix: (soil/water) SOIL

Lab Prep Batch: P06006

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P207251A-11R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 07/25/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6-----	alpha-BHC	1.33333	U
58-89-9-----	gamma-BHC (Lindane)	1.33333	U
319-85-7-----	beta-BHC	1.33333	U
76-44-8-----	Heptachlor	1.33333	U
319-86-8-----	delta-BHC	1.33333	U
309-00-2-----	Aldrin	1.33333	U
1024-57-3-----	Heptachlor epoxide	1.33333	U
5103-74-2-----	gamma-chlordane	1.33333	U
959-98-8/5103-71	Endosulfan I/alpha-chlordane	1.33333	U
72-55-9-----	4,4'-DDE	1.33333	U
60-57-1-----	Dieldrin	1.33333	U
72-20-8-----	Endrin	1.33333	U
72-54-8-----	4,4'-DDD	1.33333	U
33213-65-9-----	Endosulfan II	1.33333	U
50-29-3-----	4,4'-DDT	1.33333	U
7421-93-4-----	Endrin aldehyde	1.33333	U
1031-07-8-----	Endosulfan sulfate	1.33333	U
72-43-5-----	Methoxychlor	1.33333	U
53494-70-5-----	Endrin Ketone	1.33333	U
57-74-9-----	Chlordane-total	8.33333	U
8001-35-2-----	Toxaphene	100.00000	U

FORM I PESTICIDE

000071

378 461

FORM 3
SOIL PESTICIDE BLANK SPIKE SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P06006

SDG No.: 9807-738

Matrix Spike - Sample No.: P06006BS

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
Aldrin	33.33333		33.21361	100	31-111
alpha-BHC	33.33333		33.07677	99	22-112
beta-BHC	33.33333		35.35222	106	54-120
delta-BHC	33.33333		28.35584	85	10- 96
gamma-BHC (Lindane)	33.33333		33.92198	102	26-113
gamma-chlordane	33.33333		34.17500	102	50-106
4,4'-DDE	33.33333		33.22990	100	36-117
4,4'-DDD	33.33333		34.40009	103	47-112
4,4'-DDT	33.33333		37.12649	111	49-124
Dieldrin	33.33333		33.43778	100	44-108
Endosulfan I/alpha-chlo	33.33333		34.21039	103	49-103
Endosulfan II	33.33333		35.09894	105	53-115
Endosulfan sulfate	33.33333		33.75783	101	51-110
Endrin	33.33333		35.97168	108	44-118
Endrin aldehyde	33.33333		34.87030	105	48-128
Endrin Ketone	33.33333		35.17724	106	38-130
Heptachlor	33.33333		36.44791	109	47-113
Heptachlor epoxide	33.33333		34.19461	102	47-112
Methoxychlor	33.33333		38.35359	115	39-147

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

RPD: 0 out of 0 outside limits
 Spike Recovery: 0 out of 19 outside limits

COMMENTS:

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P06006

SDG No.: 9807-738

Matrix Spike - Sample No.: 9807-737-1

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
alpha-BHC	32.67973	0.00000	36.14010	110	0-112
gamma-BHC (Lindane)	32.67973	0.00000	36.78609	112	26-113
beta-BHC	32.67973	0.00000	36.75127	112	54-120
Heptachlor	32.67973	0.58533	40.35417	122*	47-113
delta-BHC	32.67973	0.00000	31.92886	98*	10- 96
Aldrin	32.67973	0.00000	34.30523	105	31-111
Heptachlor epoxide	32.67973	0.00000	35.05147	107	47-112
gamma-chlordane	32.67973	0.00000	35.48887	108*	50-106
alpha-chlordane	32.67973	0.00000	33.75443	103	49-103
Endosulfan I	32.67973	0.00000	33.69345	103	49-103
4,4'-DDE	32.67973	0.00000	33.29798	102	36-117
Dieldrin	32.67973	0.00000	33.33868	102	44-108
Endrin	32.67973	0.00000	35.76806	109	44-118
4,4'-DDD	32.67973	0.00000	34.35594	105	47-112
Endosulfan II	32.67973	0.00000	34.55710	106	53-115
4,4'-DDT	32.67973	1.06062	42.78120	128*	49-124
Endrin aldehyde	32.67973	0.56653	40.24648	121	48-128
Endosulfan sulfate	32.67973	0.49051	34.94514	105	51-110
Methoxychlor	32.67973	0.00000	47.81267	146	39-147

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P06006

SDG No.: 9807-738

Matrix Spike - Sample No.: 9807-737-1

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
alpha-BHC	33.33333	37.01330	111	1	22	0-112
gamma-BHC (Lindane)	33.33333	38.74089	116*	4	20	26-113
beta-BHC	33.33333	38.67650	116	4	20	54-120
Heptachlor	33.33333	41.73846	123*	1	20	47-113
delta-BHC	33.33333	33.26604	100*	2	20	10- 96
Aldrin	33.33333	36.66303	110	5	20	31-111
Heptachlor epoxide	33.33333	37.54873	113*	5	20	47-112
gamma-chlordane	33.33333	37.74567	113*	4	20	50-106
alpha-chlordane	33.33333	36.92427	111*	7	20	49-103
Endosulfan I	33.33333	36.55182	110*	6	20	49-103
4,4'-DDE	33.33333	36.27411	109	7	20	36-117
Dieldrin	33.33333	37.43484	112*	9	20	44-108
Endrin	33.33333	37.66366	113	4	20	44-118
4,4'-DDD	33.33333	38.20742	115*	9	20	47-112
Endosulfan II	33.33333	38.69670	116*	9	20	53-115
4,4'-DDT	33.33333	46.70776	137*	7	20	49-124
Endrin aldehyde	33.33333	42.94328	127	5	20	48-128
Endosulfan sulfate	33.33333	39.74509	118*	12	20	51-110
Methoxychlor	33.33333	50.07790	150*	3	20	39-147

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 19 outside limits
Spike Recovery: 17 out of 38 outside limits

COMMENTS:

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - AQUEOUS

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9807-738
Method (SW-846) : 8081A/3510C

HOLDING TIMES

Sample Extraction : All aqueous samples extracted within 7 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
P07004 P07004LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P07004BS
P07004BD

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
RPD : NA*
Spike Recovery : NA*

*
Due to the limited amount of sample available, no MS/MSD were
extracted.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
P07004LB

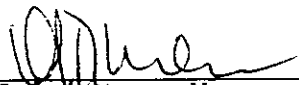
No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration	: All criteria met. FORM 6
Daily Calibration	: All criteria met. FORM 7A
Endrin/Breakdown	: All criteria met. FORM 7

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.


Laboratory Manager

FORM 2
WATER PESTICIDE SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-738

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	9807-738-3	59	70							0
02	P07004LB	54	82							0
03	P07004BS	46	97							0
04	P07004BD	54	93							0
05										
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QC LIMITS

S1 (TMX) = Tetrachloro-m-xylene (31- 96)

S2 (DBC) = Decachlorobiphenyl (34-115)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

P07004LB

Lab Name: ETC, INC.

Lab Prep Batch: P07004

SDG No.: 9807-738

Lab File ID: P207251A-34R

Instrument ID: PEST2A

Matrix: (soil/water) WATER

Date Analyzed: 07/26/98

Level:(low/med) LOW

Time Analyzed: 1233

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	9807-738-3		P207251A-33R	07/26/98
02	P07004BS		P207251A-35R	07/26/98
03	P07004BD		P207251A-36R	07/26/98
04				
05				
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COMMENTS:

378 467

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

P07004LB

Lab Name: ETC, INC.

SDG No.: 9807-738

Matrix: (soil/water) WATER

Lab Prep Batch: P07004

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: P207251A-34R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 07/26/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6-----	alpha-BHC	0.04000	U
58-89-9-----	gamma-BHC (Lindane)	0.04000	U
319-85-7-----	beta-BHC	0.04000	U
76-44-8-----	Heptachlor	0.04000	U
319-86-8-----	delta-BHC	0.04000	U
309-00-2-----	Aldrin	0.04000	U
1024-57-3-----	Heptachlor epoxide	0.04000	U
5103-74-2-----	gamma-chlordane	0.04000	U
959-98-8/5103-71	Endosulfan I/alpha-chlordane	0.04000	U
72-55-9-----	4,4'-DDE	0.04000	U
60-57-1-----	Dieldrin	0.04000	U
72-20-8-----	Endrin	0.04000	U
72-54-8-----	4,4'-DDD	0.04000	U
33213-65-9-----	Endosulfan II	0.04000	U
50-29-3-----	4,4'-DDT	0.04000	U
7421-93-4-----	Endrin aldehyde	0.04000	U
1031-07-8-----	Endosulfan sulfate	0.04000	U
72-43-5-----	Methoxychlor	0.04000	U
53494-70-5-----	Endrin Ketone	0.04000	U
57-74-9-----	Chlordane-total	0.25000	U
8001-35-2-----	Toxaphene	2.50000	U

FORM I PESTICIDE

000078

FORM 3
WATER PESTICIDE BLANK SPIKE SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P07004

SDG No.: 9807-738

Matrix Spike - Sample No.: P07004BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
Aldrin	1.00000		0.88449	88	34-105
alpha-BHC	1.00000		1.00679	101	41-102
beta-BHC	1.00000		1.07551	108	26-151
delta-BHC	1.00000		0.89457	89	21- 92
gamma-BHC (Lindane)	1.00000		1.01954	102	41-102
gamma-chlordane	1.00000		0.98862	99	50-108
4,4'-DDE	1.00000		0.99278	99	41-111
4,4'-DDD	1.00000		1.06731	107	39-124
4,4'-DDT	1.00000		0.97372	97	39-123
Dieldrin	1.00000		0.98941	99	42-111
Endosulfan I/alpha-chlo	1.00000		1.01056	101	48-117
Endosulfan II	1.00000		1.05569	106	52-114
Endosulfan sulfate	1.00000		1.05804	106	46-111
Endrin	1.00000		1.11264	111	45-117
Endrin aldehyde	1.00000		1.03629	104	48-125
Endrin Ketone	1.00000		1.05583	106	51-112
Heptachlor	1.00000		0.91314	91	43-114
Heptachlor epoxide	1.00000		1.02490	102	42-115
Methoxychlor	1.00000		1.00551	100	39-140

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

COMMENTS: _____

378 469

FORM 3
WATER PESTICIDE BLANK SPIKE SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P07004

SDG No.: 9807-736

Matrix Spike - Sample No.: P07004BD

COMPOUND	SPIKE ADDED (ug/L)	BD CONCENTRATION (ug/L)	BD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Aldrin	1.00000	0.88461	88	0	20	34-105
alpha-BHC	1.00000	0.95673	96	5	20	41-102
beta-BHC	1.00000	1.00922	101	7	20	26-151
delta-BHC	1.00000	0.83681	84	6	20	21- 92
gamma-BHC (Lindane)	1.00000	0.98567	98	4	20	41-102
gamma-chlordane	1.00000	0.95889	96	3	20	50-108
4,4'-DDE	1.00000	0.92639	93	6	20	41-111
4,4'-DDD	1.00000	0.99838	100	7	20	39-124
4,4'-DDT	1.00000	0.91380	91	6	20	39-123
Dieldrin	1.00000	0.95069	95	4	20	42-111
Endosulfan I/alpha-chlo	1.00000	0.97202	97	4	20	48-117
Endosulfan II	1.00000	0.98598	98	8	20	52-114
Endosulfan sulfate	1.00000	0.98721	99	7	20	46-111
Endrin	1.00000	1.03824	104	6	20	45-117
Endrin aldehyde	1.00000	0.96598	96	8	20	48-125
Endrin Ketone	1.00000	1.00805	101	5	20	51-112
Heptachlor	1.00000	0.89687	90	1	20	43-114
Heptachlor epoxide	1.00000	0.97434	97	5	20	42-115
Methoxychlor	1.00000	0.93953	94	6	20	39-140

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

RPD: 0 out of 19 outside limits
 Spike Recovery: 0 out of 38 outside limits

COMMENTS:

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC PCBs

378 471

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PCBs - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN

ETC Order # : 9807-738
Method (SW-846) : 8082/3550B

HOLDING TIMES

Sample Extraction : All soil samples extracted within 14 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
P08007 P08007LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.*

*
Surrogate recoveries were flagged as outside QC Limits in samples
9807-765-05(75816-G3D+6) and MS/MSD associated with this project.

Laboratory Control Sample FORM 3
P08007BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3

9807-765-05 RPD : All analytes within QC limits.*
75816-G3D+6 Spike Recovery : All analytes within QC limits.*

*
Arochlor 1242 was not recovered in the MS/MSD due to the required
dilutions.

Recoveries and RPD for Arochlor 1260 were flagged outside QC Limits
in the Matrix Spike and Matrix Spike Duplicate due to the level
of this analyte present in the sample relative to the spike amount.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
P08007LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Daily Calibration : All criteria met. FORM 7A
Endrin/Breakdown : All criteria met. FORM 7

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.


Laboratory Manager

000082

FORM 2
SOIL PCB SURROGATE RECOVERY

378 472

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-738

Level: (low/med) LOW

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P08007-LB	81	106							0
02	P08007-BS	94	131							0
03	9807-765-5	OD	OD							2
04	9807-765-5M	OD	OD							2
05	9807-765-5S	OD	OD							2
06	9807-738-1	78	109							0
07	9807-738-2	79	122							0
08										
09										
10										
11										
12										
13										
14										
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27										
28										
29										
30										

QC LIMITS

S1 (TMX) = Tetrachloro-m-xylene (39-130)

S2 (DBC) = Decachlorobiphenyl (64-154)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

000083

FORM 4
PCB METHOD BLANK SUMMARY

EPA GC SAMPLE NO

Lab Name: ETC, INC.

P08007-LB

Lab Prep Batch: P08007

SDG No.: 9807-738

Lab File ID: C407241A-09R

Instrument ID: PEST4A

Matrix: (soil/water) SOIL

Date Analyzed: 07/24/98

Level: (low/med) LOW

Time Analyzed: 2049

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P08007-BS		C407241A-10R	07/24/98
02	9807-765-5		C407241A-16R	07/25/98
03	9807-765-5M		C407241A-17R	07/25/98
04	9807-765-5S		C407241A-18R	07/25/98
05	9807-738-1		C407241A-23R	07/25/98
06	9807-738-2		C407241A-24R	07/25/98
07				
08				
09				
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COMMENTS:

378 474

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

P08007-LB

Lab Name: ETC, INC.

SDG No.: 9807-738

Matrix: (soil/water) SOIL

Lab Prep Batch: P08007

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: C407241A-09R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 07/24/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q

12674-11-2-----Aroclor 1016	16.67	U
11104-28-2-----Aroclor 1221	16.67	U
11141-16-5-----Aroclor 1232	16.67	U
53469-21-9-----Aroclor 1242	16.67	U
11097-69-1-----Aroclor 1254	16.67	U
11096-82-5-----Aroclor 1260	16.67	U
12672-29-6-----Aroclor 1248	16.67	U

FORM I PCB

000085

378 475

FORM 3
SOIL PCB LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P08007

SDG No.: 9807-738

Matrix Spike - Sample No.: P08007-BS

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
Aroclor 1242	333.3		353.1	106	25-125
Aroclor 1260	333.3		353.9	106	25-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limitsRPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS:

FORM III PCB

000086

FORM 3
SOIL PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P08007

SDG No.: 9807-738

Matrix Spike - Sample No.: 9807-765-5

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Aroclor 1242	328.9	0.000	0.000	0*	25-125
Aroclor 1260	328.9	11790	8775	-917*	25-125

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
Aroclor 1242	323.6	0.000	0*		20	25-125
Aroclor 1260	323.6	9343	-756*	-19	20	25-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 2 outside limits

Spike Recovery: 4 out of 4 outside limits

COMMENTS:

FORM III PCB

000087

378 477

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PCBs - AQUEOUS

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN

ETC Order # : 9807-738
Method (SW-846) : 8082/3510C

HOLDING TIMES

Sample Extraction : All aqueous samples extracted within 7 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
P09003 P09003LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P09003BS
P09003BD

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
RPD : NA*
Spike Recovery : NA*

*

Due to the limited amount of sample available, no MS/MSD were
extracted.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
P09003LB

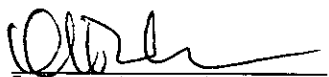
No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Daily Calibration : All criteria met. FORM 7A
Endrin/Breakdown : All criteria met. FORM 7

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.


Laboratory Manager

000088

FORM 2
WATER PCB SURROGATE RECOVERY

378 478

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG NO.: 9807-738

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	9807-738-3	73	103							0
02	P09003LB	40	83							0
03	P09003BS	52	98							0
04	P09003BD	54	97							0
05										
06										
07										
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27										
28										
29										
30										

QC LIMITS

S1 (TMX) = Tetrachloro-m-xylene (31- 96)

S2 (DBC) = Decachlorobiphenyl (34-115)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

378 479

FORM 4
PCB METHOD BLANK SUMMARY

EPA GC SAMPLE NO

Lab Name: ETC, INC.

P09003LB

Lab Prep Batch: P09003

SDG No.: 9807-738

Lab File ID: C407241A-29R

Instrument ID: PEST4A

Matrix: (soil/water) WATER

Date Analyzed: 07/25/98

Level:(low/med) LOW

Time Analyzed: 1640

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	9807-738-3		C407241A-27R	07/25/98
02	P09003BS		C407241A-30R	07/25/98
03	P09003BD		C407241A-31R	07/25/98
04				
05				
06				
07				
08				
09				
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COMMENTS:

378 480

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

P09003LB

Lab Name: ETC, INC.

SDG No.: 9807-738

Matrix: (soil/water) WATER

Lab Prep Batch: P09003

Sample wt/vol: _____ (g/mL) ML

Lab File ID: C407241A-29R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 07/25/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/Kg) UG/L	Q
12674-11-2-----	Aroclor 1016	0.500	U
11104-28-2-----	Aroclor 1221	0.500	U
11141-16-5-----	Aroclor 1232	0.500	U
53469-21-9-----	Aroclor 1242	0.500	U
11097-69-1-----	Aroclor 1254	0.500	U
11096-82-5-----	Aroclor 1260	0.500	U
12672-29-6-----	Aroclor 1248	0.500	U

FORM I PCB

000091

378 481

FORM 3
WATER PCB BLANK SPIKE SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P09003

SDG No.: 9807-738

Matrix Spike - Sample No.: P09003BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
Aroclor 1242	10.00		9.13	91	25-125
Aroclor 1260	10.00		9.12	91	25-125

COMPOUND	SPIKE ADDED (ug/L)	BSD CONCENTRATION (ug/L)	BSD % REC #	% RPD #	QC LIMITS RPD	REC.
Aroclor 1242	10.00	9.18	92	1	20	25-125
Aroclor 1260	10.00	9.18	92	1	20	25-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 2 outside limits

Spike Recovery: 0 out of 4 outside limits

COMMENTS:

FORM III PCB

000092

FIELD SCREENING LABORATORY CONFIRMATION SAMPLES

Date Collected 07/24/98

RA-A-022A-06"-12" (Resample/Reanalysis of RA-A-022-06"-12")



ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334

Founded 1972

July 28, 1998

Ms. Elena Rodriguez
OHM Remediation Services
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Ref: Analytical Testing
ETC Order # 9807801
Project Description DDMT

Project # DACA45-96-D-0014 Defense Depot - Memphis, TN

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th/18th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136.

The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Nathan A. Pera, IV', is written over the word 'Sincerely,'.

Nathan A. Pera, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT



OHM Remediation
Services Corp.
A subsidiary of OHM Corporation

SOUTHERN REGION

378 484

Chemical Analytical Data Evaluation/Validation Checklist

Project Name: DDMT

Project Number: 20560

Laboratory: FTC

Lab Project/Case Number: 9807801

Sample Number(s): RA-A-022A-06-12"

Evaluated By: S. Pasanjape

Date Evaluated: 8/5/98

Data Package Deliverables Requirement: ☐ OHM Minimum

☒ OHM Standard

☐ OHM Maximum

☐ Other, please describe _____

Quality Control Deliverables	Required	Received	Passed	Failed
POL, MDL, RL, etc meets DOOs			☒	
Comment:				
Holding Times			☒	
Comment:				
Sample Condition (preservatives, containers, temperature, etc)			☒	
Comment:				
Surrogate Recoveries			☒	
Comment:				
Lab Control Sample Recoveries			☒	
Comment:				
Lab Control Sample Duplicate or Other Spike Recoveries			☒	
Comment:				
Lab Control Sample Duplicate or Other Laboratory Duplicate RPD			☒	
Comment:				
Matrix Spike Recoveries			☒	
Comment:				
Matrix Spike Duplicate Recoveries			☒	
Comment:				
Matrix Spike / Matrix Spike Duplicate RPD			☒	
Comment:				
Laboratory Blanks			☒	
Comment:				
Field Blanks			☒	
Comment:				
Field Duplicates RPD			☒	
Comment:				

-over-

378 485

Chemical Analytical Data Evaluation / Validation Checklist
-continued-

Quality Control Deliverables	Required	Received	Passed	Failed
Tentatively Identified Compounds (TICs)			☒	
Comment:	(SP)			
Instrument Performance Check (Organics Only)			☒	
Comment:				
Initial Calibration			☒	
Comment:				
Continuing Calibration			☒	
Comment:				
Internal Standard Areas and Retention Times (Organics Only)				
Comment:				
Chromatograms			☒	
Comment:				
Sample Prep Worksheets				
Comment:				
Raw Data Calculations			☒	
Comment:				
Laboratory Duplicates				
Comment:				
Comment:				
Comment:				
Comment:				

General Comments:

Summary: ☐ See attached pages

- Check One: ☒ The data, as reported by the laboratory, are acceptable.
☐ The data, with qualifiers as described in the "Summary" portion of this report, are acceptable.
☐ The data are unacceptable.
☐ Other _____

S. Pasanipe
 Evaluator's Signature

8/5/98
 Date

Environmental Testing & Consulting, Inc.
Data Qualifiers for Organic Reporting

Within the attached report, some analytical data may be reported as "Qualified Data" as indicated by a "Data Qualifier" next to the result. This table summarizes the possible "Data Qualifiers" that may be associated with this report.

Q	Surrogate Recovery Outside QC Limits
J	Estimated Value. Presence of the compound was confirmed but less than the reported detection limit.
E	Concentration exceeds the established method calibration range but is within the working range of the instrument.
B	Analyte detected in the associated Method Blank.
U	Reported result was unconfirmed. Refer to Case Narrative.
N	Non-Compliance Report associated with this sample or project.
C	Result reported from GC/MS confirmation analysis
*	QC Data (percent recovery/RPD for a particular analyte was outside QC Limits)

378 487

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ANALYTICAL SUMMARY TABLE

Client Name OHM Remediation Services
Site ID DDMT
Memphis, TN

<u>ETC Sample ID</u>	<u>Field ID</u>	<u>Matrix</u>	<u>Method</u>	<u>Method Description</u>	<u>QC Batch</u>
980780101	RA-A-022A-06-12"	SOIL	8081A	Organochlorine Pest	P06006

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody



**OHM Remediation
Services Corp.**
Subsidiary of OHM Corporation
U.S. Route 224 East • Findlay, Ohio 44830

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY #44

217880

FORM 0019 REV 097

00

FORM 0019 REV 97		MAIL REPORT (COMPANY NAME)							
OHM LAB COORDINATOR		LABORATORY SERVICE ID							
Elena Rodriguez		ETC							
PROJECT NAME		LABORATORY PHONE							
DDMI		901-327-2750							
PROJECT CONTACT		LABORATORY ADDRESS							
Steve Offner		2924 Walnut Grove Road							
PROJECT ADDRESS		CITY STATE AND ZIP CODE							
1708 Dunn Ave.		Memphis TN 38111							
PROJECT MANAGER		PROJECT MANAGER S FAX							
Steve Offner		770-453-7716							
Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont	OC Level	TAT	Comments
1	RA-A-0227-06-12"	Soil	7/24/98	1305	NA	1	0.1m	30m	✓
2									
3									
4									
5									
6									
7									
8									
9									
10									

SAMPLES COLLECTED BY	S. GLAND	COURIER AND AIR BILL NUMBER	Delivered in Person
RELINQUISHED BY	Steve Offner	RECEIVED BY	Steve Offner
		DATE	7/24/98
		TIME	1415
		COOLER TEMPERATURE UPON RECEIPT	
		SAMPLE'S CONDITION UPON RECEIPT	

378 490

COOLER RECEIPT FORM

Cooler Receipt Form
9807801 CRF p 1

LIMS # 9807-801 Number of Coolers 1
 Date Received 07/24/98
 VDTSR 07/24/98 14 15
 PROJECT DDMT-Memphis, TN

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS

A PRELIMINARY EXAMINATION PHASE Date cooler was opened 07/24/98
 by (print) Lynette Bugg (sign) Lynette Bugg

1 Did cooler come with a shipping slip (airbill, etc)? NO
 If YES, enter carrier name & airbill number _____

2a Were custody seals on outside of cooler? NO
 2b Were custody seals on sample containers? NO

3 Were custody seals unbroken and intact at the date and time of arrival? NA

4 Did you screen samples for radioactivity using a Geiger Counter? NO

5 Were custody papers sealed in a plastic bag & taped inside to the lid? NO

6 Were custody papers filled out properly (ink, signed, etc)? YES

7 Did you sign custody papers in the appropriate place? YES

8 Was project identifiable from custody papers? If YES, enter project name at top of this form YES

9 If required, was enough ice used? cooler temp <4°C, Type of ice Bagged YES

10 Have designated person initial here to acknowledge receipt of cooler LB date 07/24/98

B LOG-IN PHASE Date samples were logged-in 07/24/98
 by (print) Lynette Bugg (sign) Lynette Bugg

11 Describe type of packing in cooler Baggies and Ice

12 Were all bottles sealed in separate plastic bags? YES

13 Did all bottles arrive unbroken and were labels in good condition? YES

14 Were all bottle labels complete (ID, date, time, signature, preserved, etc)? YES

15 Did all bottle labels agree with custody papers? YES

16 Were correct containers used for the tests indicated? YES

17 Were correct preservatives added to samples? YES

18 Was a sufficient amount of sample sent for tests indicated? YES

19 Were bubbles absent in VOA samples? If NO, list by sample# NA

20 Was the project manager called and status discussed? If YES, give details on the back of this form NO

21 Who was called? _____ By whom? _____ (date) _____

VDTSR - Validated Date/Time of Sample Receipt (Date sample is logged into LIMS system)

000005

Environmental Testing & Consulting, Inc.

Sample Reports

378 492

ENVIRONMENTAL TESTING & CONSULTING, INC.
Memphis, TN
INORGANIC ANALYSIS DATA SHEET
PERCENT SOLIDS

Client Name :OHM Remediation Services
Project Name :DDMT

Date Sample Received :07/24/98
Contract Laboratory Order Number :9807-801

<u>Contract Lab</u> <u>Sample No</u>	<u>Field</u> <u>ID</u>	<u>Date</u> <u>Sampled</u>	<u>Result</u> <u>Units : (%)</u>	<u>Date</u> <u>Analyzed</u>	<u>Method</u>	<u>By</u>
9807-801-01	RA-A-022A-06-12"	07/24/98	90	07/28/98	160.3	MC


LABORATORY MANAGER

000007

378 493

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400

Project **DACA45-96-D-0014**

Site ID **Norcross, GA 30092**
DDMT
Memphis, TN

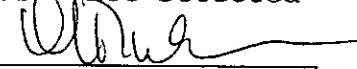
Date Arrived 07/24/98
 ETC Order Number 9807801

ETC Lab ID **9807801-01**
Sample ID: RA-A-022A-06-12"
QC Batch : P06006

Matrix :SOIL
 Sample Date :07/24/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				07/24/98	07/26/98	RG	8081A 3550B
QC Batch		ug/Kg					
Aldrin	ND	ug/Kg	1.00				
Alpha-BHC	ND	ug/Kg	1.00				
Beta-BHC	ND	ug/Kg	1.00				
Delta-BHC	ND	ug/Kg	1.00				
Gamma-BHC (Lindane)	ND	ug/Kg	1.00				
alpha-Chlordane	1.58	ug/Kg	1.00				
gamma-Chlordane	1.47	ug/Kg	1.00				
Chlordane (Technical)	15.3	ug/Kg	10				
4,4'-DDD	ND	ug/Kg	1.00				
4,4'-DDE	1.16	ug/Kg	1.00				
4,4'-DDT	1.82	ug/Kg	1.00				
Dieldrin	2.37	ug/Kg	1.00				
Endosulfan I	ND	ug/Kg	1.00				
Endosulfan II	ND	ug/Kg	1.00				
Endosulfan Sulfate	ND	ug/Kg	1.00				
Endrin	ND	ug/Kg	1.00				
Endrin Aldehyde	ND	ug/Kg	1.00				
Endrin Ketone	ND	ug/Kg	1.00				
Heptachlor	ND	ug/Kg	1.00				
Heptachlor Epoxide	ND	ug/Kg	1.00				
Methoxychlor	ND	ug/Kg	1.00				
Toxaphene	ND	ug/Kg	80				
Surrogate Standard				% Recovery			
S1 - Tetrachloro-m-xylene	84		39	130			
S2 - Decachlorobiphenyl	76		64	154			

ND - Not Detected


 LABORATORY MANAGER

000008

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC Pesticides

ETC Order 9807-801

000009

378 495

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN

ETC Order # : 9807-801
Method (SW-846) : 8081A/3550B

HOLDING TIMES

Sample Extraction : All soil samples extracted within 14 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
P06006 P06006LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P06006BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9807-746-07 RPD : All analytes within QC limits.
Spike Recovery : All analytes within QC limits.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
P06006LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Daily Calibration : All criteria met. FORM 7A
Endrin/Breakdown : All criteria met. FORM 7*
*

PEM for DDT was noted at 16.99% which is greater than the normal
15% or less breakdown for the Confirmation analysis.
PEM for DDT was noted at 7.75% for the primary analysis in which
the final results were reported.

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.


Laboratory Manager

000010

FORM 2
SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-801

Level: (low/med) LOW

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P06006LB	88	97							0
02	P06006BS	95	108							0
03	9807-746-7	76	79							0
04	9807-746-7MS	82	89							0
05	9807-746-7MS	72	70							0
06	9807-801-1	84	76							0
07										
08										
09										
10										
11										
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QC LIMITS

S1 (TMX) = Tetrachloro-m-xylene (39-130)
 S2 (DBC) = Decachlorobiphenyl (64-154)

Column to be used to flag recovery values
 * Values outside of contract required QC limits
 D Surrogate diluted out

378 497

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

P06006LB

Lab Name: ETC, INC.

Lab Prep Batch: P06006

SDG No.: 9807-801

Lab File ID: P207251B-11R

Instrument ID: PEST2B

Matrix: (soil/water) SOIL

Date Analyzed: 07/25/98

Level: (low/med) LOW

Time Analyzed: 2113

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P06006BS		P207251B-12R	07/25/98
02	9807-746-7		P207251B-19R	07/26/98
03	9807-746-7MS		P207251B-20R	07/26/98
04	9807-746-7MS		P207251B-26R	07/26/98
05	9807-801-1		P207251B-38R	07/26/98
06				
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COMMENTS:

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

378 498
EPA GC SAMPLE NO.

P06006LB

Lab Name: ETC, INC.

SDG No.: 9807-801

Matrix: (soil/water) SOIL

Lab Prep Batch: P06006

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P207251B-11R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 07/25/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

319-84-6-----	alpha-BHC	1.33333	U
319-85-7-----	beta-BHC	1.33333	U
58-89-9-----	gamma-BHC (Lindane)	1.33333	U
319-86-8-----	delta-BHC	1.33333	U
76-44-8-----	Heptachlor	1.33333	U
309-00-2-----	Aldrin	1.33333	U
1024-57-3-----	Heptachlor epoxide	1.33333	U
5103-74-2-----	gamma-chlordane	1.33333	U
959-98-8-----	Endosulfan I	1.33333	U
5103-71-9-----	alpha-chlordane	1.33333	U
60-57-1/72-55-9-	Dieldrin/DDE	1.33333	U
72-20-8-----	Endrin	1.33333	U
33213-65-9-----	Endosulfan II	1.33333	U
72-54-8-----	4,4'-DDD	1.33333	U
7421-93-4-----	Endrin aldehyde	1.33333	U
1031-07-8-----	Endosulfan sulfate	1.33333	U
50-29-3-----	4,4'-DDT	1.33333	U
53494-70-5-----	Endrin Ketone	1.33333	U
72-43-5-----	Methoxychlor	1.33333	U
57-74-9-----	Chlordane-total	8.33333	U
8001-35-2-----	Toxaphene	83.33333	U

FORM I PESTICIDE

000013

378 499

FORM 3
SOIL PESTICIDE LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P06006

SDG No.: 9807-801

Matrix Spike - Sample No.: P06006BS

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
Aldrin	33.33333		33.76230	101	31-111
alpha-BHC	33.33333		32.36501	97	22-112
beta-BHC	33.33333		35.00194	105	54-120
delta-BHC	33.33333		27.42060	82	10- 96
gamma-BHC (Lindane)	33.33333		32.97033	99	26-113
alpha-chlordane	33.33333		32.83593	98	49-103
gamma-chlordane	33.33333		34.86012	104	50-106
Dieldrin/DDE	33.33333		35.05764	105	44-108
4,4'-DDD	33.33333		33.21933	100	47-112
4,4'-DDT	33.33333		36.29161	109	49-124
Endosulfan I	33.33333		31.53922	95	49-103
Endosulfan II	33.33333		36.65577	110	53-115
Endosulfan sulfate	33.33333		34.42645	103	51-110
Endrin	33.33333		35.73794	107	44-118
Endrin aldehyde	33.33333		35.35426	106	48-128
Endrin Ketone	33.33333		36.23790	109	38-130
Heptachlor	33.33333		37.17687	112	47-113
Heptachlor epoxide	33.33333		36.96523	111	47-112
Methoxychlor	33.33333		39.16043	117	39-147

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 19 outside limits

COMMENTS:

000014

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P06006

SDG No.: 9807-801

Matrix Spike - Sample No.: 9807-746-7

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Aldrin	32.67973	0.00000	27.99684	86	31-111
alpha-BHC	32.67973	0.00000	28.55945	87	22-112
beta-BHC	32.67973	0.00000	31.91300	98	54-120
delta-BHC	32.67973	0.65710	25.22836	75	10- 96
gamma-BHC (Lindane)	32.67973	0.48500	29.06035	87	26-113
alpha-chlordane	32.67973	0.00000	27.45940	84	49-103
gamma-chlordane	32.67973	0.00000	31.23342	96	50-106
Dieldrin/DDE	32.67973	0.00000	30.07202	92	44-108
4,4'-DDD	32.67973	0.54535	29.79591	90	47-112
4,4'-DDT	32.67973	2.93794	28.97536	80	49-124
Endosulfan I	32.67973	0.00000	26.53235	81	49-103
Endosulfan II	32.67973	0.41465	31.06270	94	53-115
Endosulfan sulfate	32.67973	0.00000	29.42170	90	51-110
Endrin	32.67973	0.39600	32.78124	99	44-118
Endrin aldehyde	32.67973	0.00000	32.81982	100	48-128
Endrin Ketone	32.67973	0.46973	29.72331	90	38-130
Heptachlor	32.67973	0.63055	31.57667	95	47-113
Heptachlor epoxide	32.67973	0.00000	30.93543	95	47-112
Methoxychlor	32.67973	0.00000	31.45426	96	39-147

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

COMMENTS:

378 501

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P06006

SDG No.: 9807-801

Matrix Spike - Sample No.: 9807-746-7

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Aldrin	32.89473	27.89561	85	1	20	31-111
alpha-BHC	32.89473	27.69151	84	4	20	22-112
beta-BHC	32.89473	31.69515	96	2	20	54-120
delta-BHC	32.89473	24.22998	72	4	20	10- 96
gamma-BHC (Lindane)	32.89473	28.58663	85	2	20	26-113
alpha-chlordane	32.89473	30.02512	91	8	20	49-103
gamma-chlordane	32.89473	30.15163	92	4	20	50-106
Dieldrin/DDE	32.89473	28.49811	87	6	20	44-108
4,4'-DDD	32.89473	27.52222	82	9	20	47-112
4,4'-DDT	32.89473	26.34899	71	12	20	49-124
Endosulfan I	32.89473	29.54994	90	10	20	49-103
Endosulfan II	32.89473	29.99910	90	4	20	53-115
Endosulfan sulfate	32.89473	28.24740	86	4	20	51-110
Endrin	32.89473	30.75438	92	7	20	44-118
Endrin aldehyde	32.89473	31.11377	94	6	20	48-128
Endrin Ketone	32.89473	28.85122	86	4	20	38-130
Heptachlor	32.89473	30.93890	92	3	20	47-113
Heptachlor epoxide	32.89473	30.01618	91	4	20	47-112
Methoxychlor	32.89473	27.79622	84	13	20	39-147

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 19 outside limits

Spike Recovery: 0 out of 38 outside limits

COMMENTS:

**COMPOSITE CONFIRMATION SAMPLES COLLECTED
FOLLOWING EXCAVATION IN AREA A**

Date Collected 07/31/98

RA-A-003 (Composite of Grids A1, A4, A7, A12 & A15)

RA-A-004 (Composite of Grids A5, A6, A14 & A17)

RA-A-005 (Duplicate of RA-A-003)

**ENVIRONMENTAL TESTING & CONSULTING, INC.**

2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334

Founded 1972

August 3, 1998

Ms. Elena Rodriguez
OHM Remediation Services
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

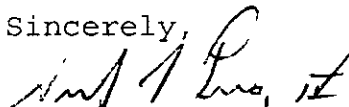
Ref: Analytical Testing
ETC Order # 9807A24
Project Description DDMT

Project # 20560 Defense Depot - Memphis, TN

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th/18th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136.

The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Nathan A. Pera, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT



OHM Remediation
Services Corp.
A subsidiary of OHM Corporation

SOUTHERN REGION

378 504

Chemical Analytical Data
Evaluation/Validation Checklist

Project Name: DDMT

Project Number: 20560

Laboratory: ETC

Lab Project/Case Number: 9807A24

Sample Number(s): RA-A-003, 004, 005

Evaluated By: S. Pasanijape

Date Evaluated: 8/14/98

Data Package Deliverables Requirement: ☐ OHM Minimum

☒ OHM Standard

☐ OHM Maximum

☐ Other, please describe _____

Quality Control Deliverables	Required	Received	Passed	Failed
POL, MDL, RL, etc meets DOOs			✓	
Comment:				
Holding Times			✓	
Comment:				
Sample Condition (preservatives, containers, temperature, etc)			✓	
Comment:				
Surrogate Recoveries			✓	
Comment:				
Lab Control Sample Recoveries			✓	
Comment:				
Lab Control Sample Duplicate or Other Spike Recoveries				
Comment:				
Lab Control Sample Duplicate or Other Laboratory Duplicate RPD				
Comment:				
Matrix Spike Recoveries			✓	
Comment:				
Matrix Spike Duplicate Recoveries			✓	
Comment:				
Matrix Spike / Matrix Spike Duplicate RPD			✓	
Comment:				
Laboratory Blanks			✓	
Comment:				
Field Blanks				
Comment:				
Field Duplicates RPD				
Comment:				

-over-

Chemical Analytical Data Evaluation / Validation Checklist
-continued-

Quality Control Deliverables	Required	Received	Passed	Failed
Testimony Identified Compounds (TICs)			☒	
Comment:				
Instrument Performance Check (Organics Only)			☒	
Comment:				
Initial Calibration			☒	
Comment:				
Continuing Calibration			☒	
Comment:				
Internal Standard Areas and Retention Times (Organics Only)			☒	
Comment:				
Chromatograms			☒	
Comment:				
Sample Prep Worksheets				
Comment:				
Raw Data Calculations				
Comment:				
Laboratory Duplicates			☒	
Comment:				
Comment:				
Comment:				
Comment:				

General Comments:

Summary: ☐ See attached pages

Check One

- ☒ The data, as reported by the laboratory, are acceptable.
☐ The data, with qualifiers as described in the "Summary" portion of this report, are acceptable.
☐ The data are unacceptable
☐ Other: _____

S. Pasanigape
Evaluator's Signature

8/14/98

Date

Environmental Testing & Consulting, Inc.
Data Qualifiers for Organic Reporting

Within the attached report, some analytical data may be reported as "Qualified Data" as indicated by a "Data Qualifier" next to the result. This table summarizes the possible "Data Qualifiers" that may be associated with this report.

Q	Surrogate Recovery Outside QC Limits
J	Estimated Value. Presence of the compound was confirmed but less than the reported detection limit.
E	Concentration exceeds the established method calibration range but is within the working range of the instrument.
B	Analyte detected in the associated Method Blank.
U	Reported result was unconfirmed. Refer to Case Narrative.
N	Non-Compliance Report associated with this sample or project.
C	Result reported from GC/MS confirmation analysis.
*	QC Data (percent recovery/RPD for a particular analyte was outside QC Limits)

378 507

ENVIRONMENTAL TESTING & CONSULTING, INC.
 2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ANALYTICAL SUMMARY TABLE

Client Name **OHM Remediation Services**
 Site ID **DDMT**
Memphis, TN

<u>ETC</u>	<u>Sample ID</u>	<u>Field ID</u>	<u>Matrix</u>	<u>Method</u>	<u>Method Description</u>
	9807A2401	RA-A-003	SOIL	8081A	TCL Pesticides
	9807A2401	RA-A-003	SOIL	8082	PCBs
	9807A2401	RA-A-003	SOIL	8270C	Semi-Volatile PAH
	9807A2401	RA-A-003	SOIL	6010B	Silver
	9807A2401	RA-A-003	SOIL	6010B	Aluminum
	9807A2401	RA-A-003	SOIL	7060A	Arsenic
	9807A2401	RA-A-003	SOIL	6010B	Barium
	9807A2401	RA-A-003	SOIL	6010B	Beryllium
	9807A2401	RA-A-003	SOIL	6010B	Calcium
	9807A2401	RA-A-003	SOIL	6010B	Cadmium
	9807A2401	RA-A-003	SOIL	9010A	Cyanide
	9807A2401	RA-A-003	SOIL	6010B	Cobalt
	9807A2401	RA-A-003	SOIL	6010B	Chromium
	9807A2401	RA-A-003	SOIL	6010B	Copper
	9807A2401	RA-A-003	SOIL	6010B	Iron
	9807A2401	RA-A-003	SOIL	7471A	Mercury
	9807A2401	RA-A-003	SOIL	6010B	Potassium
	9807A2401	RA-A-003	SOIL	6010B	Magnesium
	9807A2401	RA-A-003	SOIL	6010B	Manganese
	9807A2401	RA-A-003	SOIL	6010B	Sodium
	9807A2401	RA-A-003	SOIL	6010B	Nickel
	9807A2401	RA-A-003	SOIL	7421	Lead
	9807A2401	RA-A-003	SOIL	6010B	Antimony
	9807A2401	RA-A-003	SOIL	7740	Selenium
	9807A2401	RA-A-003	SOIL	7841	Thallium
	9807A2401	RA-A-003	SOIL	6010B	Vanadium
	9807A2401	RA-A-003	SOIL	6010B	Zinc
	9807A2402	RA-A-004	SOIL	8081A	TCL Pesticides
	9807A2402	RA-A-004	SOIL	8082	PCBs
	9807A2402	RA-A-004	SOIL	8270C	Semi-Volatile PAH
	9807A2402	RA-A-004	SOIL	6010B	Silver
	9807A2402	RA-A-004	SOIL	6010B	Aluminum
	9807A2402	RA-A-004	SOIL	7060A	Arsenic
	9807A2402	RA-A-004	SOIL	6010B	Barium
	9807A2402	RA-A-004	SOIL	6010B	Beryllium
	9807A2402	RA-A-004	SOIL	6010B	Calcium
	9807A2402	RA-A-004	SOIL	6010B	Cadmium
	9807A2402	RA-A-004	SOIL	9010A	Cyanide
	9807A2402	RA-A-004	SOIL	6010B	Cobalt
	9807A2402	RA-A-004	SOIL	6010B	Chromium
	9807A2402	RA-A-004	SOIL	6010B	Copper
	9807A2402	RA-A-004	SOIL	6010B	Iron
	9807A2402	RA-A-004	SOIL	7471A	Mercury
	9807A2402	RA-A-004	SOIL	6010B	Potassium
	9807A2402	RA-A-004	SOIL	6010B	Magnesium
	9807A2402	RA-A-004	SOIL	6010B	Manganese
	9807A2402	RA-A-004	SOIL	6010B	Sodium
	9807A2402	RA-A-004	SOIL	6010B	Nickel
	9807A2402	RA-A-004	SOIL	7421	Lead
	9807A2402	RA-A-004	SOIL	6010B	Antimony
	9807A2402	RA-A-004	SOIL	7740	Selenium
	9807A2402	RA-A-004	SOIL	7841	Thallium
	9807A2402	RA-A-004	SOIL	6010B	Vanadium
	9807A2402	RA-A-004	SOIL	6010B	Zinc
	9807A2403	RA-A-005	SOIL	8081A	TCL Pesticides

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ANALYTICAL SUMMARY TABLE

378 508

Client Name OHM Remediation Services
Site ID DDMT
Memphis, TN

<u>ETC</u>	<u>Sample ID</u>	<u>Field ID</u>	<u>Matrix</u>	<u>Method</u>	<u>Method Description</u>
	9807A2403	RA-A-005	SOIL	8082	PCBs
	9807A2403	RA-A-005	SOIL	8270C	Semi-Volatile PAH
	9807A2403	RA-A-005	SOIL	6010B	Silver
	9807A2403	RA-A-005	SOIL	6010B	Aluminum
	9807A2403	RA-A-005	SOIL	7060A	Arsenic
	9807A2403	RA-A-005	SOIL	6010B	Barium
	9807A2403	RA-A-005	SOIL	6010B	Beryllium
	9807A2403	RA-A-005	SOIL	6010B	Calcium
	9807A2403	RA-A-005	SOIL	6010B	Cadmium
	9807A2403	RA-A-005	SOIL	9010A	Cyanide
	9807A2403	RA-A-005	SOIL	6010B	Cobalt
	9807A2403	RA-A-005	SOIL	6010B	Chromium
	9807A2403	RA-A-005	SOIL	6010B	Copper
	9807A2403	RA-A-005	SOIL	6010B	Iron
	9807A2403	RA-A-005	SOIL	7471A	Mercury
	9807A2403	RA-A-005	SOIL	6010B	Potassium
	9807A2403	RA-A-005	SOIL	6010B	Magnesium
	9807A2403	RA-A-005	SOIL	6010B	Manganese
	9807A2403	RA-A-005	SOIL	6010B	Sodium
	9807A2403	RA-A-005	SOIL	6010B	Nickel
	9807A2403	RA-A-005	SOIL	7421	Lead
	9807A2403	RA-A-005	SOIL	6010B	Antimony
	9807A2403	RA-A-005	SOIL	7740	Selenium
	9807A2403	RA-A-005	SOIL	7841	Thallium
	9807A2403	RA-A-005	SOIL	6010B	Vanadium
	9807A2403	RA-A-005	SOIL	6010B	Zinc

378 509

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody

000004



**OHM Remediation
Services Corp**

Subsidiary of OHM Corporation
U.S. Route 224 East • Findlay,

U.S. Route 224 East • Findlay, Ohio

Ohio 45840 • (419) 423-3526

FOR

M 619

REVIEW

2-97

680-A-4

LABORATORY COPY

217881

PW000000

OHM - LAB COORDINATOR		LAB COORDINATOR'S PHONE		LAB COORDINATOR'S FAX		LABORATORY SERVICE ID		LABORATORY CONTACT		MAIL REPORT (COMPANY NAME)	
Elena Rodriguez		770-734-8060		770-453-7716		ETC		Nathan Pera		OHM Remediation Services Corp	
PROJECT NAME		PROJECT LOCATION		PROJECT NUMBER		LABORATORY PHONE		LABORATORY FAX		RECIPIENT NAME	
DDMT		Memphis, TN		20560		901-327-2750		901-327-6334		Elena Rodriguez	
PROJECT CONTACT		PROJECT PHONE NUMBER		PROJECT FAX		LABORATORY ADDRESS		CITY STATE AND ZIP CODE		ADDRESS	
Steve Offner		901-743-1117		775-2517		2924 Walnut Grove Road		Memphis, TN 38114		5445 Triangle Pkwy, #400	
PROJECT ADDRESS		CITY STATE AND ZIP CODE		CLIENT		LABORATORY PHONE		LABORATORY FAX		CITY STATE AND ZIP CODE	
1708 Dunn Ave.		Memphis, TN 38114		USACE		901-743-1048		901-327-6334		Norcross, GA 30092	
PROJECT MANAGER		PROJECT MANAGER'S PHONE		PROJECT MANAGER'S FAX		LABORATORY ADDRESS		CITY STATE AND ZIP CODE		LABORATORY CONTACT	
Steve Offner		770-326-2571		770-453-7716		Memphis, TN 38114		Norcross, GA 30092		Nathan Pera	
Item		Sample Identifier		Matrix		Date		Time		Preserved	
1		RA-A-003		Soil		7-31-98		1400		VIA 41803 (III)	
2		RA-A-004		Soil		7-31-98		1410		VIA 41803 (III)	
3		RA-A-005		Soil		7-31-98		1420		VIA 41803 (III)	
4											
5											
6											
7											
8											
9											
10											
SAMPLES COLLECTED BY		STEVEN OFFNER		ANALYST AND AIR BIL NUMBER		DELIVERED IN PERSON		DATE		TIME	
REQUISITIONED BY		BLOOMER		RECEIVED BY		BLOOMER		DATE		TIME	
COOLER TEMPERATURE UPON RECEIPT				SAMPLE'S CONDITION UPON RECEIPT							
Comments		Please fax results on DUE DATE to		SITE and to Lab Coordinator							

COOLER RECEIPT FORM

Cooler Receipt Form
9807A24 CRF p 1

LIMS # 9807-A24 Number of Coolers 1
 Date Received 07/31/98
 PROJECT DDMT/Memphis, TN VDTSR 07/31/98 15 50

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS

A PRELIMINARY EXAMINATION PHASE Date cooler was opened 07/31/98
 by (print) Lynette Bugg (sign) Lynette Bugg

1 Did cooler come with a shipping slip (airbill, etc)? NO
 If YES, enter carrier name & airbill number _____

2a Were custody seals on outside of cooler? NO
 2b Were custody seals on sample containers? NO

3 Were custody seals unbroken and intact at the date and time of arrival? NA

4 Did you screen samples for radioactivity using a Geiger Counter? NO

5 Were custody papers sealed in a plastic bag & taped inside to the lid? NO

6 Were custody papers filled out properly (ink, signed, etc)? YES

7 Did you sign custody papers in the appropriate place? YES

8 Was project identifiable from custody papers? If YES, enter project name at top of this form YES

9 If required, was enough ice used? cooler temp <4°C, Type of ice Crushed YES

10 Have designated person initial here to acknowledge receipt of cooler LB date 07/31/98

B LOG-IN PHASE Date samples were logged-in 07/31/98
 by (print) Lynette Bugg (sign) Lynette Bugg

11 Describe type of packing in cooler Bubble Wrap & Ice

12 Were all bottles sealed in separate plastic bags? YES

13 Did all bottles arrive unbroken and were labels in good condition? YES

14 Were all bottle labels complete (ID, date, time, signature, preserved, etc)? YES

15 Did all bottle labels agree with custody papers? YES

16 Were correct containers used for the tests indicated? YES

17 Were correct preservatives added to samples? YES

18 Was a sufficient amount of sample sent for tests indicated? YES

19 Were bubbles absent in VOA samples? If NO, list by sample# NA

20 Was the project manager called and status discussed? If YES, give details on the back of this form NO

21 Who was called? _____ By whom? _____ (date) _____

VDTSR - Validated Date/Time of Sample Receipt (Date sample is logged into LIMS system)

000006

378 512

Environmental Testing & Consulting, Inc.

Sample Reports

000007

378 513

ENVIRONMENTAL TESTING & CONSULTING, INC.
Memphis, TN
INORGANIC ANALYSIS DATA SHEET
PERCENT SOLIDS

Client Name :OHM Remediation Services
Project Name :DDMT

Date Sample Received :07/31/98
Contract Laboratory Order Number :9807-A24

<u>Contract Lab</u> <u>Sample No</u>	<u>Field</u> <u>ID</u>	<u>Date</u> <u>Sampled</u>	<u>Result</u> <u>Units : (%)</u>	<u>Date</u> <u>Analyzed</u>	<u>Method</u>	<u>By</u>
9807-A24-01	RA-A-003	07/31/98	85	08/03/98	160.3	MC
9807-A24-02	RA-A-004	07/31/98	81	08/03/98	160.3	MC
9807-A24-03	RA-A-005	07/31/98	84	08/03/98	160.3	MC


LABORATORY MANAGER

000008

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
INORGANIC ANALYSIS DATA SHEET

378 514

Client Name OHM Remediation Services
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092
Site ID DDMT
Memphis, TN

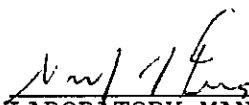
Project # 20560

Date Arrived 07/31/98
ETC Order Number 9807A24

ETC Lab ID 9807A24-01
Sample ID: RA-A-003

Matrix :SOIL
Sample Date :07/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	ND	mg/Kg	1.00	08/03/98	9010A	CY080398


LABORATORY MANAGER

000009

378 515

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

INORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project # 20560

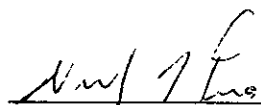
Site ID
DDMT
Memphis, TN

Date Arrived 07/31/98
ETC Order Number 9807A24

ETC Lab ID 9807A24-02
Sample ID: RA-A-004

Matrix :SOIL
Sample Date :07/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	ND	mg/Kg	1.00	08/03/98	9010A	CY080398


LABORATORY MANAGER

000010

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

INORGANIC ANALYSIS DATA SHEET

Client Name OHM Remediation Services
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092
Site ID DDMT
Memphis, TN

Project # 20560

Date Arrived 07/31/98
ETC Order Number 9807A24

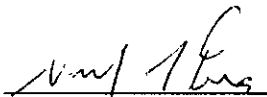
ETC Lab ID 9807A24-03

Sample ID: RA-A-005

Matrix :SOIL

Sample Date :07/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	ND	mg/Kg	1.00	08/03/98	9010A	CY080398


LABORATORY MANAGER

000011

378 517

ENVIRONMENTAL TESTING & CONSULTING, INC.
 2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
INORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

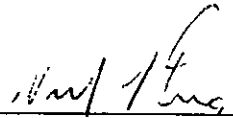
Project # 20560

Date Arrived 07/31/98
 ETC Order Number 9807A24

ETC Lab ID 9807A24-01
Sample ID: RA-A-003

Matrix :SOIL
 Sample Date :07/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE PREPARED	DATE ANALYZED	METHOD	QC BATCH
Metals Digestion Batch				08/01/98		3051	V7-SO-66
Mercury Digestion Batch				08/03/98		7471A	V4-SO-22
Silver	ND	mg/Kg	0.700		08/03/98	6010B	
Aluminum	9,740	mg/Kg	4.00		08/03/98	6010B	
Arsenic	15.2	mg/Kg	0.200		08/02/98	7060A	
Barium	116	mg/Kg	0.200		08/03/98	6010B	
Beryllium	0.422	mg/Kg	0.100		08/03/98	6010B	
Calcium	1,620	mg/Kg	1.00		08/03/98	6010B	
Cadmium	ND	mg/Kg	0.400		08/03/98	6010B	
Cobalt	7.03	mg/Kg	0.700		08/03/98	6010B	
Chromium	13.0	mg/Kg	0.700		08/03/98	6010B	
Copper	17.3	mg/Kg	0.600		08/03/98	6010B	
Iron	17,000	mg/Kg	0.700		08/03/98	6010B	
Mercury	0.039	mg/Kg	0.020		08/03/98	7471A	
Potassium	722	mg/Kg	20.0		08/03/98	6010B	
Magnesium	1,970	mg/Kg	3.00		08/03/98	6010B	
Manganese	595	mg/Kg	0.200		08/03/98	6010B	
Sodium	57.1	mg/Kg	20.0		08/03/98	6010B	
Nickel	15.1	mg/Kg	1.50		08/03/98	6010B	
Lead	13.4	mg/Kg	0.100		08/02/98	7421	
Antimony	ND	mg/Kg	3.20		08/03/98	6010B	
Selenium	0.304	mg/Kg	0.200		08/03/98	7740	
Thallium	0.181	mg/Kg	0.100		08/03/98	7841	
Vanadium	18.8	mg/Kg	0.800		08/03/98	6010B	
Zinc	56.8	mg/Kg	1.00		08/03/98	6010B	


 LABORATORY MANAGER

000012

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

INORGANIC ANALYSIS DATA SHEET

Client Name OHM Remediation Services
 Defense Depot - Memphis, TN
 5445 Triangle Parkway
 Suite 400
 Norcross, GA 30092

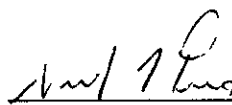
Project # 20560

Date Arrived 07/31/98
 ETC Order Number 9807A24

ETC Lab ID 9807A24-02
Sample ID: RA-A-004

Matrix :SOIL
 Sample Date :07/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE PREPARED	DATE ANALYZED	METHOD	QC BATCH
Metals Digestion Batch				08/01/98		3051	V7-SO-66
Mercury Digestion Batch				08/03/98		7471A	V4-SO-22
Silver	ND	mg/Kg	0.700		08/03/98	6010B	
Aluminum	11,000	mg/Kg	4.00		08/03/98	6010B	
Arsenic	15.4	mg/Kg	0.200		08/02/98	7060A	
Barium	140	mg/Kg	0.200		08/03/98	6010B	
Beryllium	0.553	mg/Kg	0.100		08/03/98	6010B	
Calcium	2,400	mg/Kg	1.00		08/03/98	6010B	
Cadmium	ND	mg/Kg	0.400		08/03/98	6010B	
Cobalt	8.13	mg/Kg	0.700		08/03/98	6010B	
Chromium	16.6	mg/Kg	0.700		08/03/98	6010B	
Copper	19.3	mg/Kg	0.600		08/03/98	6010B	
Iron	20,800	mg/Kg	0.700		08/03/98	6010B	
Mercury	0.057	mg/Kg	0.020		08/03/98	7471A	
Potassium	950	mg/Kg	20.0		08/03/98	6010B	
Magnesium	2,130	mg/Kg	3.00		08/03/98	6010B	
Manganese	705	mg/Kg	0.200		08/03/98	6010B	
Sodium	59.8	mg/Kg	20.0		08/03/98	6010B	
Nickel	17.3	mg/Kg	1.50		08/03/98	6010B	
Lead	37.6	mg/Kg	0.100		08/02/98	7421	
Antimony	ND	mg/Kg	3.20		08/03/98	6010B	
Selenium	ND	mg/Kg	0.200		08/03/98	7740	
Thallium	0.212	mg/Kg	0.100		08/03/98	7841	
Vanadium	23.0	mg/Kg	0.800		08/03/98	6010B	
Zinc	86.3	mg/Kg	1.00		08/03/98	6010B	


 LABORATORY MANAGER

000013

1378.519

ENVIRONMENTAL TESTING & CONSULTING, INC.
 2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
INORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

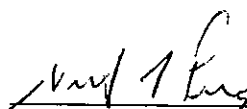
Project # 20560

Date Arrived 07/31/98
 ETC Order Number 9807A24

ETC Lab ID 9807A24-03
Sample ID: RA-A-005

Matrix :SOIL
 Sample Date :07/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE PREPARED	DATE ANALYZED	METHOD	QC BATCH
Metals Digestion Batch				08/01/98		3051	V7-SO-66
Mercury Digestion Batch				08/03/98		7471A	V4-SO-22
Silver	ND	mg/Kg	0.700		08/03/98	6010B	
Aluminum	14,300	mg/Kg	4.00		08/03/98	6010B	
Arsenic	21.1	mg/Kg	0.200		08/02/98	7060A	
Barium	142	mg/Kg	0.200		08/03/98	6010B	
Beryllium	0.570	mg/Kg	0.100		08/03/98	6010B	
Calcium	1,760	mg/Kg	1.00		08/03/98	6010B	
Cadmium	ND	mg/Kg	0.400		08/03/98	6010B	
Cobalt	10.4	mg/Kg	0.700		08/03/98	6010B	
Chromium	18.2	mg/Kg	0.700		08/03/98	6010B	
Copper	22.4	mg/Kg	0.600		08/03/98	6010B	
Iron	24,200	mg/Kg	0.700		08/03/98	6010B	
Mercury	0.041	mg/Kg	0.020		08/03/98	7471A	
Potassium	1,120	mg/Kg	20.0		08/03/98	6010B	
Magnesium	2,630	mg/Kg	3.00		08/03/98	6010B	
Manganese	723	mg/Kg	0.200		08/03/98	6010B	
Sodium	91.4	mg/Kg	20.0		08/03/98	6010B	
Nickel	18.6	mg/Kg	1.50		08/03/98	6010B	
Lead	16.4	mg/Kg	0.100		08/02/98	7421	
Antimony	ND	mg/Kg	3.20		08/03/98	6010B	
Selenium	0.349	mg/Kg	0.200		08/03/98	7740	
Thallium	0.302	mg/Kg	0.100		08/03/98	7841	
Vanadium	26.5	mg/Kg	0.800		08/03/98	6010B	
Zinc	72.5	mg/Kg	1.00		08/03/98	6010B	


 LABORATORY MANAGER

000014

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 520

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project **20560**

Site ID **DDMT**
Memphis, TN

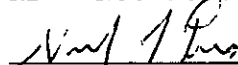
Date Arrived **07/31/98**
ETC Order Number **9807A24**

ETC Lab ID **9807A24-01**
Sample ID: RA-A-003
QC Batch : P04012

Matrix : **SOIL**
Sample Date : **07/31/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Semi-Volatile PAH				08/01/98	08/02/98	RR	8270C 3550B
Acenaphthene	ND	ug/Kg	67				
Acenaphthylene	ND	ug/Kg	67				
Anthracene	ND	ug/Kg	67				
Benzo(a)anthracene	ND	ug/Kg	67				
Benzo(b)fluoranthene	ND	ug/Kg	67				
Benzo(k)fluoranthene	ND	ug/Kg	67				
Benzo(g,h,i)perylene	ND	ug/Kg	67				
Benzo(a)pyrene	ND	ug/Kg	67				
Chrysene	ND	ug/Kg	67				
Dibenzo(a,h)anthracene	ND	ug/Kg	67				
Fluoranthene	ND	ug/Kg	67				
Fluorene	ND	ug/Kg	67				
Indeno(1,2,3-cd)pyrene	ND	ug/Kg	67				
Naphthalene	ND	ug/Kg	67				
Phenanthrene	ND	ug/Kg	67				
Pyrene	ND	ug/Kg	67				
<u>Surrogate Standard</u>	<u>% Recovery</u>		<u>QC Limits</u>				
S1 - Nitrobenzene-d5	55		39	80			
S2 - 2-Fluorobiphenyl	69		43	84			
S3 - 4-Terphenyl-d14	77		40	121			

ND - Not Detected


LABORATORY MANAGER

000015

378 521

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9807-A24-1

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-A24

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.6 (g/mL) G

Lab File ID: 1301013

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1(mL)

Date Analyzed: 08/02/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 8017-34-3	TECHNICAL CHLOROPHENOTHANE	14.82	156	NJ
2.				
3.				
4.				
5.				
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8.				
9.				
10.				
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30.				

FORM I BNA-GCMS-TIC

000016

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

378 522

Client Name OHM Remediation Services Project 20560
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092
Site ID DDMT
Memphis, TN

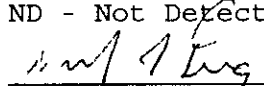
Date Arrived 07/31/98
ETC Order Number 9807A24

ETC Lab ID 9807A24-02
Sample ID: RA-A-004
QC Batch : P04012

Matrix :SOIL
Sample Date :07/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Semi-Volatile PAH				08/01/98	08/02/98	RR	8270C 3550B
Acenaphthene	ND	ug/Kg	67				
Acenaphthylene	ND	ug/Kg	67				
Anthracene	ND	ug/Kg	67				
Benzo(a)anthracene	494	ug/Kg	67				
Benzo(b)fluoranthene	759	ug/Kg	67				
Benzo(k)fluoranthene	625	ug/Kg	67				
Benzo(g,h,i)perylene	311	ug/Kg	67				
Benzo(a)pyrene	462	ug/Kg	67				
Chrysene	765	ug/Kg	67				
Dibenzo(a,h)anthracene	ND	ug/Kg	67				
Fluoranthene	801	ug/Kg	67				
Fluorene	ND	ug/Kg	67				
Indeno(1,2,3-cd)pyrene	317	ug/Kg	67				
Naphthalene	ND	ug/Kg	67				
Phenanthrene	81.5	ug/Kg	67				
Pyrene	783	ug/Kg	67				
Surrogate Standard	% Recovery		QC Limits				
S1 - Nitrobenzene-d5	10 Q		39	80			
S2 - 2-Fluorobiphenyl	15 Q		43	84			
S3 - 4-Terphenyl-d14	45		40	121			

ND - Not Detected


LABORATORY MANAGER

000017

378 523

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9807-A24-2

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-A24

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: 1401014

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1(mL)

Date Analyzed: 08/02/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
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8.				
9.				
10.				
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FORM I BNA-GCMS-TIC

000018

378 524

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400

Project **20560**

Site ID **Norcross, GA 30092**

DDMT
Memphis, TN

Date Arrived **07/31/98**

ETC Order Number **9807A24**

ETC Lab ID **9807A24-03**

Sample ID: RA-A-005

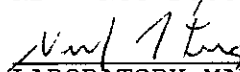
QC Batch : P04012

Matrix : **SOIL**

Sample Date : **07/31/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Semi-Volatile PAH				08/01/98	08/02/98	RR	8270C 3550B
Acenaphthene	ND	ug/Kg	67				
Acenaphthylene	ND	ug/Kg	67				
Anthracene	ND	ug/Kg	67				
Benzo(a)anthracene	ND	ug/Kg	67				
Benzo(b)fluoranthene	ND	ug/Kg	67				
Benzo(k)fluoranthene	ND	ug/Kg	67				
Benzo(g,h,i)perylene	ND	ug/Kg	67				
Benzo(a)pyrene	ND	ug/Kg	67				
Chrysene	ND	ug/Kg	67				
Dibenzo(a,h)anthracene	ND	ug/Kg	67				
Fluoranthene	ND	ug/Kg	67				
Fluorene	ND	ug/Kg	67				
Indeno(1,2,3-cd)pyrene	ND	ug/Kg	67				
Naphthalene	ND	ug/Kg	67				
Phenanthrene	ND	ug/Kg	67				
Pyrene	ND	ug/Kg	67				
Surrogate Standard	% Recovery		QC Limits				
S1 - Nitrobenzene-d5	41		39 80				
S2 - 2-Fluorobiphenyl	53		43 84				
S3 - 4-Terphenyl-d14	73		40 121				

ND - Not Detected


LABORATORY MANAGER

000019

378 525

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9807-A24-3

Lab Name: ETC, INC. Contract: _____
Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: 9807-A24
Matrix: (soil/water) SOIL Lab Sample ID: _____
Sample wt/vol: 30.9 (g/mL) G Lab File ID: 1501015
Level: (low/med) LOW Date Received: _____
% Moisture: _____ decanted: (Y/N) _____ Date Extracted: _____
Concentrated Extract Volume: 1(mL) Date Analyzed: 08/02/98
Injection Volume: 1.0(uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 8017-34-3	TECHNICAL CHLOROPHENOTHANE	14.83	415	NJ
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
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FORM I BNA-GCMS-TIC

000020

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

378 526

Client Name **OHM Remediation Services** Project **20560**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092
Site ID **DDMT**
Memphis, TN

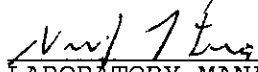
Date Arrived 07/31/98
ETC Order Number 9807A24

ETC Lab ID **9807A24-01**
Sample ID: RA-A-003
QC Batch : P06009

Matrix :SOIL
Sample Date :07/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCL Pesticides				08/01/98	08/01/98	DC	8081A
Alpha-BHC	ND	ug/Kg	2.00				
Beta-BHC	ND	ug/Kg	2.00				
Delta-BHC	ND	ug/Kg	2.00				
Gamma-BHC (Lindane)	ND	ug/Kg	2.00				
Heptachlor	ND	ug/Kg	2.00				
Aldrin	ND	ug/Kg	2.00				
Heptachlor Epoxide	8.15	ug/Kg	2.00				
Endosulfan I	ND	ug/Kg	2.00				
Dieldrin	42.2	ug/Kg	2.00				
4,4'-DDE	58.6	ug/Kg	2.00				
Endrin	ND	ug/Kg	2.00				
Endosulfan II	ND	ug/Kg	2.00				
4,4'-DDD	ND	ug/Kg	2.00				
Endosulfan Sulfate	ND	ug/Kg	2.00				
4,4'-DDT	105	ug/Kg	2.00				
Endrin Aldehyde	ND	ug/Kg	2.00				
Endrin Ketone	ND	ug/Kg	2.00				
Methoxychlor	ND	ug/Kg	2.00				
alpha-Chlordane	14.6	ug/Kg	2.00				
gamma-Chlordane	7.49	ug/Kg	2.00				
Chlordane - Technical	84.5	ug/Kg	25				
Toxaphene	ND	ug/Kg	35				
Surrogate Standard			% Recovery	QC Limits			
S1 - Decachlorobiphenyl	85			64	154		
S2 - Tetrachloro-m-xylene	87			39	130		

ND - Not Detected


LABORATORY MANAGER

000021

378 527

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project **20560**

Site ID **DDMT**
Memphis, TN

Date Arrived **07/31/98**
 ETC Order Number **9807A24**

ETC Lab ID **9807A24-02**
Sample ID: RA-A-004
QC Batch : P06009

Matrix : **SOIL**
 Sample Date : **07/31/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCL Pesticides				08/01/98	08/02/98	DC	8081A
Alpha-BHC	ND	ug/Kg	2.00				
Beta-BHC	ND	ug/Kg	2.00				
Delta-BHC	ND	ug/Kg	2.00				
Gamma-BHC (Lindane)	ND	ug/Kg	2.00				
Heptachlor	ND	ug/Kg	2.00				
Aldrin	ND	ug/Kg	2.00				
Heptachlor Epoxide	13.9	ug/Kg	2.00				
Endosulfan I	ND	ug/Kg	2.00				
Dieldrin	80.4	ug/Kg	2.00				
4,4'-DDE	77.6	ug/Kg	2.00				
Endrin	ND	ug/Kg	2.00				
Endosulfan II	ND	ug/Kg	2.00				
4,4'-DDD	2.83	ug/Kg	2.00				
Endosulfan Sulfate	ND	ug/Kg	2.00				
4,4'-DDT	334	ug/Kg	2.00				
Endrin Aldehyde	ND	ug/Kg	2.00				
Endrin Ketone	ND	ug/Kg	2.00				
Methoxychlor	ND	ug/Kg	2.00				
alpha-Chlordane	32.3	ug/Kg	2.00				
gamma-Chlordane	17.7	ug/Kg	2.00				
Chlordane - Technical	148	ug/Kg	25				
Toxaphene	ND	ug/Kg	35				
Surrogate Standard	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	74		64 154				
S2 - Tetrachloro-m-xylene	79		39 130				

ND - Not Detected

V.W. / J. King
 LABORATORY MANAGER

000022

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project 20560

Site ID DDMT
 Memphis, TN

Date Arrived 07/31/98

ETC Order Number 9807A24

ETC Lab ID 9807A24-03

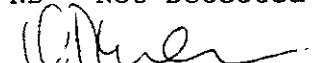
Sample ID: RA-A-005**QC Batch : P06009**

Matrix :SOIL

Sample Date :07/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCL Pesticides				08/01/98	08/02/98	DC	8081A
Alpha-BHC	ND	ug/Kg	2.00				
Beta-BHC	ND	ug/Kg	2.00				
Delta-BHC	ND	ug/Kg	2.00				
Gamma-BHC (Lindane)	ND	ug/Kg	2.00				
Heptachlor	ND	ug/Kg	2.00				
Aldrin	ND	ug/Kg	2.00				
Heptachlor Epoxide	4.80	ug/Kg	2.00				
Endosulfan I	ND	ug/Kg	2.00				
Dieldrin	262	ug/Kg	2.00				
4,4'-DDE	143	ug/Kg	2.00				
Endrin	ND	ug/Kg	2.00				
Endosulfan II	ND	ug/Kg	2.00				
4,4'-DDD	ND	ug/Kg	2.00				
Endosulfan Sulfate	ND	ug/Kg	2.00				
4,4'-DDT	282	ug/Kg	2.00				
Endrin Aldehyde	ND	ug/Kg	2.00				
Endrin Ketone	ND	ug/Kg	2.00				
Methoxychlor	ND	ug/Kg	2.00				
alpha-Chlordane	77.3	ug/Kg	2.00				
gamma-Chlordane	59.4	ug/Kg	2.00				
Chlordane - Technical	506	ug/Kg	25				
Toxaphene	ND	ug/Kg	35				
Surrogate Standard	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	79		64 154				
S2 - Tetrachloro-m-xylene	84		39 130				

ND - Not Detected


 LABORATORY MANAGER

000023

378 529

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400

Project **20560**

Site ID **DDMT**
Memphis, TN

Date Arrived 07/31/98
ETC Order Number 9807A24

ETC Lab ID **9807A24-01**
Sample ID: RA-A-003
QC Batch : P06009

Matrix :SOIL
Sample Date :07/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				08/01/98	08/01/98	RG	8082 3550B
PCB-1016	ND	ug/Kg	35				
PCB-1221	ND	ug/Kg	35				
PCB-1232	ND	ug/Kg	35				
PCB-1242	ND	ug/Kg	35				
PCB-1248	ND	ug/Kg	35				
PCB-1254	ND	ug/Kg	35				
PCB-1260	ND	ug/Kg	35				
<u>Surrogate Standard</u>	<u>% Recovery</u>		<u>QC Limits</u>				
S1 - Decachlorobiphenyl	112		64 154				
S2 - Tetrachloro-m-xylene	79		39 130				

ND - Not Detected


LABORATORY MANAGER

000024

378 530

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Project **20560**

Site ID **DDMT**
Memphis, TN

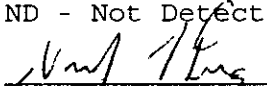
Date Arrived **07/31/98**
ETC Order Number **9807A24**

ETC Lab ID **9807A24-02**
Sample ID: RA-A-004
QC Batch : P06009

Matrix : **SOIL**
Sample Date : **07/31/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				08/01/98	08/01/98	DC	8082 3550B
PCB-1016	ND	ug/Kg	35				
PCB-1221	ND	ug/Kg	35				
PCB-1232	ND	ug/Kg	35				
PCB-1242	ND	ug/Kg	35				
PCB-1248	ND	ug/Kg	35				
PCB-1254	ND	ug/Kg	35				
PCB-1260	ND	ug/Kg	35				
Surrogate Standard	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	111		64	154			
S2 - Tetrachloro-m-xylene	74		39	130			

ND - Not Detected


LABORATORY MANAGER

000025

378 531

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

ORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services** Project **20560**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092
Site ID **DDMT**
Memphis, TN

Date Arrived 07/31/98
ETC Order Number 9807A24

ETC Lab ID **9807A24-03**
Sample ID: RA-A-005
QC Batch : P06009

Matrix :SOIL
Sample Date :07/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				08/01/98	08/02/98	DC	8082 3550B
PCB-1016	ND	ug/Kg	35				
PCB-1221	ND	ug/Kg	35				
PCB-1232	ND	ug/Kg	35				
PCB-1242	ND	ug/Kg	35				
PCB-1248	ND	ug/Kg	35				
PCB-1254	ND	ug/Kg	35				
PCB-1260	ND	ug/Kg	35				
Surrogate Standard							
	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	131		64 154				
S2 - Tetrachloro-m-xylene	69		39 130				

ND - Not Detected

[Signature]
LABORATORY MANAGER

000026

Environmental Testing & Consulting, Inc.

**Quality Control Reports
Inorganics**

378 533

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
INORGANICS

Client Name : OHM Remediation Services Corp. .
Project Name : Defense Depot - Memphis TN
ETC Order # : 9807-A24

HOLDING TIMES

Sample Analysis : All samples analyzed within Method Specified
Holding Times.

CALIBRATION

Laboratory Control Sample : All criteria met.

QUALITY CONTROL

Matrix Spike

Spike Recovery : All analytes within QC limits

Method Blank

No Target Analytes detected above Detection Limit.


Laboratory Manager

000028

Environmental Testing & Consulting, Inc.
Inorganic QC Data Summary

Client Name OHM Remediation Services
Project Defense Depot-Memphis, TN

ETC Order Number 9807A24
File Name 9807A24 QC1

Method Blank

Analyte	Date Analyzed	Blank Concentration mg/Kg	QC Batch
Cyanide	08/03/98	<1.00	CY080398

Calibration Verification (CV)

Analyte	Date Analyzed	CV Conc mg/Kg	CV Conc Found	% Difference
Cyanide	08/03/98	0.200	0.211	5.5

Laboratory Control Sample (LCS)

Analyte	Date Analyzed	LCS Conc mg/Kg	LCS Conc Found	% Recovery
Cyanide	08/03/98	20.0	19.5	98

Matrix Spike

Sample ID	Analyte	Spike mg/Kg	Sample mg/Kg	MS Conc Found	MS % Recovery	QC Limits	RPD
9807-A24-01MS	Cyanide	20.0	<1.00	19.8	99	70-130	
9807-A24-01MSD	Cyanide	20.0	<1.00	20.6	103	70-130	4

000029

378 535

Environmental Testing & Consulting, Inc.

Quality Control Reports

Metals (ICP/GFAA/CV)

000030

ENVIRONMENTAL TESTING AND CONSULTING, INC.
 MEMPHIS, TN
 CASE NARRATIVE
 METALS - SOIL

Client Name : OHM Remediation Services Corp.
 Project Name : Defense Depot - Memphis TN
 ETC Order # : 9807-A24

HOLDING TIMES

QC Batch(s) for this order : ICP/GFAA V7-SO-66
 Mercury V4-SO-22

Sample Analysis : All samples digested and analyzed within 180 days of collection.
 Mercury Analysis : All samples analyzed within 28 days of collection.

CALIBRATION

Initial Calibration : All criteria met.
 Continuing Calibration : All criteria met.

SAMPLE ANALYSIS

Instrumentation : Thermo Jarrell Ash Enviro-I ICP
 Varian 640Z Zeeman Graphite Furnace
 Perkin Elmer 5100ZL Graphite Furnace
 Perkin Elmer 6000 Graphite Furnace
 Thermo Jarrell Ash AA-Scan 4 Graphite Furnace
 CETAC M-6000A Mercury Analyzer

Dilutions Required : No dilutions required.*

*
 Dilutions were performed on several samples to bring the Target Analyte(s) within calibration range (C) or to remove spectral interference (I) as indicated.

Sample ID	Dilution	Metal	Factor	Sample ID	Dilution	Metal	Factor
9807-A24-01	Arsenic	1:2 (C)		9807-A24-02	Lead	1:10 (C)	
9807-A24-01	Iron	1:5 (C)		9807-A24-03	Arsenic	1:2 (C)	
9807-A24-01	Lead	1:4 (C)		9807-A24-03	Aluminum	1:5 (C)	
9807-A24-02	Arsenic	1:2 (C)		9807-A24-03	Iron	1:5 (C)	
9807-A24-02	Iron	1:5 (C)		9807-A24-03	Lead	1:4 (C)	

Due to low recoveries and failing Post Digestion Spike, all Selenium data was reported based on the Method of Standard Additions.

QUALITY CONTROL

9807-A24.MQCBLANK
Method Blank
 V7-SO-66BLK - ICP/GFAA Metals
 V4-SO-22BLK - Mercury

Calcium identified in V7-SO-66BLK AT 1.76 mg/Kg.
 Sodium identified in V7-SO-66BLK AT 8.52 mg/Kg.

000031

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
METALS - SOIL

Client Name : _OHM Remediation Services Corp.
Project Name : _Defense Depot - Memphis TN

ETC Order # : _9807-A24

QUALITY CONTROL

9807-A24.MQCLCS

Laboratory Control Sample(s)
V7-SO-66LCS - ICP/GFAA Metals
V4-SO-22LCS - Mercury

All criteria met.

9807-A24.MQCMSMSD

Matrix Spike / Matrix Spike Dup - ICP Metals

9807-A24-03

RPD : All analytes within QC limits.

RA-A-005

Spike Recovery : All analytes within QC limits.*

* Recoveries for Antimony were flagged as outside QC Limits in the Matrix Spike and Matrix Spike Duplicate. A Post Digestion Spike was performed for verification :

<u>Analyte</u>	<u>mg/L</u> <u>Expected</u>	<u>mg/L</u> <u>Found</u>	<u>%</u> <u>Recovery</u>	<u>QA</u> <u>Evaluation</u>
Antimony	0.500	0.510	102	Pass

Recoveries for multiple analytes were flagged as outside QC Limits due to the level of these analytes present in the sample relative to the spike amounts. In addition, concentrations of other analytes were high relative to the spike amounts. Dilution Tests was performed for verification :

<u>Analyte</u>	<u>No</u> <u>Dilution</u>	<u>1:5</u> <u>Dilution</u>	<u>1:25</u> <u>Dilution</u>	<u>%</u> <u>Difference</u>	<u>QA</u> <u>Evaluation</u>
Aluminum	-----	14300 mg/Kg	13900 mg/Kg	3	Pass
Calcium	1760	1800	-----	2	Pass
Iron	-----	24200	23800	2	Pass
Potassium	1120	1040	-----	7	Pass
Magnesium	2630	2620	-----	0	Pass
Manganese	723	734	-----	2	Pass
Zinc	72.5	73.3	-----	1	Pass

Refer to Laboratory Control Sample(s) for system verification.

000032

378 538

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
METALS - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot - Memphis TN
ETC Order # : 9807-A24

QUALITY CONTROL

Matrix Spike / Matrix Spike Dup - Graphite Metals

9807-A24-03 RPD : All analytes within QC limits.
RA-A-005 Spike Recovery : All analytes within QC limits.*
*

Recoveries for Arsenic and Lead were flagged as outside QC Limits due to the level of this analyte present relative to the spike amount. Dilution Tests were performed for verification :

<u>Analyte</u>	<u>1:2 Dilution</u>	<u>1:10 Dilution</u>	<u>% Difference</u>	<u>QA Evaluation</u>
Arsenic	21.1 mg/Kg	20.2 mg/Kg	4	Pass
Lead	16.4	15.4	6	Pass

Recoveries for Lead were flagged as outside QC Limits in the Matrix Spike and Matrix Spike Duplicate. The Post Digestion Spike failed evaluation criteria. All data was reported based on MSA. Refer to Laboratory Control Sample(s) for system verification.

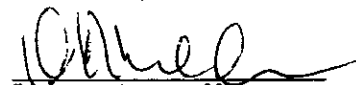
Matrix Spike / Matrix Spike Dup - Hg

9807-A24-03 RPD : All analytes within QC limits.
RA-A-005 Spike Recovery : All analytes within QC limits.

Refer to Laboratory Control Sample(s) for system verification.

Dilution Test - Dilution result must agree within 10% of original result when sample is diluted by a factor of 5.

Post Digestion Spike - Recovery must be +/-15% of expected value.


Laboratory Manager

000033

SOLID METHOD BLANK
METALS

Lab Name

Environmental Testing and Consulting, Inc

Laboratory ID ICP/GFAA Metals

V7-SO-66 BLK

QC Batch

Laboratory ID Mercury

V4-SO-22 BLK

V7-SO-66

V4-SO-22

Date Sample Prepared

08/01/98

ICP/GFAA Metals

08/03/98

Mercury

Metals	Concentration mg/Kg	Detection Limit mg/Kg	Date Analyzed	Method
Silver	<0 700	0 700	08/03/98	6010B
Aluminum	<4 00	4 00	08/03/98	6010B
Arsenic	<0 200	0 200	08/02/98	7060A
Barium	<0 200	0 200	08/03/98	6010B
Beryllium	<0 100	0 100	08/03/98	7091
Calcium	1 76	1 00	08/03/98	6010B
Cadmium	<0 010	0 010	08/03/98	7131
Cobalt	<0 700	0 700	08/03/98	6010B
Chromium	<0 700	0 700	08/03/98	6010B
Copper	<0 600	0 600	08/03/98	6010B
Iron	<0 700	0 700	08/03/98	6010B
Potassium	<20 0	20 0	08/03/98	6010B
Magnesium	<3 00	3 00	08/03/98	6010B
Manganese	<0 200	0 200	08/03/98	6010B
Sodium	8 52	3 00	08/03/98	6010B
Nickel	<1 50	1 50	08/03/98	6010B
Lead	<0 100	0 100	08/02/98	7421
Antimony	<3 20	3 20	08/03/98	6010B
Selenium	<0 200	0 200	08/02/98	7740
Thallium	<0 100	0 100	08/03/98	7841
Vanadium	<0 800	0 800	08/03/98	6010B
Zinc	<1 00	1 00	08/03/98	6010B
Mercury	<0 020	0 020	08/03/98	7471

Metals Blank

9807-a24 mqcBLANK

000034

SOLID LABORATORY CONTROL SAMPLE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory Control ID	ICP/GFAA Metals <u>V7-SO-66</u> LCS	QC Batch <u>V7-SO-66</u>
	Mercury <u>V4-SO-22</u> LCS	<u>V4-SO-22</u>

Date Prepared	ICP/GFAA Metals <u>08/01/98</u>
	Mercury <u>08/03/98</u>

Metals	Spike Added mg/Kg	Found mg/Kg	% R	#	QC Limits
Silver	20 0	20 3	102		80 120
Aluminum	200	213	107		80 120
Arsenic	5 00	5 15	103		85 115
Barium	200	202	101		80 120
Beryllium	20 0	19 6	98		80 120
Calcium	400	431	108		80 120
Cadmium	20 0	20 6	103		80 120
Cobalt	100	102	102		80 120
Chromium	40 0	40 0	100		80 120
Copper	40 0	41 3	103		80 120
Iron	200	209	105		80 120
Potassium	400	411	103		80 120
Magnesium	400	405	101		80 120
Manganese	20 0	20 8	104		80 120
Sodium	400	432	108		80 120
Nickel	100	103	103		80 120
Lead	2 00	2 02	101		85 115
Antimony	200	205	103		80 120
Selenium	5 00	5 09	102		85 115
Thallium	2 00	1 94	97		85 115
Vanadium	100	103	103		80 120
Zinc	20 0	23 8	119		80 120
Mercury	0 167	0 153	92		80 120

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits

Metals Laboratory Control Sample

9807-a24 mqcLCS

000035

SOLID MATRIX SPIKE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP/GFAA Metals	9807-A24-03	QC Batch V7-SO-66
Laboratory ID MS Mercury	9807-A24-03	V4-SO-22

Date Sample Prepared	08/01/98	ICP/GFAA Metals
	08/03/98	Mercury

Metals	SPIKE Added mg/Kg	SAMPLE Conc mg/Kg	MS Conc mg/Kg	RPD <20% #	MS % Rec #	QC Limits	
Silver	21 6	ND	20 8	1	96	75	125
Aluminum	216	14300	12400	5	-880 *	75	125
Arsenic	5 84	21 1	22 5	5	24 *	70	130
Barium	216	142	372	7	107	75	125
Beryllium	21 6	0 570	21 3	2	96	75	125
Calcium	433	1760	2530	4	178 *	75	125
Cadmium	21 6	ND	21 3	2	99	75	125
Cobalt	108	10 4	117	3	99	75	125
Chromium	43 3	18 2	56 3	2	88	75	125
Copper	43 3	22 4	64 0	0	96	75	125
Iron	216	24200	22800	11	-648 *	75	125
Potassium	433	1120	1300	5	42 *	75	125
Magnesium	433	2630	2910	5	65 *	75	125
Manganese	21 6	723	890	18	773 *	75	125
Sodium	433	91 4	520	4	99	75	125
Nickel	108	18 6	127	2	100	75	125
Lead	2 33	16 4	17 4	5	43 *	70	130
Antimony	216	ND	0	0	0 *	75	125
Selenium	5 84	0 423	3 71	2	56 *	70	130
Thallium	2 33	0 302	2 21	4	82	70	130
Vanadium	108	26 5	121	1	88	75	125
Zinc	21 6	72 5	96 6	10	112	75	125
Mercury	0 178	0 041	0 205	4	92	75	125

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits ND - Not Detected

Metals Matrix Spike

9807-a24 mqcMSMSD

000036

SOLID MATRIX SPIKE DUPLICATE
METALS

Lab Name Environmental Testing and Consulting, Inc

	QC Batch
Laboratory ID MS ICP/GFAA Metals	9807-A24-03 V7-SO-66
Laboratory ID MS Mercury	<u>9807-A24-03 V4-SO-22</u>

Date Sample Prepared	08/01/98	ICP/GFAA Metals
	<u>08/03/98</u>	Mercury

Metals	SPIKE Added mg/Kg	SAMPLE Conc mg/Kg	MSD Conc mg/Kg		MSD % Rec	#	QC Limits	
Silver	22 0	ND	21 0		96		75	125
Aluminum	220	14300	11800		-1136	*	75	125
Arsenic	5 95	21 1	21 3		3	*	70	130
Barium	220	142	347		93		75	125
Beryllium	22 0	0 570	21 7		96		75	125
Calcium	441	1760	2430		152	*	75	125
Cadmium	22 0	ND	21 7		99		75	125
Cobalt	110	10 4	114		94		75	125
Chromium	44 1	18 2	57 6		89		75	125
Copper	44 1	22 4	64 0		94		75	125
Iron	220	24200	20400		-1727	*	75	125
Potassium	441	1120	1360		54	*	75	125
Magnesium	441	2630	2760		30	*	75	125
Manganese	22 0	723	744		96		75	125
Sodium	441	91 4	501		93		75	125
Nickel	110	18 6	124		96		75	125
Lead	2 38	16 4	16 5		4	*	70	130
Antimony	220	ND	7 67		4	*	75	125
Selenium	5 95	0 423	3 63		54	*	70	130
Thallium	2 38	0 302	2 13		77		70	130
Vanadium	110	26 5	120		85		75	125
Zinc	22 0	72 5	87 1		66	*	75	125
Mercury	0 189	0 041	0 213		91		75	125

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits

ND - Not Detected

Metals Matrix Spike Duplicate

9807-a24 mqcMSMSD

000037

378 543

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC/MS Semi-Volatiles

000038

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot - Memphis TN

ETC Order # : 9807-A24
Method (SW-846) : 8270C/3550B

HOLDING TIMES

Sample Extraction : All soil samples extracted within 14 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
P04012 P04012LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.*

*
Surrogate recoveries for Nitrobenzene-d5 and 2-Fluorobiphenyl were flagged as outside QC Limits in sample 9807-A24-02 (RA-A-004) and P04012LB. Review of extraction information and the raw data showed no obvious matrix interference. Sample 9807-A24-02 was re-analyzed for verification with similar recoveries.

Laboratory Control Sample FORM 3
P04012LCS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9806-986-05 RPD : All analytes within QC limits.
FTCA02-CW30-075-01 Spike Recovery : All analytes within QC limits.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
P04012LB

No Target Analytes detected above Practical Quantitation Limit.
Di-n-Butylphthalate identified in P04012LB at 102J ug/Kg.

CALIBRATION

DFTPP Daily 12 Hour Tune : All criteria met. FORM 5
Initial Calibration : All criteria met. FORM 6
Daily Calibration : All criteria met. FORM 7A

Semi-Volatile Internal Standard Area and RT FORM 8
Daily Check Standard(s) Internal Standard Areas and Retention Times
within QC limits.

378 '545

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot - Memphis TN
ETC Order # : 9807-A24
Method (SW-846) : 8270C/3550B

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC, 5971MSD
Dilutions Required : No dilutions required.


Laboratory Manager

000040

FORM 2
SOIL BNA-GCMS SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-A24

Level:(low/med) LOW

	CLIENT SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	S7 #	S8 #	TOT OUT
01	P04012LB	78	79	83*	89*	83	83			2
02	P04012LCS	65	70	71	78	80	93			0
03	9807-A24-1	0	0	55	69	0	77			0
04	9807-A24-2	0	0	10*	15*	0	45			2
05	9807-A24-3	0	0	41	53	0	73			0
06	9806-986-5	57	63	49	60	72	72			0
07	9806-986-5MS	61	64	52	66	83	78			0
08	9806-986-5MS	72	71	54	74	87	73			0
09	9807-A24-2	0	0	10*	16*	0	42			2
10										
11										
12										
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QC LIMITS

S1 (2FP) = 2-Fluorophenol (23- 89)
 S2 (PHL) = Phenol-d6 (31- 94)
 S3 (NBZ) = Nitrobenzene-d5 (39- 80)
 S4 (FBP) = 2-Fluorobiphenyl (43- 84)
 S5 (TBP) = 2,4,6-Tribromophenol (17- 91)
 S6 (TPH) = Terphenyl-d14 (40-121)

Column to be used to flag recovery values
 * Values outside of contract required QC limits
 D Surrogate diluted out

378 547

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

Lab Name: ETC, INC.

P04012LB

Lab Prep Batch: P04012

SDG No.: 9807-A24

Lab File ID: 1101011

Instrument ID: BNA2

Matrix: (soil/water) SOIL

Date Analyzed: 08/02/98

Level:(low/med) LOW

Time Analyzed: 1551

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P04012LCS		1201012	08/02/98
02	9807-A24-1		1301013	08/02/98
03	9807-A24-2		1401014	08/02/98
04	9807-A24-3		1501015	08/02/98
05	9806-986-5		1601016	08/02/98
06	9806-986-5MS		1701017	08/02/98
07	9806-986-5MS		1801018	08/02/98
08	9807-A24-2		1401023	08/02/98
09				
10				
11				
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COMMENTS:

378 548

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

P04012LB

Lab Name: ETC, INC.

SDG No.: 9807-A24

Matrix: (soil/water) SOIL

Lab Prep Batch: P04012

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 1101011

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1(mL)

Date Analyzed: 08/02/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

110-86-1-----	Pyridine	667	U
108-95-2-----	Phenol	667	U
95-57-8-----	2-Chlorophenol	667	U
541-73-1-----	1,3-Dichlorobenzene	667	U
106-46-7-----	1,4-Dichlorobenzene	667	U
100-51-6-----	Benzyl Alcohol	1330	U
95-50-1-----	1,2-Dichlorobenzene	667	U
95-48-7-----	2-Methylphenol	667	U
39638-32-9-----	bis(2-Chloroisopropyl)ether	667	U
621-64-7-----	N-Nitrosodipropylamine	667	U
106-44-5-----	3&4-Methylphenol	667	U
67-72-1-----	Hexachloroethane	667	U
98-95-3-----	Nitrobenzene	667	U
78-59-1-----	Isophorone	667	U
88-75-5-----	2-Nitrophenol	667	U
105-67-9-----	2,4-Dimethylphenol	667	U
111-91-1-----	Bis(2-chloroethoxy)methane	667	U
65-85-0-----	Benzoic Acid	3330	U
120-83-2-----	2,4-Dichlorophenol	667	U
91-20-3-----	Naphthalene	67.0	U
106-47-8-----	4-Chloroaniline	1330	U
87-68-3-----	Hexachlorobutadiene	667	U
59-50-7-----	4-Chloro-3-Methylphenol	1330	U
91-57-6-----	2-Methylnaphthalene	667	U
77-47-4-----	Hexachlorocyclopentadiene	667	U
88-06-2-----	2,4,6-Trichlorophenol	667	U
95-95-4-----	2,4,5-Trichlorophenol	667	U
91-58-7-----	2-Chloronaphthalene	667	U
88-74-4-----	2-Nitroaniline	3330	U
208-96-8-----	Acenaphthylene	67.0	U
606-20-2-----	2,6-Dinitrotoluene	667	U
99-09-2-----	3-Nitroaniline	3330	U
83-32-9-----	Acenaphthene	67.0	U

FORM I BNA-GCMS

000043

378 549

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: ETC, INC.

P04012LB

SDG No.: 9807-A24

Matrix: (soil/water) SOIL

Lab Prep Batch: P04012

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 1101011

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 08/02/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5-----	2,4-Dinitrophenol	3330	U
132-64-9-----	Dibenzofuran	667	U
100-02-7-----	4-Nitrophenol	3330	U
121-14-2-----	2,4-Dinitrotoluene	667	U
86-73-7-----	Fluorene	67.0	U
131-11-3-----	Dimethylphthalate	667	U
84-66-2-----	Diethylphthalate	667	U
7005-72-3-----	4-Chlorophenyl-phenylether	667	U
100-01-6-----	4-Nitroaniline	1330	U
534-52-1-----	4,6-Dinitro-2-methylphenol	3330	U
86-30-6-----	Diphenylamine/n-NDPA	667	U
101-55-3-----	4-Bromophenyl-phenylether	667	U
118-74-1-----	Hexachlorobenzene	667	U
87-86-5-----	Pentachlorophenol	3330	U
85-01-8-----	Phenanthrene	67.0	U
120-12-7-----	Anthracene	67.0	U
84-74-2-----	Di-n-Butylphthalate	102	J
206-44-0-----	Fluoranthene	67.0	U
92-87-5-----	Benzidine	3330	U
129-00-0-----	Pyrene	67.0	U
85-68-7-----	Butylbenzylphthalate	667	U
56-55-3-----	Benzo(a)Anthracene	67.0	U
91-94-1-----	3,3'-Dichlorobenzidine	1330	U
218-01-9-----	Chrysene	67.0	U
117-81-7-----	bis(2-ethylhexyl)Phthalate	667	U
117-84-0-----	Di-n-octylphthalate	667	U
205-99-2-----	Benzo(b)fluoranthene	67.0	U
207-08-9-----	Benzo(k)fluoranthene	67.0	U
50-32-8-----	Benzo(a)pyrene	67.0	U
193-39-5-----	Indeno(1,2,3-cd)pyrene	67.0	U
53-70-3-----	Dibenzo(a,h)anthracene	67.0	U
191-24-2-----	Benzo(g,h,i)perylene	67.0	U
111-44-4-----	bis(2-Chloroethyl)ether	667	U

FORM I BNA-GCMS

000044

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

378 550
CLIENT SAMPLE NO.

P04012LB

Lab Name: ETC, INC.

SDG No.: 9807-A24

Matrix: (soil/water) SOIL

Lab Prep Batch: P04012

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 1101011

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1(mL)

Date Analyzed: 08/02/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/Kg)	UG/KG
120-82-1-----	1,2,4-Trichlorobenzene	667	U
86-74-8-----	Carbazole	667	U

FORM I BNA-GCMS

000045

378.551

FORM 3
SOIL BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P04012

SDG No.: 9807-A24

Matrix Spike - Sample No.: P04012LCS

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
Phenol	3330		2250	68	37-103
2-Chlorophenol	3330		2310	69	38-100
1,4-Dichlorobenzene	1670		1030	62	40- 90
N-Nitrosodipropylamine	1670		1180	71	47-110
4-Chloro-3-Methylphenol	3330		2410	72	35-113
Acenaphthene	1670		1360	81	45- 99
4-Nitrophenol	3330		1370	41	9- 92
2,4-Dinitrotoluene	1670		1320	79	34-110
Pentachlorophenol	3330		3120	94	28-124
Pyrene	1670		1610	96	60-127
1,2,4-Trichlorobenzene	1670		1180	71	45- 94

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 11 outside limits

COMMENTS:

FORM III BNA-GCMS

000046

FORM 3

SOIL BNA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P04012

SDG No.: 9807-A24

Matrix Spike - Sample No.: 9806-986-5

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Phenol	5280	0.00	2830	54	37-103
2-Chlorophenol	5280	0.00	3230	61	38-100
1,4-Dichlorobenzene	3180	0.00	2050	64	40- 90
N-Nitrosodipropylamine	4030	0.00	2560	64	47-110
4-Chloro-3-Methylphenol	7420	0.00	3730	50	35-113
Acenaphthene	4060	0.00	2460	60	45- 99
4-Nitrophenol	1590	0.00	1330	84	9- 92
2,4-Dinitrotoluene	3300	0.00	2460	74	34-110
Pentachlorophenol	5810	0.00	4750	82	28-124
Pyrene	4060	0.00	2920	72	60-127
1,2,4-Trichlorobenzene	4090	0.00	2240	55	45- 94

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD REC.
Phenol	5260	3120	59	9	20 37-103
2-Chlorophenol	5260	3710	70	14	20 38-100
1,4-Dichlorobenzene	3170	2300	72	12	20 40- 90
N-Nitrosodipropylamine	4010	2930	73	13	20 47-110
4-Chloro-3-Methylphenol	7400	3830	52	4	20 35-113
Acenaphthene	4050	2620	65	8	20 45- 99
4-Nitrophenol	1580	1320	84	0	20 9- 92
2,4-Dinitrotoluene	3290	2540	77	4	20 34-110
Pentachlorophenol	5790	4860	84	2	20 28-124
Pyrene	4050	2780	69	4	20 60-127
1,2,4-Trichlorobenzene	4080	2510	62	12	20 45- 94

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 11 outside limits

Spike Recovery: 0 out of 22 outside limits

COMMENTS:

FORM III BNA-GCMS

000047

378 553

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC Pesticides

000048

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PESTICIDES - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot - Memphis TN
ETC Order # : 9807-A24
Method (SW-846) : 8081A/3550B

HOLDING TIMES

Sample Extraction : All soil samples extracted within 14 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
P06009 P06009LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.*
*

Surrogate recoveries were flagged as outside QC Limits in samples 9807-A24-02 (RA-A-004) and 9807-A24-03 (RA-A-005). Review of the raw data showed interference from Target Analytes present in the samples. These samples were re-analyzed for verification with recoveries within QC Limits.

Laboratory Control Sample FORM 3
P06009BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9807-A24-02 RPD : All analytes within QC limits.*
RA-A-004 Spike Recovery : All analytes within QC limits.*
*

Recoveries and RPDs for multiple analytes were flagged outside QC Limits in the Matrix Spike and Matrix Spike Duplicate.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
P06009LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration	: All criteria met. FORM 6
Daily Calibration	: All criteria met. FORM 7A
Endrin/Breakdown	: All criteria met. FORM 7

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.


Laboratory Manager

000049

FORM 2
SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-A24

Level: (low/med) LOW

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P06009-LB	79	80							0
02	9807-A24-1	97	80							0
03	9807-A24-2	87	86							0
04	9807-A24-2MS	89	95							0
05	9807-A24-2MS	92	106							0
06	9807-A24-3	93	101							0
07	9807-A24-1	87	85							0
08	9807-A24-2	79	74							0
09	9807-A24-3	84	79							0
10	P06009-BS	99	100							0
11	9807-A24-2	0D	0D							2
12	9807-A24-3	0D	0D							2
13										
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QC LIMITS

S1 (TMX) = Tetrachloro-m-xylene (39-130)

S2 (DBC) = Decachlorobiphenyl (64-154)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

378 556

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

P06009-LB

Lab Name: ETC, INC.

Lab Prep Batch: P06009

SDG No.: 9807-A24

Lab File ID: P308011A-04R

Instrument ID: PEST3A

Matrix: (soil/water) SOIL

Date Analyzed: 08/01/98

Level:(low/med) LOW

Time Analyzed: 1803

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	9807-A24-1		P308011A-06R	08/01/98
02	9807-A24-2		P308011A-07R	08/01/98
03	9807-A24-2M		P308011A-08R	08/01/98
04	9807-A24-2S		P308011A-09R	08/01/98
05	9807-A24-3		P308011A-10R	08/01/98
06	9807-A24-1		P308011A-11R	08/01/98
07	9807-A24-2		P308011A-12R	08/01/98
08	9807-A24-3		P308011A-13R	08/01/98
09	P06009-BS		P308021A-10R	08/02/98
10	9807-A24-2		P308021A-11R	08/02/98
11	9807-A24-3		P308021A-12R	08/02/98
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COMMENTS:

378 557

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

P06009-LB

SDG No.: 9807-A24

Matrix: (soil/water) SOIL

Lab Prep Batch: P06009

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P308011A-04R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10 (mL)

Date Analyzed: 08/01/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
309-00-2-----	Aldrin	1.33333	U
319-84-6-----	alpha-BHC	1.33333	U
319-85-7-----	beta-BHC	1.33333	U
319-86-8-----	delta-BHC	1.33333	U
58-89-9-----	gamma-BHC (Lindane)	1.33333	U
5103-71-9-----	alpha-chlordane	1.33333	U
5103-74-2-----	gamma-chlordane	1.33333	U
72-55-9-----	4,4'-DDE	1.33333	U
72-54-8-----	4,4'-DDD	1.33333	U
50-29-3-----	4,4'-DDT	1.33333	U
60-57-1-----	Dieldrin	1.33333	U
959-98-8-----	Endosulfan I	1.33333	U
33213-65-9-----	Endosulfan II	1.33333	U
1031-07-8-----	Endosulfan sulfate	1.33333	U
72-20-8-----	Endrin	1.33333	U
7421-93-4-----	Endrin aldehyde	1.33333	U
53494-70-5-----	Endrin Ketone	1.33333	U
76-44-8-----	Heptachlor	1.33333	U
1024-57-3-----	Heptachlor epoxide	1.33333	U
72-43-5-----	Methoxychlor	1.33333	U
57-74-9-----	Chlordane-total	8.33333	U
8001-35-2-----	Toxaphene	83.33333	U

FORM I PESTICIDE

000052

FORM 3
SOIL PESTICIDE BLANK SPIKE SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P06009

SDG No.: 9807-A24

Matrix Spike - Sample No.: p06009-bs

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
Aldrin	33.33333		33.22820	100	34-105
alpha-BHC	33.33333		31.56520	95	41-102
beta-BHC	33.33333		36.12364	108	26-151
delta-BHC	33.33333		27.12641	81	21- 92
gamma-BHC (Lindane)	33.33333		32.55613	98	41-102
alpha-chlordane	33.33333		36.14667	108	48-117
gamma-chlordane	33.33333		36.07284	108	51-108
4,4'-DDE	33.33333		36.28867	109	41-111
4,4'-DDD	33.33333		37.69469	113	39-124
4,4'-DDT	33.33333		37.34779	112	39-123
Dieldrin	33.33333		35.07235	105	42-111
Endosulfan I	33.33333		36.13986	108	48-117
Endosulfan II	33.33333		36.29300	109	52-114
Endosulfan sulfate	33.33333		34.31956	103	46-111
Endrin	33.33333		38.25694	115	45-117
Endrin aldehyde	33.33333		35.76576	107	48-125
Endrin Ketone	33.33333		34.76959	104	51-112
Heptachlor	33.33333		35.23086	106	43-114
Heptachlor epoxide	33.33333		35.29890	106	42-115
Methoxychlor	33.33333		36.96409	111	39-140

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 20 outside limits

COMMENTS:

378 559

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P06009

SDG No.: 9807-A24

Matrix Spike - Sample No.: 9807-a24-2

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Aldrin	33.22259	0.00000	30.72113	92	31-111
alpha-BHC	33.22259	0.00000	29.24302	88	22-112
beta-BHC	33.22259	0.00000	34.02491	102	54-120
delta-BHC	33.22259	0.00000	27.77570	84	10- 96
gamma-BHC (Lindane)	33.22259	0.00000	30.73735	92	26-113
alpha-chlordane	33.22259	25.21415	103.00721	234*	49-103
gamma-chlordane	33.22259	14.30339	69.29819	166*	50-106
4,4'-DDE	33.22259	62.86707	169.58015	321*	36-117
4,4'-DDD	33.22259	6.16591	35.86676	89	47-112
4,4'-DDT	33.22259	271.98797	226.34526	-137*	49-124
Dieldrin	33.22259	65.12640	192.28272	383*	44-108
Endosulfan I	33.22259	0.00000	32.86037	99	49-103
Endosulfan II	33.22259	8.77393	41.98082	100	53-115
Endosulfan sulfate	33.22259	3.58211	33.43313	90	51-110
Endrin	33.22259	0.00000	50.43859	152*	44-118
Endrin aldehyde	33.22259	0.00000	39.69113	119	48-128
Endrin Ketone	33.22259	0.00000	31.85588	96	38-130
Heptachlor	33.22259	5.28761	33.37011	84	47-113
Heptachlor epoxide	33.22259	14.12994	36.19188	66	47-112
Methoxychlor	33.22259	0.00000	39.52246	119	39-147

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

000054

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P06009

SDG No.: 9807-A24

Matrix Spike - Sample No.: 9807-a24-2

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Aldrin	32.57329	30.79603	94	2	20	31-111
alpha-BHC	32.57329	30.22834	93	6	20	22-112
beta-BHC	32.57329	35.82707	110	8	20	54-120
delta-BHC	32.57329	28.90842	89	6	20	10- 96
gamma-BHC (Lindane)	32.57329	31.62881	97	5	20	26-113
alpha-chlordane	32.57329	121.75589	296*	23*	20	49-103
gamma-chlordane	32.57329	96.88423	254*	42*	20	50-106
4,4'-DDE	32.57329	205.08750	437*	31*	20	36-117
4,4'-DDD	32.57329	37.22930	95	6	20	47-112
4,4'-DDT	32.57329	276.02538	12*	-238	20	49-124
Dieldrin	32.57329	187.95839	377*	2	20	44-108
Endosulfan I	32.57329	33.42397	103	4	20	49-103
Endosulfan II	32.57329	45.89444	114	13	20	53-115
Endosulfan sulfate	32.57329	32.59072	89	1	20	51-110
Endrin	32.57329	52.50813	161*	6	20	44-118
Endrin aldehyde	32.57329	41.37384	127	6	20	48-128
Endrin Ketone	32.57329	31.14194	96	0	20	38-130
Heptachlor	32.57329	34.48319	90	7	20	47-113
Heptachlor epoxide	32.57329	37.67030	72	9	20	47-112
Methoxychlor	32.57329	40.61994	125	5	20	39-147

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 3 out of 20 outside limits

Spike Recovery: 12 out of 40 outside limits

COMMENTS:

378,561

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC PCBs

000056

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC PCBs - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot - Memphis TN

ETC Order # : 9807-A24
Method (SW-846) : 8082/3550B

HOLDING TIMES

Sample Extraction : All soil samples extracted within 14 days.
Sample Analysis : All samples analyzed within 40 days of
extraction.

QUALITY CONTROL

QC Batch Form 4 Summary
P06009 P06009LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P06009BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9807-A24-02 RPD : All analytes within QC limits.
RA-A-004 Spike Recovery : All analytes within QC limits.*
*

Recoveries for Aroclor 1260 were flagged outside QC Limits in the
Matrix Spike and Matrix Spike Duplicate.

Refer to Laboratory Control Sample(s) for system verification.

Method Blank FORM 4
P06009LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Daily Calibration : All criteria met. FORM 7A

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC
Dilutions Required : No dilutions required.


Laboratory Manager

378 563

FORM 2
SOIL PCB SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9807-A24

Level: (low/med) LOW

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P06009LB	82	126							
02	P06009-BS	90	111							0
03	9807-A24-1	79	112							0
04	9807-A24-2	74	111							0
05	9807-A24-2M	76	128							0
06	9807-A24-2S	62	123							0
07	9807-A24-3	69	131							0
08										
09										
10										
11										
12										
13										
14										
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26										
27										
28										
29										
30										

QC LIMITS
S1 (TMX) = Tetrachloro-m-xylene (39-130)
S2 (DBC) = Decachlorobiphenyl (64-154)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

378 564

FORM 4
PCB METHOD BLANK SUMMARY

EPA GC SAMPLE NO

P06009LB

Lab Name: ETC, INC.

Lab Prep Batch: P06009

SDG No.: 9807-A24

Lab File ID: C408011A-04R

Instrument ID: PEST4A

Matrix: (soil/water) SOIL

Date Analyzed: 08/01/98

Level:(low/med) LOW

Time Analyzed: 1945

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	9807-A24-1		C408011A-09R	08/01/98
02	9807-A24-2		C408011A-10R	08/01/98
03	9807-A24-2M		C408011A-11R	08/02/98
04	9807-A24-2S		C408011A-12R	08/02/98
05	9807-A24-3		C408011A-13R	08/02/98
06	P06009BS		C408011A-05R	08/01/98
07				
08				
09				
10				
11				
12				
13				
14				
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23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

378 565

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

P06009LB

SDG No.: 9807-A24

Matrix: (soil/water) SOIL

Lab Prep Batch: P06009

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: C408011A-04R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 08/01/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/Kg)	UG/KG
			Q
12674-11-2-----	Aroclor 1016	16.67	U
11104-28-2-----	Aroclor 1221	16.67	U
11141-16-5-----	Aroclor 1232	16.67	U
53469-21-9-----	Aroclor 1242	16.67	U
11097-69-1-----	Aroclor 1254	16.67	U
11096-82-5-----	Aroclor 1260	16.67	U
12672-29-6-----	Aroclor 1248	16.67	U

FORM I PCB

000060

FORM 3
SOIL PCB LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P06009

SDG No.: 9807-A24

Matrix Spike - Sample No.: p06009-bs

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
Aroclor 1242	333.3		354.2	106	25-125
Aroclor 1260	333.3		358.8	108	25-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 2 outside limits

COMMENTS:

FORM III PCB

000061

378 567

FORM 3
SOIL PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P06009

SDG No.: 9807-A24

Matrix Spike - Sample No.: 9807-a24-2

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	M CONCENTRATION (ug/Kg)	M % REC #	QC. LIMITS REC.
Aroclor 1242	332.2	0.000	312.3	94	25-125
Aroclor 1260	332.2	0.000	554.9	167*	25-125

COMPOUND	SPIKE ADDED (ug/Kg)	S CONCENTRATION (ug/Kg)	S % REC #	% RPD #	QC LIMITS RPD	REC.
Aroclor 1242	325.7	292.7	90	4	20	25-125
Aroclor 1260	325.7	499.3	153*	9	20	25-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 2 outside limits
Spike Recovery: 2 out of 4 outside limits

COMMENTS:

FORM III PCB

000062

**IMPORTED CLEAN BACKFILL (TOP SOIL)
CONFIRMATION SAMPLE**

Dated Collected 08/04/98

RA-TSA-001 (Organic Matter)



August 5, 1998

Ms. Elena Rodriguez
OHM Remediation Services
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Ref: Analytical Testing
ETC Order # 9808065
Project Description DDMT
Memphis, TN
Project # DACA45-96-D-0014

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th/18th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136.

The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Nathan A. Pera, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT

Certifications

Tennessee #TN02027
Arkansas
Alabama #40730
Kentucky #90047
North Carolina #415
South Carolina #84002002

Mississippi
Oklahoma #9311
Virginia #00106
Washington #C248
US Army Corps of Engineers

378,570

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody

000001



OHM Remediation Services Corp
 Subsidiary of OHM Corporation
 U.S. Route 224 East • Findlay, Ohio 45840 • (419) 423-3526

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY
 21788200002

FORM (01/91) 2-97

OHM LAB COORDINATOR		LAB COORDINATOR'S PHONE		LAB COORDINATOR'S FAX		LABORATORY SERVICE ID		LABORATORY CONTACT		MAIL REPORT (COMPANY NAME)	
Elena Rodriguez		770-734-8060		770-453-7716		ETC		Nathan Pera		OHM Remediation Services Corp	
PROJECT NAME		PROJECT LOCATION		PROJECT FAX		LABORATORY PHONE		LABORATORY FAX		RECIPIENT NAME	
DDMT		Memphis, TN		20560		901-327-2750		901-327-6334		Elena Rodriguez	
PROJECT CONTACT		PROJECT PHONE/NUMBER		PROJECT FAX		LABORATORY ADDRESS		ADDRESS			
Steve Offner		901-743-1117		901-743-1048		2924 Walnut Grove Road		5445 Triangle Pkwy, #400			
PROJECT ADDRESS		CITY, STATE AND ZIP CODE		CITY, STATE AND ZIP CODE		CITY, STATE AND ZIP CODE		CITY, STATE AND ZIP CODE			
1708 Dunn Ave.		Memphis, TN 38114		USACE		Memphis, TN 38111		Norcross, GA 30092			
PROJECT MANAGER		PROJECT MANAGER'S PHONE		PROJECT MANAGER'S FAX							
Steve Offner		770-326-2571		770-453-7716							

Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont.	QC Level	TAT	Analyses	Comments
1	RA-TSA-001		8-4-98	1400	NA	1 X 402	OHM	1 DAY		Please fax results on DUE DATE to SITE and to Lab Coordinator
2										
3										
4										
5										
6										
7										
8										
9										
10										

SAMPLES COLLECTED BY: S. Grant		COPIES AND AIR/HEAT NUMBER: Delivered in Person		COOLER TEMPERATURE UPON RECEIPT	
RETURNED BY: [Signature]		RECEIVED BY: [Signature]		DATE: 8-4-98 TIME: 1545	
Distribution White - Laboratory (To be returned with Analytical Report), Goldenrod - Project File, Yellow - Project Data Manager					

378,572

COOLER RECEIPT FORM

Cooler Receipt Form
9808065 CRF p 1

LIMS # 9808-065 Number of Coolers 1
 Date Received 08/04/98
 PROJECT DDMT/Memphis, TN VDTSR 08/04/98 15 45

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS

A PRELIMINARY EXAMINATION PHASE Date cooler was opened 08/04/98
 by (print) Lynette Bugg (sign) [Signature]

1 Did cooler come with a shipping slip (airbill, etc)? NO
 If YES, enter carrier name & airbill number _____

2a Were custody seals on outside of cooler? NO

2b Were custody seals on sample containers? NO

3 Were custody seals unbroken and intact at the date and time of arrival? NA

4 Did you screen samples for radioactivity using a Geiger Counter? NO

5 Were custody papers sealed in a plastic bag & taped inside to the lid? NO

6 Were custody papers filled out properly (ink, signed, etc)? YES

7 Did you sign custody papers in the appropriate place? YES

8 Was project identifiable from custody papers? If YES, enter project name at top of this form YES

9 If required, was enough ice used? cooler temp <4°C, Type of ice Crushed YES

10 Have designated person initial here to acknowledge receipt of cooler LB date 08/04/98

B LOG-IN PHASE Date samples were logged-in 08/04/98
 by (print) Lynette Bugg (sign) [Signature]

11 Describe type of packing in cooler Ice

12 Were all bottles sealed in separate plastic bags? YES

13 Did all bottles arrive unbroken and were labels in good condition? YES

14 Were all bottle labels complete (ID, date, time, signature, preserved, etc)? YES

15 Did all bottle labels agree with custody papers? YES

16 Were correct containers used for the tests indicated? YES

17 Were correct preservatives added to samples? YES

18 Was a sufficient amount of sample sent for tests indicated? YES

19 Were bubbles absent in VOA samples? If NO, list by sample# NA

20 Was the project manager called and status discussed? If YES, give details on the back of this form NO

21. Who was called? _____ By whom? _____ (date) _____

VDTSR - Validated Date/Time of Sample Receipt (Date sample is logged into LIMS system)

Environmental Testing & Consulting, Inc.

Sample Reports

378 574

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750
INORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092
e ID **DDMT**
Memphis, TN

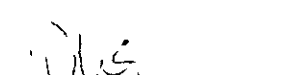
Project # **DACA45-96-**

e Arrived **08/04/98**
Order Number **9808065**

Lab ID **9808065-01**
Sample ID: RA-TSA-001

Matrix : **SOIL**
Sample Date : **08/04/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Functional Organic Matter	1.20	%	0	08/05/98	D2974-87	OM080598


LABORATORY MANAGER

000004

Environmental Testing & Consulting, Inc.

**Quality Control Reports
Inorganics**

378 576 .

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
INORGANICS

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-065

HOLDING TIMES

Sample Analysis : All samples analyzed within Method Specified
Holding Times.

QUALITY CONTROL

Duplicates

RPD : All analytes within QC limits*

*

Organic Matter is a calculation using Percent Ash results. %RPD
is excessively high due to extremely low result. %RPD of the
Percent Ash analysis was 0.3%.

J. D. Mc
Laboratory Manager

000006

Environmental Testing & Consulting, Inc.
Inorganic QC Data Summary

Client Name OHM Remediation Services
Project Defense Depot Memphis TN

ETC Order Number 9808-065

File Name 9808-065 1

Duplicates

Sample ID	Analysis	Sample Result %	Duplicate Result %	% RPD <20%
9808-065	Organic Matter	1 20	0 91	27.0*

* Refer to Case Narrtive

**IMPORTED CLEAN BACKFILL (TOP SOIL)
CONFIRMATION SAMPLE**

Dated Collected 08/12/98

RA-TSA-002 (Organic Matter & pH)

378 579



ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334

Founded 1972

August 14, 1998

Ms. Elena Rodriguez
OHM Remediation Services
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Ref: Analytical Testing
ETC Order # 9808397
Project Description DDMT

Project # 20560 Defense Depot - Memphis, TN

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th/18th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136.

The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read 'N. Pera'.

Nathan A. Pera, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT

Date OK
SP
8/21/98

Environmental Testing and Consulting, Inc.
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

Cross Reference Table

Project : DDMT

Sample ID
RA-TSA-002

Laboratory ID
9808-397-01

378 581

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody

000002



OHM Remediation Services Corp
 Subsidiary of OHM Corporation
 U.S. Route 224 East • Findlay, Ohio 45840 • (419) 423-3526

CHAIN-OF-CUSTODY RECORD

 LABORATORY COPY

217885

 FORM 0019 REV 2-97

OHM LAB COORDINATOR Elena Rodriguez		LAB COORDINATOR'S PHONE 770-734-8060		LAB COORDINATOR'S FAX 770-453-7716		LABORATORY SERVICE ID ETC		LABORATORY CONTACT Nathan Pera		MAIL REPORT (COMPANY NAME) OHM Remediation Services Corp	
PROJECT NAME DDMT		PROJECT LOCATION Memphis, TN		PROJECT NUMBER 20560		LABORATORY PHONE 901-327-2750		LABORATORY FAX 901-327-6334		RECIPIENT NAME Elena Rodriguez	
PROJECT CONTACT Steve Offner		PROJECT PHONE NUMBER 901-743-1117		PROJECT FAX 901-743-1048		LABORATORY ADDRESS 2924 Walnut Grove Road		LABORATORY ADDRESS 2924 Walnut Grove Road		ADDRESS 5445 Triangle Pkwy, #400	
PROJECT ADDRESS 1708 Dunn Ave.		CITY, STATE AND ZIP CODE Memphis, TN 38114		CLIENT USACE		CITY, STATE AND ZIP CODE Memphis TN 38111		CITY, STATE AND ZIP CODE Memphis TN 38111		CITY, STATE AND ZIP CODE Norcross, GA 30092	
PROJECT MANAGER Steve Offner		PROJECT MANAGER'S PHONE 770-326-2571		PROJECT MANAGER'S FAX 770-453-7716							

Item	Sample Identifier	Matrix		Date	Time	Preserved	# of Cont	OC Level	TAT	Analyses	Comments
1	RG-73A-002	Soil	8-12-98	1100	NA	1 x 400	314	100%	1 Day	J	Please fax results on DUE DATE to SITE and to Lab Coordinator
2											
3											
4											
5											
6											
7											
8											
9											
10											

SAMPLES COLLECTED BY
 RELINQUISHED BY
 RECEIVED BY
 DATE
 TIME

Steve Grand
 Steven Grand
 Lynette Bueh
 8/13/98
 1510

COURIER AND AIR BILL NUMBER
 Delivered in PRC

COOLER TEMPERATURE UPON RECEIPT
 SAMPLE CONDITION UPON RECEIPT

Distribution White - Laboratory (To be returned with Analytical Report), Goldenrod - Project File, Yellow - Project Data Manager

378 583

COOLER RECEIPT FORM

Cooler Receipt Form
9808397 CRF p 1

LIMS #. 9808-397 _____ Number of Coolers 1
Date Received 08/13/98
VDTSR 08/13/98 15 10
PROJECT DDMT

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS

A PRELIMINARY EXAMINATION PHASE. Date cooler was opened 08/13/98
by (print) Lynette Bugg (sign) Lynette Bugg

1 Did cooler come with a shipping slip (airbill, etc)? NO
If YES, enter carrier name & airbill number _____

2a Were custody seals on outside of cooler? NO

2b Were custody seals on sample containers? NO

3 Were custody seals unbroken and intact at the date and time of arrival? NA

4 Did you screen samples for radioactivity using a Geiger Counter? NO

5 Were custody papers sealed in a plastic bag & taped inside to the lid? NO

6 Were custody papers filled out properly (ink, signed, etc)? YES

7 Did you sign custody papers in the appropriate place? YES

8 Was project identifiable from custody papers? If YES, enter project name at top of this form YES

9 If required, was enough ice used? cooler temp <4°C, Type of ice Crushed YES

10 Have designated person initial here to acknowledge receipt of cooler LB date 08/13/98

B LOG-IN PHASE. Date samples were logged-in 08/13/98
by (print) Lynette Bugg (sign) Lynette Bugg

11 Describe type of packing in cooler Bubble Wrap and Ice

12 Were all bottles sealed in separate plastic bags? YES

13 Did all bottles arrive unbroken and were labels in good condition? YES

14 Were all bottle labels complete (ID, date, time, signature, preserved, etc)? YES

15 Did all bottle labels agree with custody papers? YES

16. Were correct containers used for the tests indicated? YES

17 Were correct preservatives added to samples? YES

18 Was a sufficient amount of sample sent for tests indicated? YES

19 Were bubbles absent in VOA samples? If NO, list by sample# NA

20 Was the project manager called and status discussed? If YES, give details on the back of this form.. NO

21. Who was called? _____ By whom? _____ (date) _____

VDTSR - Validated Date/Time of Sample Receipt (Date sample is logged into LIMS system)

000004

Environmental Testing & Consulting, Inc.

Sample Reports

378 585

ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

INORGANIC ANALYSIS DATA SHEET

Client Name **OHM Remediation Services**
Defense Depot - Memphis, TN
5445 Triangle Parkway
Suite 400
Norcross, GA 30092

Site ID **DDMT**
Memphis, TN

Project # **20560**

Date Arrived **08/13/98**
ETC Order Number **9808397**

ETC Lab ID **9808397-01**

Sample ID: RA-TSA-002

Matrix : **SOIL**

Sample Date : **08/12/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Fractional Organic Matter	1.42	%	0	08/14/98	D2974-87	OM081498
pH - Corrosivity	6.1	SU		08/13/98	9045C	PH081398


LABORATORY MANAGER

000006

Environmental Testing & Consulting, Inc.

**Quality Control Reports
Inorganics**

378 587

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
INORGANICS

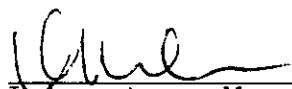
Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-397

HOLDING TIMES

Sample Analysis : All samples analyzed within Method Specified
Holding Times.

QUALITY CONTROL

Duplicates
RPD : All analytes within QC limits


Laboratory Manager

000008

Environmental Testing & Consulting, Inc.
Memphis, TN
Inorganic
QC Data Summary

378 588

Client Name OHM Remediation Services
Project Name Defense Depot-Memphis, TN

ETC Order Number 9808-397
File Name 9808-397.qc1

Duplicate

Sample ID	Analysis	Sample Result %	Duplicate Result %	% RPD < 20%
9808-397-01	Organic Matter	1.42	1.18	18

FINAL PAGE

PART I

ADMINISTRATIVE RECORD

PART I

FINAL PAGE