



THE MEMPHIS DEPOT TENNESSEE

ADMINISTRATIVE RECORD COVER SHEET

AR File Number 378

Part II of III

**INDIVIDUAL CONFIRMATION GRID SAMPLES PER RESULTS
OF THE COMPOSITE CONFIRMATION SAMPLES COLLECTED
FOLLOWING INITIAL EXCAVATION IN AREA A**

Date Collected 08/14/98

RA-A-CS-A1

RA-A-CS-A4

RA-A-CS-A5

RA-A-CS-A6

RA-A-CS-A7

RA-A-CS-A8

RA-A-CS-A9

RA-A-CS-A10

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-A22

RA-A-CS-A24 (Duplicate of RA-A-CS-A9)

RA-A-CS-A25 (Duplicate of RA-A-CS-A21)

RA-A-CS-A26 (Duplicate of RA-A-CS-A7)

RA-A-EQ-002 (Equip. Blank)



ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334

Founded 1972

August 25, 1998

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

Ref: Analytical Testing
ETC Order # 9808439
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', with a horizontal line extending to the right.

Nathan A. Pera, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT

378 591

Chemical Analytical Data
Review/Evaluation/Validation

SOUTHERN REGION

Report Type: ☐ Preliminary ☒ Final Date Received: 8/26/98 Project Number: 920560
 Project Name: DDMT Analysis/Method: SORIA - Pest
 Laboratory: ETC Lab Project/Case Number: 9808439
 Sample Number(s): RA-A-CS-A1, A4, A5, A6, A7, A10, A11, A14
A15, A17, A21, A22, EQ-002, A25, A26
 Evaluated By: S. Pannayapa Date Evaluated: 9/3/98
 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					

General Comments:

not performed. (store off. - check only ms/msd lcs.)
 not calib.

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. Pasanigajpe
 Evaluator's Signature

9/3/98
 Date

378 593

Chemical Analytical Data
Review/Evaluation/Validation

SOUTHERN REGION

Report Type: ☐ Preliminary ☒ Final Date Received: 8/26/98 Project Number: 920560

Project Name: DDMT Analysis/Method: 8270C - RNA

Laboratory: ETC Lab Project/Case Number: 9808434

Sample Number(s): RA - A-15 - A-5, A-6, A-8, A-9, A-14, A-17, A-18, A-19, EQ-002, A-24

Evaluated By: S. Paranjape Date Evaluated: 9/3/98

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	10	1	10	10	100

General Comments:

N/P - Evaluation not performed (E-mail to S.Off.)
 9/3/98

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

9/3/98
 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)

378 596

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
 217886
 FORM 0019 REV 07

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		CITY STATE AND ZIP CODE	
Steve Offner		901-743-1117		901-743-1048		9224 Walnut Grove Road		5445 Triangle Pkwy, #400		Memphis, TN 38114	
PROJECT ADDRESS		CITY STATE AND ZIP CODE		CLIENT		CITY STATE AND ZIP CODE		LABORATORY ADDRESS		LABORATORY ADDRESS	
1708 Dunn Ave.		Memphis, TN 38114		USACE		Memphis, TN 38114		9224 Walnut Grove Road		Memphis, TN 38114	
PROJECT MANAGER		PROJECT MANAGER'S PHONE		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	TAT	Analyses		Comments
									OC Level	TAT	
1	RA-A-CS-A1	Soil	8-14-98	1000	N/A	1x802	OHM	3day	✓		
2	RA-A-CS-A4	Soil	8-14-98	1010	N/A	1x802	OHM	3day	✓		
3	RA-A-CS-A5	Soil	8-14-98	1023	N/A	1x802	OHM	3day	✓		
4	RA-A-CS-A6	Soil	8-14-98	1040	N/A	1x802	OHM	3day	✓		
5	RA-A-CS-A7	Soil	8-14-98	1050	N/A	1x802	OHM	3day	✓		
6	RA-A-CS-A8	Soil	8-14-98	1100	N/A	1x802	OHM	3day	✓		
7	RA-A-CS-A9	Soil	8-14-98	1110	N/A	1x802	OHM	3day	✓		
8	RA-A-CS-A10	Soil	8-14-98	1130	N/A	1x802	OHM	3day	✓		
9	RA-A-CS-A11	Soil	8-14-98	1140	N/A	1x802	OHM	3day	✓		
10	RA-A-CS-A14	Soil	8-14-98	1150	N/A	1x802	OHM	3day	✓		

SAMPLES COLLECTED BY		COOLING AND AIR BILL NUMBER		RECEIVED BY		DATE		TIME		SAMPLE'S CONDITION UPON RECEIPT	
Steve Offner		Delivered		Nathan Pera		8/14/98		1415			
RELINQUISHED BY		COOLING AND AIR BILL NUMBER		RECEIVED BY		DATE		TIME		SAMPLE'S CONDITION UPON RECEIPT	
Steve Offner		Delivered		Nathan Pera		8/14/98		1415			

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

August 16, 1998
 8/14/98

9808-439 1 of 2



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
217887

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9808-439

2 of 2

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		LABORATORY ADDRESS		ADDRESS	
Steve Offner		901-743-1117		901-743-1048		2924 Walnut Grove Road		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		CITY STATE AND ZIP CODE	
1708 Dunn Ave.		Memphis, TN 38114		USACE		Memphis, TN 38111		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	T	A	T	Comments
1	RA-A-CS-A15	Soil	8-14-98	1200	✓	1 x 802	OHM Standard	3	044	✓	
2	RA-A-CS-A17	Soil	8-14-98	1210	✓	1 x 802	OHM Standard	3	044	✓	
3	RA-A-CS-A18	Soil	8-14-98	1220	✓	1 x 802	OHM Standard	3	044	✓	
4	RA-A-CS-A19	Soil	8-14-98	1240	✓	1 x 802	OHM Standard	3	044	✓	
5	RA-A-CS-A21	Soil	8-14-98	1250	✓	1 x 802	OHM Standard	3	044	✓	
6	RA-A-CS-A22	Soil	8-14-98	1300	✓	1 x 802	OHM Standard	3	044	✓	
7	RA-A-EQ-002	Liquid	8-14-98	1050	✓	1 x 2 x 11	OHM Standard	3	044	✓	
8	RA-A-CS-A24	Soil	8-14-98	1310	✓	1 x 802	OHM Standard	3	044	✓	
9	RA-A-CS-A25	Soil	8-14-98	1320	✓	1 x 802	OHM Standard	3	044	✓	
10	RA-A-CS-A26	Soil	8-14-98	1330	✓	1 x 802	OHM Standard	3	044	✓	
SAMPLES COLLECTED BY: Steve Offner											
REINQUISHED BY: [Signature]											
COURIER AND AIR BILL NUMBER: Delivered											
RECEIVED BY: [Signature]											
DATE: 8/14/98											
TIME: 1415											
COOLER TEMPERATURE UPON RECEIPT: [Blank]											
SAMPLE'S CONDITION UPON RECEIPT: [Blank]											
Distribution: White - Laboratory (To be returned with Analytical Report), Goldenrod - Project File, Yellow - Project Data Manager											

378-593

Q. J. S. Jones
8/17/98

COOLER RECEIPT FORM

Cooler Receipt Form
9808439 CRF p 1

LIMS # 9808-439 Number of Coolers 1
 Date Received 08/14/98
 VDTSR 08/14/98 14 15
 PROJECT DDMT

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

A PRELIMINARY EXAMINATION PHASE Date cooler was opened 08/14/98
 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 <40C, Type of ice Crushed YES

10 Have designated person initial here to acknowledge receipt of cooler LB date 08/14/98

B LOG-IN PHASE Date samples were logged-in 08/14/98
 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

373 '600

Environmental Testing & Consulting, Inc.

Sample Reports

000006

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

Client Name : OHM Remediation Services
Project Name : DDMT

Date Sample Received : 08/14/98
Contract Laboratory Order Number : 9808-439

<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>
9808-439-01	RA-A-CS-A1	08/14/98	90	08/17/98	160.3	MC
9808-439-02	RA-A-CS-A4	08/14/98	91	08/17/98	160.3	MC
9808-439-03	RA-A-CS-A5	08/14/98	86	08/17/98	160.3	MC
9808-439-04	RA-A-CS-A6	08/14/98	84	08/17/98	160.3	MC
9808-439-05	RA-A-CS-A7	08/14/98	78	08/17/98	160.3	MC
9808-439-06	RA-A-CS-A8	08/14/98	83	08/17/98	160.3	MC
9808-439-07	RA-A-CS-A9	08/14/98	89	08/17/98	160.3	MC
9808-439-08	RA-A-CS-A10	08/14/98	86	08/17/98	160.3	MC
9808-439-09	RA-A-CS-A11	08/14/98	88	08/17/98	160.3	MC
9808-439-10	RA-A-CS-A14	08/14/98	88	08/17/98	160.3	MC
9808-439-11	RA-A-CS-A15	08/14/98	79	08/17/98	160.3	MC
9808-439-12	RA-A-CS-A17	08/14/98	80	08/17/98	160.3	MC
9808-439-13	RA-A-CS-A18	08/14/98	71	08/17/98	160.3	MC
9808-439-14	RA-A-CS-A19	08/14/98	84	08/17/98	160.3	MC
9808-439-15	RA-A-CS-A21	08/14/98	90	08/17/98	160.3	MC
9808-439-16	RA-A-CS-A22	08/14/98	89	08/17/98	160.3	MC
9808-439-18	RA-A-CS-A24	08/14/98	88	08/17/98	160.3	MC
9808-439-19	RA-A-CS-A25	08/14/98	89	08/17/98	160.3	MC
9808-439-20	RA-A-CS-A26	08/14/98	79	08/17/98	160.3	MC


LABORATORY MANAGER

000007

378 602

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

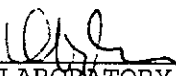
Date Arrived 08/14/98
ETC Order Number 9808439

ETC Lab ID 9808439-03
Sample ID: RA-A-CS-A5
QC Batch : P04018

Matrix :SOIL
Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Semi-Volatile PAH				08/15/98	08/17/98	RR	8270C 3550B
Benzo(a)pyrene	ND	ug/Kg	67				
Surrogate Standard	% Recovery		QC Limits				
S1 - Nitrobenzene-d5	46		39	80			
S2 - 2-Fluorobiphenyl	62		43	84			
S3 - 4-Terphenyl-d14	54		40	121			

ND - Not Detected


LABORATORY MANAGER

000008

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

378 603

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 08/14/98
ETC Order Number 9808439

ETC Lab ID 9808439-04
Sample ID: RA-A-CS-A6
QC Batch : P04018

Matrix :SOIL
Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Semi-Volatile PAH				08/15/98	08/17/98	RR	8270C 3550B
Benzo(a)pyrene	ND	ug/Kg	67				
Surrogate Standard	% Recovery		QC Limits				
S1 - Nitrobenzene-d5	43		39	80			
S2 - 2-Fluorobiphenyl	69		43	84			
S3 - 4-Terphenyl-d14	54		40	121			

ND - Not Detected


LABORATORY MANAGER

000009

378 604

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 08/14/98
ETC Order Number 9808439

ETC Lab ID 9808439-06

Sample ID: RA-A-CS-A8**QC Batch : P04018**

Matrix :SOIL

Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Semi-Volatile PAH				08/15/98	08/17/98	RR	8270C 3550B
Benzo(a)pyrene	ND	ug/Kg	67				
Surrogate Standard	% Recovery		QC Limits				
S1 - Nitrobenzene-d5	42		39	80			
S2 - 2-Fluorobiphenyl	65		43	84			
S3 - 4-Terphenyl-d14	57		40	121			

ND - Not Detected


LABORATORY MANAGER

000010

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

378 605

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 **08/14/98**
ETC Order Number **9808439**

ETC Lab ID **9808439-07**
Sample ID: RA-A-CS-A9
QC Batch : P04018

Matrix : **SOIL**
Sample Date : **08/14/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				08/15/98	08/17/98	RR	8270C 3550B
Benzo(a)pyrene	ND	ug/Kg	67				
<u>Surrogate Standard</u>	<u>% Recovery</u>		<u>QC Limits</u>				
S1 - Nitrobenzene-d5	49		39	80			
S2 - 2-Fluorobiphenyl	68		43	84			
S3 - 4-Terphenyl-d14	55		40	121			

ND - Not Detected


LABORATORY MANAGER

000011

378 606

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 **20560**

Date Arrived 08/14/98
ETC Order Number 9808439

ETC Lab ID **9808439-10**
Sample ID: RA-A-CS-A14
QC Batch : P04018

Matrix :SOIL
Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Semi-Volatile PAH				08/15/98	08/17/98	RR	8270C 3550B
Benzo(a)pyrene	222	ug/Kg	67				
Surrogate Standard	% Recovery		QC Limits				
S1 - Nitrobenzene-d5	49		39				80
S2 - 2-Fluorobiphenyl	69		43				84
S3 - 4-Terphenyl-d14	44		40				121

ND - Not Detected


LABORATORY MANAGER

000012

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

378 607

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 08/14/98
ETC Order Number 9808439

ETC Lab ID 9808439-12
Sample ID: RA-A-CS-A17
QC Batch : P04018

Matrix :SOIL
Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Semi-Volatile PAH				08/15/98	08/17/98	RR	8270C 3550B
Benzo(a)pyrene	242	ug/Kg	67				
<u>Surrogate Standard</u>	<u>% Recovery</u>		<u>QC Limits</u>				
S1 - Nitrobenzene-d5	42		39	80			
S2 - 2-Fluorobiphenyl	60		43	84			
S3 - 4-Terphenyl-d14	48		40	121			

ND - Not Detected


LABORATORY MANAGER

000013

373 608

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

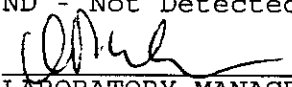
Date Arrived 08/14/98
ETC Order Number 9808439

ETC Lab ID 9808439-13
Sample ID: RA-A-CS-A18
QC Batch : P04018

Matrix :SOIL
Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Semi-Volatile PAH				08/15/98	08/17/98	RR	8270C 3550B
Benzo(a)pyrene	144	ug/Kg	67				
Surrogate Standard	% Recovery		QC Limits				
S1 - Nitrobenzene-d5	40		39	80			
S2 - 2-Fluorobiphenyl	63		43	84			
S3 - 4-Terphenyl-d14	45		40	121			

ND - Not Detected


LABORATORY MANAGER

000014

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

378 609

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

Project **20560**

Site ID **DDMT**
Memphis, TN

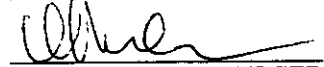
Date Arrived **08/14/98**
ETC Order Number **9808439**

ETC Lab ID **9808439-14**
Sample ID: RA-A-CS-A19
QC Batch : P04018

Matrix : **SOIL**
Sample Date : **08/14/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Semi-Volatile PAH				08/15/98	08/17/98	RR	8270C 3550B
Benzo(a)pyrene	ND	ug/Kg	67				
<u>Surrogate Standard</u>	<u>% Recovery</u>		<u>QC Limits</u>				
S1 - Nitrobenzene-d5	49		39	80			
S2 - 2-Fluorobiphenyl	69		43	84			
S3 - 4-Terphenyl-d14	47		40	121			

ND - Not Detected


LABORATORY MANAGER

000015

378 610

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 08/14/98
ETC Order Number 9808439

ETC Lab ID 9808439-17
Sample ID: RA-A-EQ-002
QC Batch : P05025

Matrix :AQUEOUS
Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Semi-Volatile PAH				08/14/98	08/18/98	RR	8270C 3510C
Benzo(a)pyrene	ND	ug/L	2.00				
Surrogate Standard	% Recovery		QC Limits				
S1 - Nitrobenzene-d5	44		35	85			
S2 - 2-Fluorobiphenyl	60		46	84			
S3 - 4-Terphenyl-d14	52		33	113			

ND - Not Detected


LABORATORY MANAGER

000016

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

378 611

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 08/14/98
ETC Order Number 9808439

ETC Lab ID **9808439-18**
Sample ID: RA-A-CS-A24
QC Batch : P04018

Matrix :SOIL
Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Semi-Volatile PAH				08/15/98	08/18/98	RR	8270C 3550B
Benzo(a)pyrene	ND	ug/Kg	67				
<u>Surrogate Standard</u>	<u>% Recovery</u>		<u>QC Limits</u>				
S1 - Nitrobenzene-d5	45		39	80			
S2 - 2-Fluorobiphenyl	68		43	84			
S3 - 4-Terphenyl-d14	44		40	121			

ND - Not Detected


LABORATORY MANAGER

000017

378 612

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 08/14/98
ETC Order Number 9808439

ETC Lab ID 9808439-01
Sample ID: RA-A-CS-A1
QC Batch : P06010

Matrix :SOIL
Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/15/98	08/18/98	MK	8081A 3550B
Dieldrin	13.0	ug/Kg	2.00				
<u>Surrogate Standard</u>		<u>% Recovery</u>	<u>QC Limits</u>				
S1 - Decachlorobiphenyl	84		64	154			
S2 - Tetrachloro-m-xylene	76		39	130			

ND - Not Detected


LABORATORY MANAGER

000018

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

378 613

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 08/14/98
ETC Order Number 9808439

ETC Lab ID 9808439-02
Sample ID: RA-A-CS-A4
QC Batch : P06010

Matrix :SOIL
Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/15/98	08/19/98	MK	8081A 3550B
Dieldrin	17	6J ug/Kg	20				
<u>Surrogate Standard</u>	<u>% Recovery</u>		<u>QC Limits</u>				
S1 - Decachlorobiphenyl	83		64	154			
S2 - Tetrachloro-m-xylene	82		39	130			

ND - Not Detected


LABORATORY MANAGER

000019

378 614

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 08/14/98
ETC Order Number 9808439

ETC Lab ID 9808439-03
Sample ID: RA-A-CS-A5
QC Batch : P06010

Matrix :SOIL
Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/15/98	08/19/98	MK	8081A 3550B
Dieldrin	42.7	ug/Kg	20				
Surrogate Standard	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	94		64	154			
S2 - Tetrachloro-m-xylene	86		39	130			

ND - Not Detected


LABORATORY MANAGER

000020

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

378 615

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 08/14/98

ETC Order Number 9808439

ETC Lab ID 9808439-04

Sample ID: RA-A-CS-A6**QC Batch : P06010**

Matrix :SOIL

Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/15/98	08/18/98	MK	8081A 3550B
Dieldrin	964	ug/Kg	20				
Surrogate Standard	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	91		64	154			
S2 - Tetrachloro-m-xylene	85		39	130			

ND - Not Detected


LABORATORY MANAGER

000021

378 616

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 08/14/98
ETC Order Number 9808439

ETC Lab ID 9808439-05

Sample ID: RA-A-CS-A7**QC Batch : P06010**

Matrix :SOIL

Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/15/98	08/19/98	MK	8081A 3550B
Dieldrin	54.7	ug/Kg	20				
Surrogate Standard	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	137		64				154
S2 - Tetrachloro-m-xylene	82		39				130

ND - Not Detected


LABORATORY MANAGER

000022

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

378 617

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 08/14/98

ETC Order Number 9808439

ETC Lab ID 9808439-08

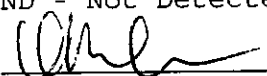
Sample ID: RA-A-CS-A10**QC Batch : P06010**

Matrix :SOIL

Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/15/98	08/19/98	MK	8081A 3550B
Dieldrin	10.5J	ug/Kg	20				
Surrogate Standard	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	80		64		154		
S2 - Tetrachloro-m-xylene	80		39		130		

ND - Not Detected


LABORATORY MANAGER

000023

373 618

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 **20560**

Date Arrived 08/14/98
ETC Order Number 9808439

ETC Lab ID **9808439-09**
Sample ID: RA-A-CS-A11
QC Batch : P06010

Matrix :SOIL
Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/15/98	08/19/98	MK	8081A 3550B
Dieldrin	101	ug/Kg	20				
Surrogate Standard	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	92		64				154
S2 - Tetrachloro-m-xylene	87		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

378 619

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 08/14/98
ETC Order Number 9808439

ETC Lab ID **9808439-10**
Sample ID: RA-A-CS-A14
QC Batch : P06010

Matrix :SOIL
Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/15/98	08/18/98	MK	8081A 3550B
Diieldrin	294	ug/Kg	20				
<u>Surrogate Standard</u>	<u>% Recovery</u>		<u>QC Limits</u>				
S1 - Decachlorobiphenyl	83		64	154			
S2 - Tetrachloro-m-xylene	73		39	130			

ND - Not Detected


LABORATORY MANAGER

000025

378 620

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 08/14/98
ETC Order Number 9808439

ETC Lab ID **9808439-11**
Sample ID: RA-A-CS-A15
QC Batch : P06010

Matrix :SOIL
Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/15/98	08/19/98	MK	8081A 3550B
Dieldrin	45.4	ug/Kg	20				
<u>Surrogate Standard</u>	<u>% Recovery</u>		<u>QC Limits</u>				
S1 - Decachlorobiphenyl	72		64				154
S2 - Tetrachloro-m-xylene	68		39				130

ND - Not Detected


LABORATORY MANAGER

000026

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

378 621

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 **08/14/98**
ETC Order Number **9808439**

ETC Lab ID **9808439-12**
Sample ID: RA-A-CS-A17
QC Batch : P06010

Matrix : **SOIL**
Sample Date : **08/14/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/15/98	08/19/98	MK	8081A 3550B
Dieldrin	625	ug/Kg	20				
<u>Surrogate Standard</u>	<u>% Recovery</u>		<u>QC Limits</u>				
S1 - Decachlorobiphenyl	94		64				154
S2 - Tetrachloro-m-xylene	79		39				130

ND - Not Detected


LABORATORY MANAGER

000027

378 622

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 08/14/98
ETC Order Number 9808439

ETC Lab ID 9808439-15
Sample ID: RA-A-CS-A21
QC Batch : P06010

Matrix :SOIL
Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/15/98	08/19/98	MK	8081A 3550B
Dieldrin	18.5J	ug/Kg	20				
Surrogate Standard	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	71		64				154
S2 - Tetrachloro-m-xylene	75		39				130

ND - Not Detected


LABORATORY MANAGER

000028

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

373 623

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 08/14/98
ETC Order Number 9808439

ETC Lab ID 9808439-16
Sample ID: RA-A-CS-A22
QC Batch : P06010

Matrix :SOIL
Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/15/98	08/19/98	MK	8081A 3550B
Dieldrin	46.4	ug/Kg	20				
<u>Surrogate Standard</u>	<u>% Recovery</u>		<u>OC Limits</u>				
S1 - Decachlorobiphenyl	88		64				154
S2 - Tetrachloro-m-xylene	84		39				130

ND - Not Detected


LABORATORY MANAGER

000029

378 624

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 08/14/98
ETC Order Number 9808439

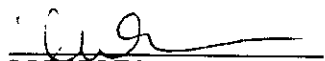
ETC Lab ID **9808439-17****Sample ID: RA-A-EQ-002****QC Batch : P07010**

Matrix :AQUEOUS

Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/17/98	08/19/98	MK	8081A 3510C
Dieldrin	ND	ug/L	0.04				
Surrogate Standard	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	33 Q		34		115		
S2 - Tetrachloro-m-xylene	81		31		96		

ND - Not Detected


LABORATORY MANAGER

000030

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

378 625

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 **08/14/98**
ETC Order Number **9808439**

ETC Lab ID **9808439-19**
Sample ID: RA-A-CS-A25
QC Batch : P06010

Matrix : **SOIL**
Sample Date : **08/14/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/15/98	08/19/98	MK	8081A 3550B
Dieldrin	16.7J	ug/Kg	20				
<u>Surrogate Standard</u>	<u>% Recovery</u>		<u>QC Limits</u>				
S1 - Decachlorobiphenyl	77		64				154
S2 - Tetrachloro-m-xylene	81		39				130

ND - Not Detected


LABORATORY MANAGER

000031

378 626

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 08/14/98
ETC Order Number 9808439

ETC Lab ID **9808439-20**
Sample ID: RA-A-CS-A26
QC Batch : P06010

Matrix :SOIL
Sample Date :08/14/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/15/98	08/19/98	MK	8081A 3550B
Dieldrin	37.7	ug/Kg	20				
<u>Surrogate Standard</u>	<u>% Recovery</u>		<u>QC Limits</u>				
S1 - Decachlorobiphenyl	112		64	154			
S2 - Tetrachloro-m-xylene	70		39	130			

ND - Not Detected


LABORATORY MANAGER

000032

378 627

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC/MS Semi-Volatiles

000033

373 628

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 # : 9808-439
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
P04018	P04018LB
P04019	P04019LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P04018BS
P04019BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3*
9808-439-18 RPD : All analytes within QC limits.*
RA-A-CS-A24 Spike Recovery : All analytes within QC limits.
*

Samples for this order were originally extracted as Base Neutrals. The original MS/MSD was performed using the Base Neutral spiking solution rather than the PAH spiking solution. This MS/MSD data is provided for general information regarding matrix effect.

This sample and associated MS/MSD were re-extracted using the PAH spiking solution in order to provide recovery information for Benzo(a)pyrene (see below).

RPDs for 1,4-Dichlorobenzene and 1,2,4-Trichlorobenzene were flagged as outside QC Limits due to higher recovery in the Matrix Spike Duplicate. MS/MSD recoveries were within QC Limits.

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

Matrix Spike / Matrix Spike Dup FORM 3
9808-439-18 RPD : All analytes within QC limits.
RA-A-CS-A24 Spike Recovery : All analytes within QC limits.
PAH Target Analytes

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

Method Blank FORM 4
P04018LB
P04019LB

No Target Analytes detected above Practical Quantitation Limit.

000034

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - SOIL

373 629

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

ETC Order # : 9808-439
Method (SW-846) : 8270C/3550B

CALIBRATION

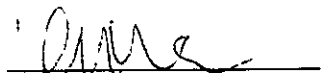
DFTPP Daily 12 Hour Tune : All criteria met. FORM 5
Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7*

* Nitrobenzene-d5 (Surrogate) for Calibration Verification 08/17/98 was flagged with a percent difference >20.0%. This surrogate was flagged with a high response indicating that the reported recovery for this analyte may be slightly biased high.

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

000035

378 630

FORM 2
SOIL BNA-GCMS SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Level: (low/med) LOW

	CLIENT SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P04018LB	49	71	66						
02	P04018BS	50	77	72						0
03	9808-439-3	46	62	54						0
04	9808-439-4	43	69	54						0
05	9808-439-6	42	65	57						0
06	9808-439-7	49	68	55						0
07	9808-439-10	49	69	44						0
08	9808-439-12	42	60	48						0
09	9808-439-13	40	63	45						0
10	9808-439-14	49	69	47						0
11	9808-439-18	45	68	44						0
12	9808-439-18	45	57	68						0
13	9808-439-18M	58	76	76						0
14	9808-439-18S	50	66	67						0
15	P04019LB	46	62	74						0
16	P04018BS	48	67	73						0
17	9808-439-18M	44	62	44						0
18	9808-439-18S	51	74	48						0
19										
20										
21										
22										
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QC LIMITS

S1 (NBZ) = Nitrobenzene-d5 (39- 80)
 S2 (FBP) = 2-Fluorobiphenyl (43- 84)
 S3 (TPH) = Terphenyl-d14 (40-121)

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

000036

378 631

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

CLIENT SAMPLE NO

P04018LB

Lab Name: ETC, INC.

Lab Prep Batch: P04018

Lab File ID: 0701008

Matrix: (soil/water) SOIL

Level:(low/med) LOW

SDG No.: 9808-439

Instrument ID: BNA2

Date Analyzed: 08/17/98

Time Analyzed: 1921

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

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P04018BS		0801009	08/17/98
02	9808-439-3		0901010	08/17/98
03	9808-439-4		1001011	08/17/98
04	9808-439-6		1101012	08/17/98
05	9808-439-7		1201013	08/17/98
06	9808-439-10		1301014	08/17/98
07	9808-439-12		1401015	08/17/98
08	9808-439-13		1501016	08/17/98
09	9808-439-14		1601017	08/17/98
10	9808-439-18		1701018	08/18/98
11	9808-439-18M		1801019	08/18/98
12	98980439-18S		1901020	08/18/98
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COMMENTS:

000037

373 632

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: ETC, INC.

P04018LB

SDG No.: 9808-439

Matrix: (soil/water) SOIL

Lab Prep Batch: P04018

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

Lab File ID: 0701008

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 08/17/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
50-32-8-----	Benzo(a)pyrene_____	66.7	U

FORM I BNA-GCMS

000038

FORM 3
SOIL BNA-GCMS LABORATORY CONTROL SAMPLE

378 633

Lab Name: ETC, INC.

Lab Prep Batch: P04018

SDG No.: 9808-439

Matrix Spike - Sample No.: P04018BS

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
Benzo(a)pyrene	1670		1660	99	68-129

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 1 outside limits

COMMENTS:

FORM III BNA-GCMS

000039

378 634

FORM 3
SOIL BNA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P04018

SDG No.: 9808-439

Matrix Spike - Sample No.: 9808-439-18 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	M CONCENTRATION (ug/Kg)	M % REC #	QC. LIMITS REC.
Acenaphthene	3280	0.00	2250	68	34-126
1,4-Dichlorobenzene	3280	0.00	1740	53	26-121
2,4-Dinitrotoluene	3280	0.00	2300	70	22-139
N-Nitrosodinpropylamine	3280	0.00	2330	71	35-138
Pyrene	3280	0.00	1720	52	33-155
1,2,4-Trichlorobenzene	3280	0.00	1960	60	30-127

COMPOUND	SPIKE ADDED (ug/Kg)	S CONCENTRATION (ug/Kg)	S % REC #	% RPD #	QC LIMITS RPD	REC.
Acenaphthene	3250	2630	81	17	20	34-126
1,4-Dichlorobenzene	3250	2280	70	28*	20	26-121
2,4-Dinitrotoluene	3250	2540	78	11	20	22-139
N-Nitrosodinpropylamine	3250	2690	83	16	20	35-138
Pyrene	3250	1890	58	11	20	33-155
1,2,4-Trichlorobenzene	3250	2600	80	28*	20	30-127

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

RPD: 2 out of 6 outside limits
Spike Recovery: 0 out of 12 outside limits

COMMENTS:

FORM III BNA-GCMS

000040

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

378 635
CLIENT SAMPLE NO

P04019LB

Lab Name: ETC, INC.

Lab Prep Batch: P04019

Lab File ID: 0301002

Matrix: (soil/water) SOIL

Level:(low/med) LOW

SDG No.: 9808-439

Instrument ID: BNA2

Date Analyzed: 08/19/98

Time Analyzed: 1440

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

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	9808-439-18		1901018	08/18/98
02	9808-439-18M		2001019	08/18/98
03	9808-439-18S		2101020	08/18/98
04	P04019BS		0401003	08/19/98
05				
06				
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COMMENTS:

378 '636

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: ETC, INC.

P04019LB

SDG No.: 9808-439

Matrix: (soil/water) SOIL

Lab Prep Batch: P04019

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

Lab File ID: 0301002

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 08/19/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/Kg) UG/KG	Q
50-32-8-----	Benzo(a)pyrene	66.7	U

FORM I BNA-GCMS

000042

FORM 3
SOIL BNA-GCMS LABORATORY CONTROL SAMPLE

378 637

Lab Name: ETC, INC.

Lab Prep Batch: P04019

SDG No.: 9808-439

Matrix Spike - Sample No.: P04019BS

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
Benzo(a)pyrene	833		678	81	68-129

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 1 outside limits

COMMENTS: _____

FORM III BNA-GCMS

000043

378 638

FORM 3

SOIL BNA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P04019

SDG No.: 9808-439

Matrix Spike - Sample No.: 9808-439-18 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	M CONCENTRATION (ug/Kg)	M % REC #	QC. LIMITS REC.
Benzo(a)pyrene	1660	0.00	1360	82	68-129

COMPOUND	SPIKE ADDED (ug/Kg)	S CONCENTRATION (ug/Kg)	S % REC #	% RPD #	QC LIMITS RPD	REC.
Benzo(a)pyrene	1640	1250	76	8	20	68-129

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

RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS:

FORM III BNA-GCMS

000044

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - AQUEOUS

378 639

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-439
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
P05025 P05025LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P05025BS/BD

All criteria met.*

*

RPD was flagged as outside QC Limits due to higher recovery in the
Blank Spike. BS/BD recoveries were within QC Limits.

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
P05025LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

DFTPP Daily 12 Hour Tune : All criteria met. FORM 5
Calibration Verification : 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

000045

378 640

FORM 2
WATER BNA-GCMS SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

	CLIENT SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P05025LB	45	55	70						0
02	P05025BS	50	62	74						0
03	P05025BD	61	82	91						0
04	9808-439-17	44	60	52						0
05										
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QC LIMITS

S1 (NBZ) = Nitrobenzene-d5 (35- 85)
 S2 (FBP) = 2-Fluorobiphenyl (46- 84)
 S3 (TPH) = Terphenyl-d14 (33-113)

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

000046

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

378 641
CLIENT SAMPLE NO

P05025LB

Lab Name: ETC, INC.

Lab Prep Batch: P05025

Lab File ID: 1301013

Matrix: (soil/water) WATER

Level: (low/med) LOW

SDG No.: 9808-439

Instrument ID: BNA2

Date Analyzed: 08/15/98

Time Analyzed: 1747

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

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P05025BS		1401014	08/15/98
02	P05025BD		1501015	08/15/98
03	9808-439-17		2001021	08/18/98
04				
05				
06				
07				
08				
09				
10				
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12				
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COMMENTS:

373 642

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: ETC, INC.

P05025LB

SDG No.: 9808-439

Matrix: (soil/water) WATER

Lab Prep Batch: P05025

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

Lab File ID: 1301013

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 08/15/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
50-32-8-----	Benzo(a)pyrene	2.0	U

FORM I BNA-GCMS

000048

FORM 3
WATER BNA-GCMS LABORATORY CONTROL SAMPLE

373 643

Lab Name: ETC, INC.

Lab Prep Batch: P05025

SDG No.: 9808-439

Matrix Spike - Sample No.: P05025BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
Benzo(a)pyrene	50.0		39.6	79	68-129

COMPOUND	SPIKE ADDED (ug/L)	BD CONCENTRATION (ug/L)	BD % REC #	% RPD #	QC LIMITS RPD	REC.
Benzo(a)pyrene	50.0	51.3	103	26*	20	68-129

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

RPD: 1 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS:

FORM III BNA-GCMS

000049

378 644

Environmental Testing & Consulting, Inc.

**Calibration Reports
Initial/Verification
GC/MS Semi-Volatiles**

000050

FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

378 645

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Lab File ID: 0101001

BFB Injection Date: 08/15/98

Instrument ID: BNA2

BFB Injection Time: 1152

GC Column:

ID: 2.00 (mm)

Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	35.6
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	55.3
70	Less than 2.0% of mass 69	0.8 (1.5)1
127	40.0 - 60.0% of mass 198	52.7
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.1
275	10.0 - 30.0% of mass 198	16.4
365	Greater than 1.0% of mass 198	1.42
441	Present, but less than mass 443	7.1
442	Greater than 40.0% of mass 198	51.0
443	17.0 - 23.0% of mass 442	9.6 (18.9)2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	DCS BNA 50		0201002	08/15/98	1206
02	WS BNA 2		0301003	08/15/98	1237
03	WS BNA 5		0401004	08/15/98	1308
04	WS BNA 10		0501005	08/15/98	1339
05	WS BNA 20		0601006	08/15/98	1410
06	WS BNA 80		0701007	08/15/98	1441
07	WS BNA 100		0801008	08/15/98	1512
08	WS BNA 120		0901009	08/15/98	1543
09	WS BNA 160		1001010	08/15/98	1614
10	P05025LB		1301013	08/15/98	1747
11	P05025BS		1401014	08/15/98	1818
12	P05025BD		1501015	08/15/98	1849
13					
14					
15					
16					
17					
18					

373 646

FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Lab File ID: 0102002

DFTPP Injection Date: 08/17/98

Instrument ID: BNA2

DFTPP Injection Time: 1623

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	42.2
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	61.9
70	Less than 2.0% of mass 69	0.9 (1.4)1
127	40.0 - 60.0% of mass 198	53.8
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.0
275	10.0 - 30.0% of mass 198	19.2
365	Greater than 1.0% of mass 198	1.79
441	Present, but less than mass 443	8.0
442	Greater than 40.0% of mass 198	56.4
443	17.0 - 23.0% of mass 442	11.0 (19.5)2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	DCS BNA 50		0201003	08/17/98	1645
02	P04018LB		0701008	08/17/98	1921
03	P04018BS		0801009	08/17/98	1952
04	9808-439-3		0901010	08/17/98	2022
05	9808-439-4		1001011	08/17/98	2053
06	9808-439-6		1101012	08/17/98	2124
07	9808-439-7		1201013	08/17/98	2155
08	9808-439-10		1301014	08/17/98	2226
09	9808-439-12		1401015	08/17/98	2257
10	9808-439-13		1501016	08/17/98	2328
11	9808-439-14		1601017	08/17/98	2359
12	9808-439-18		1701018	08/18/98	0030
13	9808-439-17		2001021	08/18/98	0203
14					
15					
16					
17					
18					
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20					
21					
22					

FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

378 647

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Lab File ID: 0101001

DFTPP Injection Date: 08/18/98

Instrument ID: BNA2

DFTPP Injection Time: 0554

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	40.4
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	53.0
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	49.5
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.0
275	10.0 - 30.0% of mass 198	18.3
365	Greater than 1.0% of mass 198	1.67
441	Present, but less than mass 443	6.9
442	Greater than 40.0% of mass 198	50.2
443	17.0 - 23.0% of mass 442	9.9 (19.7)2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	DCS BNA 50		0201002	08/18/98	0609
02	WS BNA 2		0301002	08/18/98	0642
03	WS BNA 5		0401003	08/18/98	0713
04	WS BNA 10		0501004	08/18/98	0744
05	WS BNA 20		0601005	08/18/98	0815
06	WS BNA 80		0701006	08/18/98	0846
07	WS BNA 100		0801007	08/18/98	0916
08	WS BNA 120		0901008	08/18/98	0948
09	WS BNA 160		1001009	08/18/98	1019
10	9808-439-18		1901018	08/18/98	1458
11	9808-439-18M		2001019	08/18/98	1529
12	9808-439-18S		2101020	08/18/98	1600
13					
14					
15					
16					
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21					
22					

373 648

FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Lab File ID: 0101001

DFTPP Injection Date: 08/19/98

Instrument ID: BNA2

DFTPP Injection Time: 1354

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	45.4
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	58.8
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	51.3
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 30.0% of mass 198	16.9
365	Greater than 1.0% of mass 198	1.59
441	Present, but less than mass 443	5.7
442	Greater than 40.0% of mass 198	40.1
443	17.0 - 23.0% of mass 442	7.6 (19.0)2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	DCS BNA 50		0201002	08/19/98	1409
02	P04019LB		0301002	08/19/98	1440
03	P04019BS		0401003	08/19/98	1511
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FORM 6
BNA-GCMS INITIAL CALIBRATION DATA

378 649

Lab Name: ETC, INC. Contract:
 Lab Code: Case No.: SAS No.: SDG No.: 9808-439
 Instrument ID: BNA2 Calibration Date(s): 08/15/98 08/15/98
 Column: DB-5MS ID: 0.25 (mm) Calibration Time(s): 1206 1614
 LAB FILE ID: RF5: 0401004 RF10: 0501005 RF20: 0601006
 RF50: 0201002 RF80: 0701007

COMPOUND	RF5	RF10	RF20	RF50	RF80
Benzo(a)pyrene	1.016	1.009	1.146	0.952	1.091
Nitrobenzene-d5	0.690	0.680	0.724	0.578	0.546
2-Fluorobiphenyl	1.213	1.185	1.257	1.012	0.975
Terphenyl-d14	0.594	0.580	0.618	0.502	0.484

FORM VI BNA-GCMS

000055

378 650

FORM 6
BNA-GCMS INITIAL CALIBRATION DATA

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Instrument ID: BNA2

Calibration Date(s): 08/15/98 08/15/98

Column: DB-5MS

ID: 0.25 (mm)

Calibration Time(s): 1206 1614

LAB FILE ID:

RF100: 0801008

RF120: 0901009

RF160: 1001010

COMPOUND	RF100	RF120	RF160
Benzo(a)pyrene	1.021	1.110	0.894
Nitrobenzene-d5	0.587	0.551	
2-Fluorobiphenyl	1.096	1.047	0.861
Terphenyl-d14	0.514	0.470	

FORM VI BNA-GCMS

000056

FORM 6
BNA-GCMS INITIAL CALIBRATION DATA

373 651

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Instrument ID: BNA2

Calibration Date(s): 08/15/98 08/15/98

Column: DB-5MS

ID: 0.25 (mm)

Calibration Time(s): 1206

1614

COMPOUND	CURVE	COEFFICIENT A1	%RSD OR R^2
Benzo(a)pyrene	AVRG	1.01393382	9.0
Nitrobenzene-d5	AVRG	0.62880943	11.2
2-Fluorobiphenyl	AVRG	1.09662182	12.2
Terphenyl-d14	AVRG	0.53760367	10.9

FORM VI BNA-GCMS

000057

378 652

FORM 6
BNA-GCMS INITIAL CALIBRATION DATA

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Instrument ID: BNA2

Calibration Date(s): 08/18/98 08/18/98

Column: DB-5MS

ID: 0.25 (mm)

Calibration Time(s): 0609 1019

LAB FILE ID:

RF2: 0301002

RF5: 0401003

RF10: 0501004

RF20: 0601005

RF50: 0201002

COMPOUND	RF2	RF5	RF10	RF20	RF50
Benzo(a)pyrene	1.014	1.083	1.007	1.081	0.890
Nitrobenzene-d5	0.513	0.475	0.480	0.510	0.420
2-Fluorobiphenyl	1.409	1.364	1.296	1.349	1.079
Terphenyl-d14	0.534	0.636	0.613	0.669	0.516

FORM VI BNA-GCMS

000058

FORM 6
BNA-GCMS INITIAL CALIBRATION DATA

378 653

Lab Name: ETC, INC. Contract:
Lab Code: Case No.: SAS No.: SDG No.: 9808-439
Instrument ID: BNA2 Calibration Date(s): 08/18/98 08/18/98
Column: DB-5MS ID: 0.25 (mm) Calibration Time(s): 0609 1019
LAB FILE ID: RF80: 0701006 RF100: 0801007 RF120: 0901008
RF160: 1001009

COMPOUND	RF80	RF100	RF120	RF160
Benzo(a)pyrene	0.982	0.954	1.043	0.838
Nitrobenzene-d5	0.386	0.425	0.413	
2-Fluorobiphenyl	1.037	1.168	1.113	
Terphenyl-d14	0.472	0.504	0.454	

FORM VI BNA-GCMS

000059

378 654

FORM 6
BNA-GCMS INITIAL CALIBRATION DATA

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Instrument ID: BNA2

Calibration Date(s): 08/18/98 08/18/98

Column: DB-5MS ID: 0.25 (mm)

Calibration Time(s): 0609 1019

COMPOUND	CURVE	COEFFICIENT A1	%RSD OR R^2
Benzo(a)pyrene	AVRG	0.98811920	8.4
Nitrobenzene-d5	AVRG	0.45277177	10.6
2-Fluorobiphenyl	AVRG	1.22701573	11.8
Terphenyl-d14	AVRG	0.54966695	14.5

FORM VI BNA-GCMS

000060

FORM 7
BNA-GCMS CONTINUING CALIBRATION CHECK

378 655

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Instrument ID: BNA2

Calibration Date: 08/17/98 Time: 1645

Lab File ID: 0201003

Init. Calib. Date(s): 08/15/98 08/15/98

Init. Calib. Times: 1206 1614

GC Column: DB-5MS ID: 0.25 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Benzo(a)pyrene	1.014	0.900		11.2	20.0
Nitrobenzene-d5	0.629	0.459		27.0	20.0
2-Fluorobiphenyl	1.096	1.100		0.4	20.0
Terphenyl-d14	0.537	0.477		11.2	20.0

<-

FORM VII BNA-GCMS

000061

373 656

FORM 7
BNA-GCMS CONTINUING CALIBRATION CHECK

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Instrument ID: BNA2

Calibration Date: 08/19/98 Time: 1409

Lab File ID: 0201002

Init. Calib. Date(s): 08/18/98 08/18/98

Init. Calib. Times: 0609 1019

GC Column: DB-5MS ID: 0.25 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Benzo(a)pyrene	0.988	0.920		6.9	20.0
Nitrobenzene-d5	0.453	0.434		4.2	20.0
2-Fluorobiphenyl	1.227	1.094		10.8	20.0
Terphenyl-d14	0.550	0.522		5.1	20.0

FORM VII BNA-GCMS

000062

FORM 8
BNA-GCMS INTERNAL STANDARD AREA AND RT SUMMARY

378 657

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Lab File ID (Standard): 1001010

Date Analyzed: 08/15/93

Instrument ID: BNA2

Time Analyzed: 1614

GC Column: DB-5MS ID: 0.25 (mm)

Heated Purge: (Y/N) N

	IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	354827	4.62	1321239	5.67	645623	7.87
UPPER LIMIT	709654	5.12	2642478	6.17	1291246	8.37
LOWER LIMIT	177414	4.12	660620	5.17	322812	7.37
=====	=====	=====	=====	=====	=====	=====
CLIENT SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 P05025LB	349447	4.61	1326042	5.65	589815	7.85
02 P05025BS	329162	4.61	1235844	5.66	575955	7.86
03 P05025BD	270374	4.61	997180	5.65	440750	7.85
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IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

000063

378 658

FORM 8
BNA-GCMS INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Lab File ID (Standard): 1001010

Date Analyzed: 08/15/98

Instrument ID: BNA2

Time Analyzed: 1614

GC Column: DB-5MS ID: 0.25 (mm)

Heated Purge: (Y/N) N

	IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	825113	10.44	272904	15.54	126009	18.12
UPPER LIMIT	1650226	10.94	545808	16.04	252018	18.62
LOWER LIMIT	412556	9.94	136452	15.04	63004	17.62
=====	=====	=====	=====	=====	=====	=====
CLIENT SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 P05025LB	637357	10.39	371327	15.51	246073	18.11
02 P05025BS	708787	10.41	357951	15.53	143479	18.11
03 P05025BD	545536	10.40	264021	15.52	98998	18.11
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IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

000064

FORM 8
BNA-GCMS INTERNAL STANDARD AREA AND RT SUMMARY

378 659

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Lab File ID (Standard): 0201003

Date Analyzed: 08/17/98

Instrument ID: BNA2

Time Analyzed: 1645

	IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	409421	4.59	1362079	5.63	705573	7.81
UPPER LIMIT	818842	5.09	2724158	6.13	1411146	8.31
LOWER LIMIT	204710	4.09	681040	5.13	352786	7.31
=====	=====	=====	=====	=====	=====	=====
CLIENT SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 P04018LB	502853	4.58	1739280	5.62	830031	7.80
02 P04018BS	402848	4.59	1397441	5.63	662165	7.81
03 9808-439-3	444510	4.58	1541264	5.62	723980	7.80
04 9808-439-4	482137	4.58	1715382	5.62	791098	7.80
05 9808-439-6	457622	4.58	1664394	5.62	801134	7.80
06 9808-439-7	434140	4.58	1503420	5.62	732492	7.80
07 9808-439-10	428912	4.58	1494641	5.62	708267	7.80
08 9808-439-12	471296	4.58	1715718	5.62	844598	7.80
09 9808-439-13	426901	4.58	1590118	5.62	734949	7.80
10 9808-439-14	397791	4.58	1412092	5.62	669363	7.80
11 9808-439-18	450291	4.58	1601789	5.62	745643	7.81
12 9808-439-17	434065	4.59	1537410	5.62	728997	7.80
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IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

373 660

FORM 8
BNA-GCMS INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Lab File ID (Standard): 0201003

Date Analyzed: 08/17/98

Instrument ID: BNA2

Time Analyzed: 1645

	IS4 (PHN)	RT #	IS5 (CRY)	RT #	IS6 (PRY)	RT #
	AREA #		AREA #		AREA #	
12 HOUR STD	971851	10.36	411260	15.46	201773	18.04
UPPER LIMIT	1943702	10.86	822520	15.96	403546	18.54
LOWER LIMIT	485926	9.86	205630	14.96	100886	17.54
CLIENT						
SAMPLE NO.						
01 P04018LB	1074682	10.34	324369	15.45	188126	18.04
02 P04018BS	878086	10.34	288885	15.45	168319	18.04
03 9808-439-3	900235	10.33	252389	15.44	150145	18.04
04 9808-439-4	1024674	10.34	277561	15.45	161962	18.04
05 9808-439-6	1057556	10.34	259870	15.44	132863	18.04
06 9808-439-7	882343	10.33	206808	15.44	119198	18.04
07 9808-439-10	804576	10.34	152102*	15.44	101520	18.05
08 9808-439-12	996695	10.34	221608	15.45	135092	18.05
09 9808-439-13	851417	10.34	168035*	15.44	104626	18.05
10 9808-439-14	744380	10.34	150406*	15.45	103499	18.05
11 9808-439-18	854495	10.34	179337*	15.45	115416	18.04
12 9808-439-17	807464	10.34	190405*	15.45	126009	18.05
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IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.

* Values outside of QC limits.

000066

FORM 8
BNA-GCMS INTERNAL STANDARD AREA AND RT SUMMARY 373 661

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Lab File ID (Standard): 1001009

Date Analyzed: 08/18/98

Instrument ID: BNA2

Time Analyzed: 1019

	IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	545468	4.60	2041129	5.64	1047494	7.82
UPPER LIMIT	1090936	5.10	4082258	6.14	2094988	8.32
LOWER LIMIT	272734	4.10	1020564	5.14	523747	7.32
=====	=====	=====	=====	=====	=====	=====
CLIENT						
SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 9808-439-18	458844	4.57	1749348	5.61	910882	7.79
02 9808-439-18M	460436	4.58	1729940	5.61	889216	7.80
03 9808-439-18S	491428	4.58	1823186	5.61	942181	7.80
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IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

373 662

FORM 8
BNA-GCMS INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Lab File ID (Standard): 1001009

Date Analyzed: 08/18/98

Instrument ID: BNA2

Time Analyzed: 1019

	IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	1565321	10.37	412770	15.47	208219	18.04
UPPER LIMIT	3130642	10.87	825540	15.97	416438	18.54
LOWER LIMIT	782660	9.87	206385	14.97	104110	17.54
=====	=====	=====	=====	=====	=====	=====
CLIENT SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 9808-439-18	1317103	10.33	528647	15.44	227991	18.04
02 9808-439-18M	1386417	10.34	512595	15.45	208385	18.04
03 9808-439-18S	1441777	10.34	536490	15.45	220004	18.04
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IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.

* Values outside of QC limits.

FORM 8
BNA-GCMS INTERNAL STANDARD AREA AND RT SUMMARY

378 663

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Lab File ID (Standard): 0201002

Date Analyzed: 08/19/98

Instrument ID: BNA2

Time Analyzed: 1409

	IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
12 HOUR STD	371782	4.57	1286535	5.60	662028	7.76
UPPER LIMIT	743564	5.07	2573070	6.10	1324056	8.26
LOWER LIMIT	185891	4.07	643268	5.10	331014	7.26
CLIENT SAMPLE NO.						
01 P04019LB	1032477*	4.56	3589891*	5.59	1803197*	7.77
02 P04019BS	976987*	4.57	3274415*	5.60	1633695*	7.77
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IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

373 664

FORM 8
BNA-GCMS INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-439

Lab File ID (Standard): 0201002

Date Analyzed: 08/19/98

Instrument ID: BNA2

Time Analyzed: 1409

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	913146	10.29	433359	15.40	239357	17.98
	UPPER LIMIT	1826292	10.79	866718	15.90	478714	18.48
	LOWER LIMIT	456573	9.79	216680	14.90	119678	17.48
	CLIENT SAMPLE NO.						
01	P04019LB	2391211*	10.30	1381551*	15.40	739142*	17.99
02	P04019BS	2261439*	10.31	900565*	15.40	473792	17.99
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IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.

* Values outside of QC limits.

**IMPORTED CLEAN BACKFILL (TOP SOIL)
CONFIRMATION SAMPLE**

Date Collected 08/17/98

RA-TSA-004A (Pesticides & Metals)



ENVIRONMENTAL TESTING & CONSULTING, INC.

2024 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334

Founded 1972

August 26, 1998

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

Ref: Analytical Testing
ETC Order # 9808526
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 'Nathan A. Pera, IV'.

Nathan A. Pera, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT

378 667

Chemical Analytical Data Review/Evaluation/Validation

SOUTHERN REGION

Report Type: ☐ Preliminary ☒ Final Date Received: 9/3/98 Project Number: 920560
 Project Name: DDMT Analysis/Method: 8081A, 6010A/7000
 Laboratory: ETC Lab Project/Case Number: 9808526
 Sample Number(s): RA-TS-'004A

Evaluated By: S. Pasciunapp Date Evaluated: 9/3/98
 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: <u>Sample results ND</u>				
Lab Control Sample Duplicate or Other Spike Recoveries	X	✓	✓	
Comment:				
Lab Control Sample Duplicate or Other Laboratory Duplicate RPD	X			
Comment: <u>N/A</u>				
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: <u>N/A</u>				

373 668

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	1	2	2	2	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

 9/3/98
 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				
<u>Sample ID</u>	<u>Field ID</u>	<u>Matrix</u>	<u>Method</u>	<u>Method Description</u>
980852601	RA-TS-004A	SOIL	6010B	Silver
980852601	RA-TS-004A	SOIL	6010B	Aluminum
980852601	RA-TS-004A	SOIL	7060A	Arsenic
980852601	RA-TS-004A	SOIL	6010B	Barium
980852601	RA-TS-004A	SOIL	6010B	Beryllium
980852601	RA-TS-004A	SOIL	6010B	Calcium
980852601	RA-TS-004A	SOIL	6010B	Cadmium
980852601	RA-TS-004A	SOIL	6010B	Cobalt
980852601	RA-TS-004A	SOIL	6010B	Chromium
980852601	RA-TS-004A	SOIL	6010B	Copper
980852601	RA-TS-004A	SOIL	6010B	Iron
980852601	RA-TS-004A	SOIL	7471A	Mercury
980852601	RA-TS-004A	SOIL	6010B	Potassium
980852601	RA-TS-004A	SOIL	6010B	Magnesium
980852601	RA-TS-004A	SOIL	6010B	Manganese
980852601	RA-TS-004A	SOIL	6010B	Sodium
980852601	RA-TS-004A	SOIL	6010B	Nickel
980852601	RA-TS-004A	SOIL	8081A	Organochlorine Pesticides
980852601	RA-TS-004A	SOIL	7421	Lead
980852601	RA-TS-004A	SOIL	6010B	Antimony
980852601	RA-TS-004A	SOIL	7740	Selenium
980852601	RA-TS-004A	SOIL	7841	Thallium
980852601	RA-TS-004A	SOIL	6010B	Vanadium
980852601	RA-TS-004A	SOIL	6010B	Zinc

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody

000003



OHM R m diation
Service s Corp
Subsidiary of OHM Corporation
U.S. Route 224 East • Findlay, Ohio 45840 • (419) 423-3526

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY

21.7889

FORM 0019 REV 03/97

9168-526

Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont	QC Level	TAT	Analyses	Comments
1	PD-TS-0047A	Soil	8/17/98	1400	2A	244.2	OHM SPEL BE	30AY	TCL Pesticides TAL Metals	Please fax results on DUE DATE to SLT and to Lab Coordinator
2										
3										
4										
5										
6										
7										
8										
9										
10										

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 PHONE 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 CT FAX	LABORATORY ADDRESS	ADDRESS	
Steve Offner	901-743-1117	715-2517	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 PHONE	PROJECT MANAGER'S FAX			
Steve Offner	770-326-2571	770-453-7716			

SAMPLES COLLECTED BY	COURIER AND AIR BILL NUMBER	DELIVERED IN PERSON	COOLER TEMPERATURE UPON RECEIPT
8. GAAW			
REQUISITIONED BY	RECEIVED BY	DATE	SAMPLE'S CONDITION UPON RECEIPT
Steve H. GAAW	Mike GAAW	8/18/98	

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

COOLER RECEIPT FORM

Cooler Receipt Form
9808526 CRF p 1

LIMS # 9808-526 Number of Coolers 1
 Date Received 08/18/98
 VDTSR 08/18/98 1520
 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 08/18/98
 by (print) Lynette Bugg (sign) L Bugg per A Jones

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 08/18/98

B LOG-IN PHASE Date samples were logged-in 08/18/98
 by (print) Lynette Bugg (sign) L Bugg per A Jones

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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Environmental Testing & Consulting, Inc.

Sample Reports

000006

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

Client Name :OHM Remediation Services
Project Name :DDMT

Date Sample Received :08/18/98
Contract Laboratory Order Number :9808-526

<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>
9808-526-01	RA-TS-004A	08/17/98	84	08/18/98	160.3	MC


LABORATORY MANAGER

000007

378 676

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

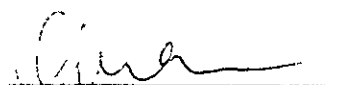
Project # 20560

Date Arrived 08/18/98
 ETC Order Number 9808526

ETC Lab ID 9808526-01
Sample ID: RA-TS-004A

Matrix :SOIL
 Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Metals Digestion Batch	V7-SO-82					
Mercury Digestion Batch	V4-SO-26					
Silver	ND	mg/Kg	0.700	15:22	08/20/98	JB 3051
Aluminum	17,700	mg/Kg	4.00	15:42	08/20/98	RM 7471A
Arsenic	7.27	mg/Kg	0.200	11:02	08/20/98	TD 6010B
Barium	115	mg/Kg	0.200	15:22	08/20/98	TD 6010B
Beryllium	0.530	mg/Kg	0.100	15:22	08/20/98	JF 7060A
Calcium	1,940	mg/Kg	1.00	15:22	08/20/98	TD 6010B
Cadmium	ND	mg/Kg	0.400	15:22	08/20/98	TD 6010B
Cobalt	8.94	mg/Kg	0.700	15:22	08/20/98	TD 6010B
Chromium	20.0	mg/Kg	0.700	15:22	08/20/98	TD 6010B
Copper	12.7	mg/Kg	0.600	15:22	08/20/98	TD 6010B
Iron	17,800	mg/Kg	0.700	15:42	08/20/98	TD 6010B
Mercury	0.021	mg/Kg	0.020	13:56	08/20/98	RM 7471A
Potassium	1,530	mg/Kg	20.0	15:22	08/20/98	TD 6010B
Magnesium	1,960	mg/Kg	3.00	15:22	08/20/98	TD 6010B
Manganese	720	mg/Kg	0.200	15:22	08/20/98	TD 6010B
Sodium	81.5	mg/Kg	20.0	15:22	08/20/98	TD 6010B
Nickel	14.6	mg/Kg	1.50	15:22	08/20/98	TD 6010B
Lead	16.2	mg/Kg	0.100	11:25	08/20/98	JF 7421
Antimony	ND	mg/Kg	3.20	15:22	08/20/98	TD 6010B
Selenium	0.794	mg/Kg	0.200	11:02	08/20/98	JB 7740
Thallium	0.242	mg/Kg	0.100	13:56	08/20/98	TD 7841
Vanadium	31.1	mg/Kg	0.800	15:22	08/20/98	TD 6010B
Zinc	55.5	mg/Kg	1.00	15:22	08/20/98	TD 6010B


 LABORATORY MANAGER

000008

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

.378 6.77

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

Site ID **DDMT**
Memphis, TN

Project **20560**

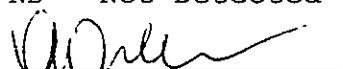
Date Arrived **08/18/98**
ETC Order Number **9808526**

ETC Lab ID **9808526-01**
Sample ID: RA-TS-004A
QC Batch : P06011

Matrix : **SOIL**
Sample Date : **08/17/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/19/98	08/20/98	RG	8081A 3550B
Aldrin	ND	ug/Kg	2.00				
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				
Alpha-Chlordane	ND	ug/Kg	2.00				
Gamma-Chlordane	ND	ug/Kg	2.00				
Chlordane	ND	ug/Kg	20				
4,4'-DDD	ND	ug/Kg	2.00				
4,4'-DDE	ND	ug/Kg	2.00				
4,4'-DDT	5	88 ug/Kg	2.00				
Dieldrin	ND	ug/Kg	2.00				
Endosulfan I	ND	ug/Kg	2.00				
Endosulfan II	ND	ug/Kg	2.00				
Endosulfan Sulfate	ND	ug/Kg	2.00				
Endrin	ND	ug/Kg	2.00				
Endrin Aldehyde	ND	ug/Kg	2.00				
Endrin Ketone	ND	ug/Kg	2.00				
Heptachlor	ND	ug/Kg	2.00				
Heptachlor Epoxide	ND	ug/Kg	2.00				
Methoxychlor	ND	ug/Kg	2.00				
Toxaphene	ND	ug/Kg	200				
Surrogate Standard	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	82		64	154			
S2 - Tetrachloro-m-xylene	63		39	130			

ND - Not Detected


LABORATORY MANAGER

000009

378 678

Environmental Testing & Consulting, Inc.

Quality Control Reports

Metals (ICP/GFAA/CV)

000010

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

373 679

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-526

HOLDING TIMES

QC Batch(s) for this order : ICP/GFAA V7-SO-82
Mercury V4-SO-26

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
9808-526-01	Arsenic	1:5 (C)	9808-526-01	Lead	1:5 (C)
9808-526-01	Iron	1:5 (C)			

QUALITY CONTROL

9808-526.MQCBLANK

Method Blank

V7-SO-82BLK - ICP/GFAA Metals
V4-SO-26BLK - Mercury

Calcium identified in V7-SO-82BLK at 3.27 mg/Kg.
Iron identified in V7-SO-82BLK at 1.73 mg/Kg.
Lead identified in V7-SO-82BLK at 0.217 mg/Kg.

9808-526.MQCLCS

Laboratory Control Sample(s)

V7-SO-82LCS - ICP/GFAA Metals
V4-SO-26LCS - Mercury

All criteria met.

000011

373 680

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

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN

ETC Order # : 9808-526

QUALITY CONTROL

9808-526.MQCMSMSD

Matrix Spike / Matrix Spike Dup - ICP Metals

9808-483-04 RPD : All analytes within QC limits.
RRA-B-008 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 :

Analyte	mg/L Expected	mg/L Found	% Recovery	QA Evaluation
Antimony	0.500	0.491	98	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 were performed for verification :

Analyte	No Dilution	1:5 Dilution	1:25 Dilution	% Difference	QA Evaluation
Aluminum	-----	13800 mg/Kg	13400 mg/Kg	3	Pass
Calcium	1830	1870	-----	2	Pass
Iron	-----	21000	20500	2	Pass
Manganese	683	705	-----	3	Pass
Potassium	1100	1140	-----	4	Pass
Magnesium	2230	2280	-----	2	Pass
Zinc	64.5	66.7	-----	3	Pass

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

Matrix Spike / Matrix Spike Dup - Graphite Metals

9808-483-04 RPD : All analytes within QC limits.
RRA-B-008 Spike Recovery : All analytes within QC limits.*

*
Recoveries for Selenium 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
Selenium	0.050	0.042	85	Pass

000012

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

378 681

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-526

QUALITY CONTROL

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	12.6 mg/Kg	12.5 mg/Kg	1	Pass

<u>Analyte</u>	<u>1:5 Dilution</u>	<u>1:25 Dilution</u>	<u>% Difference</u>	<u>QA Evaluation</u>
Lead	20.5 mg/Kg	20.7 mg/Kg	1	Pass

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

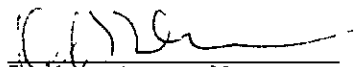
Matrix Spike / Matrix Spike Dup - Hg

9808-483-04 RPD : All analytes within QC limits.
RRA-B-008 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

000013

SOLID METHOD BLANK
METALS

Lab Name	Environmental Testing and Consulting, Inc		
Laboratory ID ICP/GFAA Metals	V7-SO-82	BLK	QC Batch V7-SO-82
Laboratory ID Mercury	V4-SO-26	BLK	V4-SO-26
Date Sample Prepared	08/20/98		ICP/GFAA Metals
	08/20/98		Mercury

Metals	Concentration mg/Kg	Detection Limit mg/Kg	Date Analyzed	Method
Silver	<0.700	0.700	08/20/98	6010B
Aluminum	<4.00	4.00	08/20/98	6010B
Arsenic	<0.200	0.200	08/19/98	7060A
Barium	<0.200	0.200	08/20/98	6010B
Beryllium	<0.100	0.100	08/20/98	6010B
Calcium	3.27	1.00	08/20/98	6010B
Cadmium	<0.400	0.400	08/20/98	6010B
Cobalt	<0.700	0.700	08/20/98	6010B
Chromium	<0.700	0.700	08/20/98	6010B
Copper	<0.600	0.600	08/20/98	6010B
Iron	1.73	0.700	08/20/98	6010B
Potassium	<20.0	20.0	08/20/98	6010B
Magnesium	<3.00	3.00	08/20/98	6010B
Manganese	<0.200	0.200	08/20/98	6010B
Sodium	<20.0	20.0	08/20/98	6010B
Nickel	<1.50	1.50	08/20/98	6010B
Lead	0.217	0.100	08/20/98	7421
Antimony	<3.20	3.20	08/20/98	6010B
Selenium	<0.200	0.200	08/19/98	7740
Thallium	<0.100	0.100	08/20/98	7841
Vanadium	<0.800	0.800	08/20/98	6010B
Zinc	<1.00	1.00	08/20/98	6010B
Mercury	<0.020	0.020	08/20/98	7471A

Metals Blank

000014

9808-526 mqcBLANK

SOLID LABORATORY CONTROL SAMPLE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory Control ID	ICP/GFAA Metals	<u>V7-SO-82</u>	LCS	QC Batch
	Mercury	<u>V4-SO-26</u>	LCS	<u>V7-SO-82</u>
				<u>V4-SO-26</u>

Date Prepared	ICP/GFAA Metals	<u>08/20/98</u>	
	Mercury	<u>08/20/98</u>	

Metals	Spike Added mg/Kg	Found mg/Kg	% R	#	QC Limits
Silver	20 0	21 6	108		80 120
Aluminum	200	215	108		80 120
Arsenic	5 00	4 56	91		85 115
Barium	200	215	108		80 120
Beryllium	20 0	21 0	105		80 120
Calcium	400	431	108		80 120
Cadmium	20 0	21 2	106		80 120
Cobalt	100	106	106		80 120
Chromium	40 0	41 9	105		80 120
Copper	40 0	42 9	107		80 120
Iron	200	215	108		80 120
Potassium	400	419	105		80 120
Magnesium	400	420	105		80 120
Manganese	20 0	21 6	108		80 120
Sodium	400	437	109		80 120
Nickel	100	107	107		80 120
Lead	2 00	2 05	103		85 115
Antimony	200	214	107		80 120
Selenium	5 00	4 49	90		85 115
Thallium	2.00	1.82	91		85 115
Vanadium	100	109	109		80 120
Zinc	20 0	21 8	109		80 120
Mercury	0 167	0 152	91		80 120

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

Metals Laboratory Control Sample

000015

9808-526 mqcLCS

378 684

SOLID MATRIX SPIKE
METALS

Lab Name Environmental Testing and Consulting, Inc

	QC Batch
Laboratory ID MS ICP/GFAA Metals	9808-483-04 V7-SO-82
Laboratory ID MS Mercury	9808-483-04 V4-SO-26

Date Sample Prepared	08/20/98	ICP/GFAA Metals
	08/20/98	Mercury

Metals	SPIKE Added mg/Kg	SAMPLE Conc mg/Kg	MS Conc mg/Kg	RPD <20% #	MS % Rec #	QC Limits	
Silver	21 1	ND	21 3	3	101	75	125
Aluminum	211	13800	13900	1	47 *	75	125
Arsenic	5 28	12 6	18 4	3	110	70	130
Barium	211	128	353	4	107	75	125
Beryllium	21 1	0 527	22.1	4	102	75	125
Calcium	423	1830	2290	4	109	75	125
Cadmium	21 1	ND	21 5	4	102	75	125
Cobalt	106	8 62	114	4	99	75	125
Chromium	42 3	15 6	58 7	7	102	75	125
Copper	42 3	16 9	62 1	3	107	75	125
Iron	211	21000	23200	5	1043 *	75	125
Potassium	423	1100	1500	1	95	75	125
Magnesium	423	2230	2740	3	121	75	125
Manganese	21 2	683	662	4	-99 *	75	125
Sodium	423	54 1	493	2	104	75	125
Nickel	106	17 9	125	5	101	75	125
Lead	2 11	20 5	21 3	9	38 *	70	130
Antimony	211	ND	ND	0	*	75	125
Selenium	5 28	ND	3 52	1	67 *	70	130
Thallium	2 11	0 265	2 09	0	87	70	130
Vanadium	106	24 0	125	6	95	75	125
Zinc	21 1	64 5	91 5	8	128 *	75	125
Mercury	0.162	0 051	0 192	1	87	75	125

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits ND - Not Detected

Metals Matrix Spike

000016

9808-526 mqcMSMSD

SOLID MATRIX SPIKE DUPLICATE METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP/GFAA Metals 9808-483-04 QC Batch V7-SO-82
 Laboratory ID MS Mercury 9808-483-04 V4-SO-26

Date Sample Prepared 08/20/98 ICP/GFAA Metals
 08/20/98 Mercury

Metals	SPIKE Added mg/Kg	SAMPLE Conc mg/Kg	MSD Conc mg/Kg		MSD % Rec	#	QC Limits	
Silver	20 7	ND	20 7		100		75	125
Aluminum	207	14300	13700		-290	*	75	125
Arsenic	5 18	12 6	17 9		102		70	130
Barium	207	128	340		102		75	125
Beryllium	20 7	0 527	21 2		100		75	125
Calcium	415	1830	2190		87		75	125
Cadmium	20 7	ND	20.7		100		75	125
Cobalt	104	8 62	109		97		75	125
Chromium	41 5	15 6	54 6		94		75	125
Copper	41 5	16 9	60 1		104		75	125
Iron	207	21000	22100		531	*	75	125
Potassium	415	1100	1490		94		75	125
Magnesium	415	2230	2650		101		75	125
Manganese	20 7	683	633		-242	*	75	125
Sodium	415	54 1	483		103		75	125
Nickel	104	17 9	119		97		75	125
Lead	2 07	20 5	23 2		130	*	70	130
Antimony	207	ND	ND			*	75	125
Selenium	5 18	ND	3.50		68	*	70	130
Thallium	2 07	0 265	2 09		88		70	130
Vanadium	104	24 0	118		90		75	125
Zinc	20 7	64 5	84 4		96		75	125
Mercury	0 165	0 051	0 194		87		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

000017

9808-526.mqcMSMSD

378 686

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC Pesticides

000018

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

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN

ETC Order # : 9808-526
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
P06011 P06011LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P06011BS

All criteria met.*

*

Endosulfan I, alpha-chlordane, 4,4'-DDD, and gamma-chlordane were flagged for high recovery in P06011BS. High recovery indicates that detection levels were not affected. These analytes were not identified in the sample associated with this project. The data was not affected.

Matrix Spike / Matrix Spike Dup FORM 3

9808-526-01 RPD : All analytes within QC limits.*
RA-TS-004A Spike Recovery : All analytes within QC limits.*

*

RPD for Endosulfan sulfate was flagged as outside QC Limits due to high recovery in the Matrix Spike Duplicate. MS recovery was within QC Limits.

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

Method Blank FORM 4
P06011LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7**
Endrin/Breakdown : All criteria met. FORM 7***
**

Calibration Verification(CV) : P20819A.52R (Primary)

Analyte	%Diff(15% Max)	Response
4,4'-DDT	24.3	Low

Low response indicates that reported levels for this analyte may be biased low. QC samples 9808-526-01MS/MSD were the only project samples associated with this CV. Recoveries for DDT were 91% and 88% respectively indicating that the data was not affected.

373 688

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

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN

ETC Order # : 9808-526
Method (SW-846) : 8081A/3550B

CALIBRATION

**

Calibration Verification(CV) : P20819B.52R (Confirmation)

Analyte	%Diff(15% Max)	Response
4,4'-DDD	21.9	High
4,4'-DDT	24.4	Low
Endrin	18.4	High

Low response for DDT indicates that reported levels for this analyte may be biased low. High recoveries for DDD and Endrin indicate that reported levels for this analyte may be biased high. QC samples 9808-526-01MS/MSD were the only project samples associated with this CV. Recoveries for these analytes were within QC Limits indicating that the data was not affected.

PEM Verification : P20819B (Confirmation)

Analyte	%Breakdown(15% Max)
Endrin	20.2

Endrin breakdown for this sequence was noted at 8.61% for the primary analysis in which the final results were reported. Endrin was not identified in samples associated with this project.

SAMPLE ANALYSIS

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


Laboratory Manager

000020

FORM 2
SOIL PESTICIDE SURROGATE RECOVERY

378 689

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-526

Level:(low/med) LOW

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P06011LB	86	92							0
02	P06011BS	102	111							0
03	9808-526-1	63	82							0
04	9808-526-1M	74	90							0
05	9808-526-1S	79	84							0
06										
07										
08										
09										
10										
11										
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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

378 690

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

P06011LB

Lab Name: ETC, INC.

Lab Prep Batch: P06011

SDG No.: 9808-526

Lab File ID: P208191A-09R

Instrument ID: PEST2A

Matrix: (soil/water) SOIL

Date Analyzed: 08/19/98

Level:(low/med) LOW

Time Analyzed: 2334

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P06011BS		P208191A-10R	08/20/98
02	9808-526-1		P208191A-18R	08/20/98
03	9808-526-1M		P208191A-25R	08/20/98
04	9808-526-1S		P208191A-26R	08/20/98
05				
06				
07				
08				
09				
10				
11				
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29				
30				

COMMENTS:

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

P06011LB

Lab Name: ETC, INC.

SDG No.: 9808-526

Matrix: (soil/water) SOIL

Lab Prep Batch: P06011

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

Lab File ID: P208191A-09R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 08/19/98

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
5103-74-2-----	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
959-98-8/5103-71	Endosulfan I/alpha-chlordane	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

000023

378 692

FORM 3
SOIL PESTICIDE LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P06011

SDG No.: 9808-526

Matrix Spike - Sample No.: P06011BS

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		36.05686	108	31-111
alpha-BHC	33.33333		34.30306	103	22-112
beta-BHC	33.33333		38.40901	115	54-120
delta-BHC	33.33333		25.00525	75	10- 96
gamma-BHC (Lindane)	33.33333		36.17565	108	26-113
gamma-chlordane	33.33333		37.57040	113*	50-106
4,4'-DDE	33.33333		36.48513	109	36-117
4,4'-DDD	33.33333		37.63171	113*	47-112
4,4'-DDT	33.33333		39.22555	118	49-124
Dieldrin	33.33333		36.16646	108	44-108
Endosulfan I/alpha-chlo	33.33333		37.80569	113*	49-103
Endosulfan II	33.33333		37.90887	114	53-115
Endosulfan sulfate	33.33333		35.88507	108	51-110
Endrin	33.33333		37.93722	114	44-118
Endrin aldehyde	33.33333		40.70453	122	48-128
Endrin Ketone	33.33333		37.87373	114	38-130
Heptachlor	33.33333		37.72940	113	47-113
Heptachlor epoxide	33.33333		37.02592	111	47-112
Methoxychlor	33.33333		40.47856	121	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: 3 out of 19 outside limits

COMMENTS:

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P06011

SDG No.: 9808-526

Matrix Spike - Sample No.: 9808-526-1

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	M CONCENTRATION (ug/Kg)	M % REC #	QC. LIMITS REC.
Aldrin	33.00330	4.75974	29.62314	75	31-111
alpha-BHC	33.00330	4.87531	27.59577	69	22-112
beta-BHC	33.00330	0.00000	33.03086	100	54-120
delta-BHC	33.00330	0.00000	21.71782	66	10- 96
gamma-BHC (Lindane)	33.00330	4.24659	29.46326	76	26-113
gamma-chlordane	33.00330	4.02978	32.49895	86	50-106
4,4'-DDE	33.00330	0.00000	31.40754	95	36-117
4,4'-DDD	33.00330	3.63954	32.19476	86	47-112
4,4'-DDT	33.00330	4.93623	35.05667	91	49-124
Dieldrin	33.00330	5.44359	31.03958	78	44-108
Endosulfan I/alpha-chlo	33.00330	3.42453	32.21777	87	49-103
Endosulfan II	33.00330	0.00000	32.45617	98	53-115
Endosulfan sulfate	33.00330	0.00000	30.32419	92	51-110
Endrin	33.00330	3.72892	35.13715	95	44-118
Endrin aldehyde	33.00330	0.00000	34.09107	103	48-128
Endrin Ketone	33.00330	0.00000	32.21453	98	38-130
Heptachlor	33.00330	4.04359	30.84399	81	47-113
Heptachlor epoxide	33.00330	0.00000	31.36527	95	47-112
Methoxychlor	33.00330	0.00000	36.22469	110	39-147

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

COMMENTS:

378 694

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P06011

SDG No.: 9808-526

Matrix Spike - Sample No.: 9808-526-1

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	S CONCENTRATION (ug/Kg)	S % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Aldrin	33.11258	29.20335	74	1	20	31-111
alpha-BHC	33.11258	29.48317	74	7	20	22-112
beta-BHC	33.11258	33.24981	100	0	20	54-120
delta-BHC	33.11258	21.95185	66	0	20	10- 96
gamma-BHC (Lindane)	33.11258	30.89920	80	5	20	26-113
gamma-chlordane	33.11258	31.17508	82	5	20	50-106
4,4'-DDE	33.11258	30.08932	91	4	20	36-117
4,4'-DDD	33.11258	30.75097	82	5	20	47-112
4,4'-DDT	33.11258	34.05114	88	3	20	49-124
Dieldrin	33.11258	30.04832	74	5	20	44-108
Endosulfan I/alpha-chlo	33.11258	31.34990	84	4	20	49-103
Endosulfan II	33.11258	31.31468	94	4	20	53-115
Endosulfan sulfate	33.11258	139.09696	420*	128*	20	51-110
Endrin	33.11258	33.92012	91	4	20	44-118
Endrin aldehyde	33.11258	33.94077	102	1	20	48-128
Endrin Ketone	33.11258	32.60582	98	0	20	38-130
Heptachlor	33.11258	32.05698	85	5	20	47-113
Heptachlor epoxide	33.11258	30.71795	93	2	20	47-112
Methoxychlor	33.11258	37.38471	113	3	20	39-147

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: 1 out of 38 outside limits

COMMENTS:

**IMPORTED CLEAN BACKFILL (TOP SOIL)
CONFIRMATION SAMPLE**

Date Collected 08/17/98

RA-TSA-004A (VOCs, SVOCs, PCBs, Cyanide & pH)



ENVIRONMENTAL TESTING & CONSULTING, INC.
2921 Walnut Grove Road • Memphis TN 38111 • (901) 327-2750 • FAX (901) 327-6334

373 696

Founded 1972

August 24, 1998

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

Ref: Analytical Testing
ETC Order # 9808588
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 cursive script, appearing to read 'Nathan A. Pera, IV'.

Nathan A. Pera, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT

373 697

Chemical Analytical Data Review/Evaluation/Validation

SOUTHERN REGION

Report Type: ☐ Preliminary ☒ Final Date Received: 9/2/98 Project Number 920560
 Project Name: DDMT Analysis/Method: 8270C, 9010A, 8082, 9045C, 82
 Laboratory: ETC. Lab Project/Case Number: 9808588
 Sample Number(s): RA-TS-004A

Evaluated By: S. J. [signature] Date Evaluated: 9/3/98
 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	1	5	5	5	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. Pasamunaji
 Evaluator's Signature

9/3/98
 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)

373 700

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>
980858801	RA-TS-004A	SOIL	8270C	GC/MS Base/Neutral & Acid
980858801	RA-TS-004A	SOIL	9010A	Cyanide
980858801	RA-TS-004A	SOIL	8082	PCBs
980858801	RA-TS-004A	SOIL	9045C	pH - Corrosivity
980858801	RA-TS-004A	SOIL		Encore Containers
980858801	RA-TS-004A	SOIL	8260B	GC/MS Volatile Organics

Environmental Testing & Consulting, Inc.

378 701

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

217892

FORM 0019 REV 2-97

Q808-588

000004

OHM 1 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 Liliande 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 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	PA-15-004A		8-17-98	1400	4.53	3 X 100 OHM STD	3094	✓	✓	✓	
2											
3											
4											
5											
6											
7											
8											
9											
10											
SAMPLES COLLECTED BY STEVE GRANDT											
REUNQUISHED BY											
COURIER AND AIR BILL NUMBER											
RECEIVED BY											
DATE											
TIME											
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											

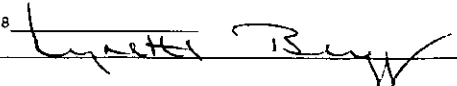
370-702

COOLER RECEIPT FORM

Cooler Receipt Form
9808589 CRF p 1

LIMS # 9808-588 AND 9808-589 Number of Coolers 1
 Date Received 08/19/98
 VDTSR 08/19/98 1535
 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 08/19/98
 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? 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

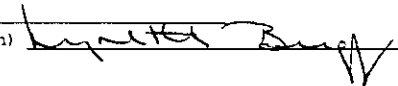
6 Were custody papers filled out properly (ink, signed, etc)? YES

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 08/19/98

B LOG-IN PHASE Date samples were logged-in 08/19/98
 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

373 704

Environmental Testing & Consulting, Inc.

Sample Reports

000006

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

INORGANIC ANALYSIS DATA SHEET

378 705

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 08/19/98

ETC Order Number 9808588

ETC Lab ID 9808588-01

Sample ID: RA-TS-004A

Matrix :SOIL

Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	ND	mg/Kg	1 00	08/20/98	9010A	CY082098
pH - Corrosivity	7.5	SU		08/20/98	9045C	PH082098


LABORATORY MANAGER

000007

373 706

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 08/19/98
 ETC Order Number 9808588

ETC Lab ID **9808588-01**
Sample ID: RA-TS-004A
QC Batch : V2082101

Matrix :SOIL
 Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS Volatile Organics				08/21/98	08/21/98	JH	8260B 5030B
Acetone	ND	ug/Kg	50				
Benzene	ND	ug/Kg	2.00				
Bromodichloromethane	ND	ug/Kg	2.00				
Bromoform	ND	ug/Kg	2.00				
Bromomethane	ND	ug/Kg	2.00				
Carbon Disulfide	ND	ug/Kg	25				
Carbon Tetrachloride	ND	ug/Kg	2.00				
Chlorobenzene	ND	ug/Kg	2.00				
Chlorodibromomethane	ND	ug/Kg	2.00				
Chloroethane	ND	ug/Kg	2.00				
Chloroform	ND	ug/Kg	2.00				
Chloromethane	ND	ug/Kg	2.00				
1,1-Dichloroethane	ND	ug/Kg	2.00				
1,2-Dichloroethane	ND	ug/Kg	2.00				
1,1-Dichloroethene	ND	ug/Kg	2.00				
trans-1,2-Dichloroethene	ND	ug/Kg	2.00				
1,2-Dichloropropane	ND	ug/Kg	2.00				
cis-1,3-Dichloropropene	ND	ug/Kg	2.00				
trans-1,3-Dichloropropene	ND	ug/Kg	2.00				
Ethylbenzene	ND	ug/Kg	2.00				
2-Hexanone (MBK)	ND	ug/Kg	50				
4-Methyl-2-pentanone (MIBK)	ND	ug/Kg	50				
2-Butanone (MEK)	ND	ug/Kg	50				
Methylene Chloride	ND	ug/Kg	50				
Styrene	ND	ug/Kg	2.00				
1,1,2,2-Tetrachloroethane	ND	ug/Kg	2.00				
Tetrachloroethene	ND	ug/Kg	2.00				
Toluene	ND	ug/Kg	2.00				
1,1,1-Trichloroethane	ND	ug/Kg	2.00				
1,1,2-Trichloroethane	ND	ug/Kg	2.00				
Trichloroethene	ND	ug/Kg	2.00				
Vinyl Acetate	ND	ug/Kg	25				
Vinyl Chloride	ND	ug/Kg	2.00				
o-Xylenes	ND	ug/Kg	2.00				
m-Xylenes	ND	ug/Kg	2.00				
p-Xylenes	ND	ug/Kg	2.00				
cis-1,2-Dichloroethene	ND	ug/Kg	2.00				

ND - Not Detected


 LABORATORY MANAGER

000008

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

373 707

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 08/19/98
ETC Order Number 9808588

ETC Lab ID 9808588-01
Sample ID: RA-TS-004A
QC Batch : V2082101

Matrix :SOIL
Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
------	--------	-------	--------------------	-------------------	------------------	----	--------

GC/MS Volatile Organics				08/21/98	08/21/98	JH	8260B 5030B
-------------------------	--	--	--	----------	----------	----	----------------

<u>Surrogate Standard</u>	<u>% Recovery</u>	<u>QC Limits</u>
S1 - Dibromofluoromethane	107	85 119
S2 - Toluene-d8	97	87 114
S3 - 4-Bromofluorobenzene	102	75 111

ND - Not Detected


LABORATORY MANAGER

000009

378 708

FORM 1
VOA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9808-588-1

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-588

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 4.7 (g/mL) G

Lab File ID: 0601005

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 08/21/98

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.				
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FORM I VOA-GCMS-TIC

000010

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

378 709

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 **08/19/98**ETC Order Number **9808588**ETC Lab ID **9808588-01****Sample ID: RA-TS-004A****QC Batch : P04021**Matrix : **SOIL**Sample Date : **08/17/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS Base/Neutral & Acid				08/21/98	08/24/98	RR	8270C 3550B
Acenaphthene	ND	ug/Kg	170				
Acenaphthylene	ND	ug/Kg	170				
Anthracene	ND	ug/Kg	170				
Benzo(a)anthracene	58J	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	1670				
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	46J	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	81J	ug/Kg	170				
Fluorene	ND	ug/Kg	170				

ND - Not Detected


LABORATORY MANAGER

000011

378 710

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 08/19/98
 ETC Order Number 9808588

ETC Lab ID **9808588-01**
Sample ID: RA-TS-004A
QC Batch : P04021

Matrix :SOIL
 Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS Base/Neutral & Acid				08/21/98	08/24/98	RR	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	72J	ug/Kg	170				
Phenol	ND	ug/Kg	170				
Pyrene	63J	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	31 Q	39 80
S2 - 2-Fluorobiphenyl	37 Q	43 84
S3 - 4-Terphenyl-d14	41	40 121
S4 - Phenol-d6	36	31 94
S5 - 2,4,6-Tribromophenol	46	17 91
S6 - 2-Fluorophenol	32	23 89

ND - Not Detected


 LABORATORY MANAGER

000012

378 711

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9808-588-1

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-588

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.3 (g/mL) G

Lab File ID: 1101011

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1(mL)

Date Analyzed: 08/24/98

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.				
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FORM I BNA-GCMS-TIC

000013

373 712

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 **08/19/98**
ETC Order Number **9808588**

ETC Lab ID **9808588-01**
Sample ID: RA-TS-004A
QC Batch : P08014

Matrix : **SOIL**
Sample Date : **08/17/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				08/21/98	08/24/98	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 - Tetrachloro-m-xylene	57		39 130				
S2 - Decachlorobiphenyl	66		64 154				

ND - Not Detected


LABORATORY MANAGER

000014

Environmental Testing & Consulting, Inc.

**Quality Control Reports
Inorganics**

373 714

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
INORGANICS

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-588

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

000016

Environmental Testing & Consulting, Inc.
Inorganic QC Data Summary

378 715

Client Name OHM Remediation Services
Project DDMT

ETC Order Number 9808-588
File Name 9808-588 QC1

Method Blank

Analyte	Date Analyzed	Blank Concentration mg/Kg	QC Batch
Cyanide	08/20/98	<1 00	CY082098

Calibration Verification (CV)

Analyte	Date Analyzed	CV Conc mg/L	CV Conc Found	% Difference
Cyanide	08/20/98	0 200	0 211	6 0

Laboratory Control Sample (LCS)

Analyte	Date Analyzed	LCS Conc mg/Kg	LCS Conc Found	% Recovery
Cyanide	08/20/98	20 0	19 1	96 0

Matrix Spike/Matrix Spike Duplicate

Sample ID	Analyte	Spike mg/Kg	Sample mg/Kg	MS Conc Found	MS % Recovery	QC Limits	RPD
9808-483-01 MS	Cyanide	18 5	<1 00	17 1	92 0	70-130	
9808-483-01 MSD	Cyanide	20 0	<1 00	17 9	90 0	70-130	2 0

373 716

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC/MS Volatiles

000018

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS VOLATILE COMPOUNDS - SOIL

378 717

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-588
Method (SW-846) : 8260B/5030B

HOLDING TIMES

Sample Analysis : All samples analyzed within 14 days of collection.

QUALITY CONTROL

QC Batch Form 4 Summary
V2082101 V208211LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
V208211BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9808-588-01 RPD : All analytes within QC limits.*
RA-TS-004A 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
V208211LB

No Target Analytes detected above the reporting limit.
Methylene Chloride identified in V208211LB at 8.67J ug/Kg.

CALIBRATION

BFB Daily 12 Hour Tune : All criteria met. FORM 5
Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7*
*

Multiple analytes for Calibration Verification 08/21/98 were flagged with a percent difference >30.0%. These analytes were not identified in samples associated with this calibration verification. The data was not affected.

Volatile Internal Standard Area and RT FORM 8
Daily Check Standard(s) Internal Standard Areas and Retention Times within QC limits.

000019

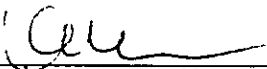
373 718

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS VOLATILE COMPOUNDS - SOIL

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-588
Method (SW-846) : 8260B/5030B

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC, 5971MSD
Dilutions Required : No dilutions required.


Laboratory Manager

000020

FORM 2
SOIL VOA-GCMS SYSTEM MONITORING COMPOUND RECOVERY

373 719

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-588

Level:(low/med) LOW

	CLIENT SAMPLE NO.	SMC1 (DBF) #	SMC2 (TOL) #	SMC3 (BFB) #	OTHER	TOT OUT
01	V208211BS	100	99	96		0
02	V208211LB	102	98	100		0
03	9808-588-1	107	97	102		0
04	9808-588-1M	104	101	98		0
05	9808-588-1S	108	101	99		0
06						
07						
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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

000021

378 720

FORM 4
VOA-GCMS METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

Lab Name: ETC, INC.

V208211LB

Lab Prep Batch: V2082101

SDG No.: 9808-588

Lab File ID: 0402003

Lab Prep Batch: V2082101

Date Analyzed: 08/21/98

Time Analyzed: 1132

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	V208211BS		0301002LCS	1002
02	9808-588-1		0601005	1258
03	9808-588-1M		1401013	1848
04	9808-588-1S		1501014	1932
05				
06				
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COMMENTS:

FORM 1
VOA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

V208211LB

Lab Name: ETC, INC.

SDG No.: 9808-588

Matrix: (soil/water) SOIL

Lab Prep Batch: V2082101

Sample wt/vol: 10.0 (g/mL) G

Lab File ID: 0402003

Level: (low/med) LOW

Date Analyzed: 08/21/98

Dilution Factor: 1.0

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

67-64-1-----	Acetone	50.0	U
71-43-2-----	Benzene	5.00	U
108-86-1-----	Bromobenzene	5.00	U
75-27-4-----	Bromodichloromethane	5.00	U
75-25-2-----	Bromoform	5.00	U
74-83-9-----	Bromomethane	5.00	U
107-02-8-----	Acrolein	50.0	U
78-93-3-----	Methyl-Ethyl Ketone	20.0	U
75-15-0-----	Carbon Disulfide	5.00	U
56-23-5-----	Carbon Tetrachloride	5.00	U
108-90-7-----	Chlorobenzene	5.00	U
124-48-1-----	Chlorodibromomethane	5.00	U
75-00-3-----	Chloroethane	5.00	U
107-13-1-----	Acrylonitrile	50.0	U
110-75-0-----	2-chloroethyl vinyl ether	5.00	U
1634-04-4-----	Methyl-tertbutyl-Ether	5.00	U
67-66-3-----	Chloroform	5.00	U
74-87-3-----	Chloromethane	5.00	U
96-12-8-----	1,2-Dibromo-3-chloropropane	5.00	U
74-95-3-----	Dibromomethane	5.00	U
95-50-1-----	1,2-Dichlorobenzene	5.00	U
541-73-1-----	1,3-Dichlorobenzene	5.00	U
106-46-7-----	1,4-Dichlorobenzene	5.00	U
141-78-6-----	Ethyl Acetate	5.00	U
67-64-1-----	Dichlorodifluoromethane	5.00	U
75-34-3-----	1,1-Dichloroethane	5.00	U
107-06-2-----	1,2-Dichloroethane	5.00	U
75-35-4-----	1,1-Dichloroethene	5.00	U
156-59-4-----	cis-1,2-Dichloroethene	5.00	U
156-60-5-----	trans-1,2-Dichloroethene	5.00	U
78-87-5-----	1,2-Dichloropropane	5.00	U
142-28-9-----	1,3-Dichloropropane	5.00	U
10061-01-5-----	cis-1,3-Dichloropropene	5.00	U

FORM I VOA-GCMS

000023

378 722

FORM 1
VOA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

V208211LB

Lab Name: ETC, INC.

SDG No.: 9808-588

Matrix: (soil/water) SOIL

Lab Prep Batch: V2082101

Sample wt/vol: 10.0 (g/mL) G

Lab File ID: 0402003

Level: (low/med) LOW

Date Analyzed: 08/21/98

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
10061-02-6	trans-1,3-Dichloropropene	5.00	U	
100-41-4	Ethylbenzene	5.00	U	
591-78-6	2-Hexanone	20.0	U	
75-09-2	Methylene Chloride	8.67	J	
108-10-1	4-Methyl-2-Pentanone	10.0	U	
91-20-3	Naphthalene	5.00	U	
100-42-5	Styrene	5.00	U	
630-20-6	1,1,1,2-Tetrachloroethane	5.00	U	
79-34-5	1,1,2,2-Tetrachloroethane	5.00	U	
127-18-4	Tetrachloroethene	5.00	U	
108-88-3	Toluene	5.00	U	
71-55-6	1,1,1-Trichloroethane	5.00	U	
79-00-5	1,1,2-Trichloroethane	5.00	U	
79-01-6	Trichloroethene	5.00	U	
75-69-4	Trichlorofluoromethane	5.00	U	
96-18-4	1,2,3-Trichloropropane	5.00	U	
108-05-4	Vinyl Acetate	5.00	U	
75-01-4	Vinyl Chloride	5.00	U	
1330-20-7	Xylene-mp	5.00	U	
95-47-6	Xylene-o	5.00	U	

FORM I VOA-GCMS

000024

FORM 3
SOIL VOA-GCMS LABORATORY CONTROL SAMPLE

378 723

Lab Name: ETC, INC.

Lab Prep Batch: V2082101

SDG No.: 9808-588

Matrix Spike - Sample No.: V208211BS

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
Acetone	100		114	114	59-151
Acetonitrile	1000		1130	113	57-143
Benzene	100		112	112	72-124
Bromobenzene	100		95.3	95	77-120
Bromochloromethane	100		107	107	74-120
Bromodichloromethane	100		98.7	99	68-119
Bromoform	100		98.6	99	66-136
Bromomethane	100		107	107	40-134
Methyl-Ethyl Ketone	100		109	109	55-151
n-Butylbenzene	100		112	112	69-129
sec-Butylbenzene	100		107	107	72-127
tert-Butylbenzene	100		105	105	73-126
Carbon Disulfide	100		128	128	60-133
Carbon Tetrachloride	100		114	114	64-123
Chlorobenzene	100		96.9	97	77-112
Chlorodibromomethane	100		99.6	100	72-118
Chloroethane	100		112	112	64-142
2-Chloroethyl vinyl Eth	100		63.3	63	22-165
Chloroform	100		105	105	70-115
Chloromethane	100		107	107	58-139
2-Chlorotoluene	100		102	102	65-132
4-Chlorotoluene	100		102	102	67-127
1,2-Dibromo-3-chloropro	100		96.4	96	56-134
1,2-Dibromoethane	100		99.6	100	74-118
Dibromomethane	100		96.7	97	75-114
1,2-Dichlorobenzene	100		97.4	97	80-113
1,3-Dichlorobenzene	100		97.6	98	77-119
1,4-Dichlorobenzene	100		99.4	99	78-116

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

* Values outside of QC limits

COMMENTS:

378 724

FORM 3
SOIL VOA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V2082101

SDG No.: 9808-588

Matrix Spike - Sample No.: V208211BS

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
Dichlorodifluoromethane	100		98.7	99	48-145
1,1-Dichloroethane	100		109	109	76-118
1,2-Dichloroethane	100		98.9	99	62-124
1,1-Dichloroethene	100		115	115	69-121
cis-1,2-Dichloroethene	100		104	104	76-114
trans-1,2-Dichloroethen	100		114	114	72-121
1,2-Dichloropropane	100		103	103	64-133
1,3-Dichloropropane	100		101	101	68-128
2,2-Dichloropropane	100		118	118	67-132
1,1-Dichloropropene	100		116	116	76-117
cis-1,3-Dichloropropene	100		104	104	77-120
trans-1,3-Dichloroprope	100		104	104	73-124
Ethylbenzene	100		99.5	100	77-111
Hexachlorobutadiene	100		110	110	69-137
2-Hexanone	100		107	107	53-144
Isopropylbenzene	100		105	105	74-125
4-Isopropyltoluene	100		108	108	72-127
Methylene Chloride	100		102	102	67-115
4-Methyl-2-Pentanone	100		104	104	42-144
Naphthalene	100		98.2	98	53-124
n-Propylbenzene	100		110	110	75-125
Styrene	100		98.8	99	77-117
1,1,1,2-Tetrachloroetha	100		96.5	96	79-113
1,1,2,2-Tetrachloroetha	100		99.3	99	67-126
Tetrachloroethene	100		107	107	77-115
Toluene	100		104	104	77-115
1,2,3-Trichlorobenzene	100		101	101	62-132
1,2,4-Trichlorobenzene	100		104	104	68-132

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

* Values outside of QC limits

COMMENTS:

FORM 3
SOIL VOA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V2082101

SDG No.: 9808-538

Matrix Spike - Sample No.: V208211BS

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
1,1,1-Trichloroethane	100		111	111	63-122
1,1,2-Trichloroethane	100		103	103	69-117
Trichloroethene	100		105	105	75-113
Trichlorofluoromethane	100		119	119	55-130
1,2,3-Trichloropropane	100		96.2	96	62-130
1,2,4-Trimethylbenzene	100		103	103	69-126
1,3,5-Trimethylbenzene	100		105	105	69-128
Vinyl Acetate	100		138	138	28-146
Vinyl Chloride	100		109	109	65-134
Xylene-mp	200		203	102	77-115
Xylene-o	100		99.3	99	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: 0 out of 67 outside limits

COMMENTS:

373 726

FORM 3
SOIL VOA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: V2082101

SDG No.: 9808-588

Matrix Spike - Sample No.: 9808-588-1

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Benzene	232	0.000	216	93	72-124
Chlorobenzene	232	0.000	170	73*	77-112
1,1-Dichloroethene	232	0.000	231	100	69-121
Toluene	232	0.000	191	82	77-115
Trichloroethene	232	0.000	193	83	75-113

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
Benzene	196	135	69*	30*	20	72-124
Chlorobenzene	196	86.6	44*	50*	20	77-112
1,1-Dichloroethene	196	152	78	25*	20	69-121
Toluene	196	100	51*	47*	20	77-115
Trichloroethene	196	116	59*	34*	20	75-113

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

* Values outside of QC limits

RPD: 5 out of 5 outside limits

Spike Recovery: 5 out of 10 outside limits

COMMENTS:

FORM III VOA-GCMS

000028

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC/MS Semi-Volatiles

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 # : 9808-588
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
P04021 P04021LB

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 9808-588-01(RA-TS-004A).
Surrogate recovery for Nitrobenzene-d5 was flagged as outside QC
Limits in samples 9808-588-01MSD associated with this project.
Review of extraction information and the raw data showed no obvious
matrix interference. Sample 9808-588-01 was re-analyzed for
verification with similar recoveries.

Laboratory Control Sample FORM 3
P04021BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9808-588-01 RPD : All analytes within QC limits.
RA-TS-004A Spike Recovery : All analytes within QC limits.

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

Method Blank FORM 4
P04021LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

DFTPP Daily 12 Hour Tune : All criteria met. FORM 5
Calibration Verification : 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.

000030

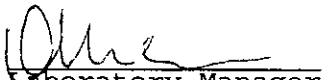
ENVIRONMENTAL TESTING AND CONSULTING, INC. 378 729
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - SOIL

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

ETC Order # : 9808-588
Method (SW-846) : 8270C/3550B

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC, 5971MSD
Dilutions Required : No dilutions required.


Laboratory Manager

000031

378 730

FORM 2
SOIL BNA-GCMS SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-588

Level: (low/med) LOW

	CLIENT SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	S7 #	S8 #	TOT OUT
01	P04021LB	68	65	69	77	81	89			0
02	P04021BS	66	74	71	77	79	80			0
03	9808-588-1	32	36	31*	37*	46	41			2
04	9808-588-1	32	37	32*	38*	53	47			2
05	9808-588-1M	74	79	78	80	83	51			0
06	9808-588-1S	79	84	80*	83	85	43			1
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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

000032

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

378 731
CLIENT SAMPLE NO

P04021LB

Lab Name: ETC, INC.

Lab Prep Batch: P04021

Lab File ID: 0701007

Matrix: (soil/water) SOIL

Level:(low/med) LOW

SDG No.: 9808-588

Instrument ID: BNA2

Date Analyzed: 08/24/98

Time Analyzed: 1219

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

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P04021BS		0901009	08/24/98
02	9808-588-1		1101011	08/24/98
03	9808-588-1		1501015	08/24/98
04	9808-588-1M		1601016	08/24/98
05	9808-588-1S		1701017	08/25/98
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COMMENTS:

373 732

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

P04021LB

Lab Name: ETC, INC.

SDG No.: 9808-588

Matrix: (soil/water) SOIL

Lab Prep Batch: P04021

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

Lab File ID: 0701007

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1(mL)

Date Analyzed: 08/24/98

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
50-32-8	Benzo(a)pyrene	167	U
65-85-0	Benzoic Acid	1670	U
100-51-6	Benzyl Alcohol	167	U
111-44-4	bis(2-Chloroethyl)ether	167	U
111-91-1	Bis(2-chloroethoxy)methane	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
59-50-7	4-Chloro-3-Methylphenol	167	U
91-58-7	2-Chloronaphthalene	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
84-66-2	Diethylphthalate	167	U
105-67-9	2,4-Dimethyphenol	167	U
131-11-3	Dimethylphthalate	167	U

FORM I BNA-GCMS

000034

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

373 733
CLIENT SAMPLE NO.

P04021LB

Lab Name: ETC, INC.

SDG No.: 9808-588

Matrix: (soil/water) SOIL

Lab Prep Batch: P04021

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

Lab File ID: 0701007

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1(mL)

Date Analyzed: 08/24/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
534-52-1-----	4,6-Dinitro-2-methylphenol	170	U
51-28-5-----	2,4-Dinitrophenol	333	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
193-39-5-----	Indeno(1,2,3-cd)pyrene	167	U
67-72-1-----	Hexachloroethane	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
110-86-1-----	Pyridine	167	U

FORM I BNA-GCMS

000035

373 734

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

P04021LB

Lab Name: ETC, INC.

SDG No.: 9808-588

Matrix: (soil/water) SOIL

Lab Prep Batch: P04021

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

Lab File ID: 0701007

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 08/24/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/Kg) UG/KG	Q
86-74-8-----	Carbazole	167	U
92-87-5-----	Benzidine	667	U

FORM I BNA-GCMS

000036

FORM 3
SOIL BNA-GCMS LABORATORY CONTROL SAMPLE

378 735

Lab Name: ETC, INC.

Lab Prep Batch: P04021

SDG No.: 9808-588

Matrix Spike - Sample No.: P04021BS

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
Acenaphthene	1670		1260	75	34-126
Acenaphthylene	1670		1280	77	62-123
Anthracene	1670		1340	80	68-124
Benzo(b)fluoranthene	1670		1260	75	67-126
Benzo(a)Anthracene	1670		1380	83	60-133
Benzo(k)fluoranthene	1670		1270	76	75-131
Benzo(g,h,i)perylene	1670		1280	77	53-137
Benzo(a)pyrene	1670		1320	79	68-129
Benzoic Acid	3330		5090	153	37-251
Benzyl Alcohol	1670		1140	68	20-159
bis(2-Chloroethyl)ether	1670		1160	69	25-147
Bis(2-chloroethoxy)meth	1670		1100	66	37-153
bis(2-Chloroisopropyl)e	1670		1030	62	35-138
bis(2-ethylhexyl)Phthal	1670		1280	77	60-150
4-Bromophenyl-phenyleth	1670		1240	74	59-130
Butylbenzylphthalate	1670		1300	78	71-137
4-Chloroaniline	1670		735	44	27-106
4-Chloro-3-Methylphenol	3330		2360	71	33-147
2-Chloronaphthalene	1670		1270	76	62-126
2-Chlorophenol	3330		2220	67	35-138
4-Chlorophenyl-phenylet	1670		1220	73	60-128
Chrysene	1670		1380	83	67-131
Dibenzo(a,h)anthracene	1670		1240	74	51-138
Dibenzofuran	1670		1300	78	57-131
Di-n-Butylphthalate	1670		1200	72	39-179
1,2-Dichlorobenzene	1670		1050	63	58-110
1,3-Dichlorobenzene	1670		1080	65	55-109
1,4-Dichlorobenzene	1670		1050	63	26-121

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

COMMENTS:

000037

378 736

FORM 3
SOIL BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P04021

SDG No.: 9808-588

Matrix Spike - Sample No.: P04021BS

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		3630	109	18-191
2,4-Dichlorophenol	3330		2380	71	68-123
Diethylphthalate	1670		1260	75	72-133
2,4-Dimethyphenol	3330		2180	65	53-121
Dimethylphthalate	1670		1240	74	64-132
4,6-Dinitro-2-methylphe	3330		2500	75	70-158
2,4-Dinitrophenol	3330		2670	80	31-186
2,4-Dinitrotoluene	1670		1320	79	22-139
2,6-Dinitrotoluene	1670		1320	79	64-142
Di-n-octylphthalate	1670		1400	84	42-172
Fluoranthene	1670		1300	78	71-132
Fluorene	1670		1270	76	65-126
Hexachlorobenzene	1670		1260	75	64-130
Hexachlorobutadiene	1670		1160	69	62-116
Hexachlorocyclopentadie	1670		1210	72	16-160
Hexachloroethane	1670		1060	63	58-110
Indeno(1,2,3-cd)pyrene	1670		1640	98	34-170
Isophorone	1670		1240	74	35-135
2-Methylnaphthalene	1670		1210	72	57-123
2-Methylphenol	3330		2550	76	56-132
3&4-Methylphenol	3330		2330	70	68-111
Naphthalene	1670		1130	68	62-113
Nitrobenzene	1670		1110	66	59-123
2-Nitroaniline	1670		1230	74	63-138
3-Nitroaniline	1670		1140	68	53-128
4-Nitroaniline	1670		1180	71	60-140
2-Nitrophenol	3330		2120	64	52-145
4-Nitrophenol	3330		1250	38	12-105

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

* Values outside of QC limits

COMMENTS:

000038

FORM 3
SOIL BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P04021

SDG No.: 9808-588

Matrix Spike - Sample No.: P04021BS

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
Diphenylamine/n-NDPA	1670		1220	73	72-118
N-Nitrosodipropylamine	1670		1160	69	24-141
Pentachlorophenol	3330		2480	74	6-164
Phenanthrene	1670		1350	81	66-128
Phenol	3330		1940	58	22-127
Pyrene	1670		1310	78	33-155
1,2,4-Trichlorobenzene	1670		1120	67	30-127
2,4,6-Trichlorophenol	3330		2700	81	50-173
2,4,6-Trichlorophenol	3330		2420	73	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 65 outside limits

COMMENTS:

373 738

FORM 3
SOIL BNA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P04021

SDG No.: 9808-588

Matrix Spike - Sample No.: 9808-588-1

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	M CONCENTRATION (ug/Kg)	M % REC #	QC. LIMITS REC.
Acenaphthene	3320	0.00	2410	72	34-126
4-Chloro-3-Methylphenol	5320	0.00	4690	88	33-147
2-Chlorophenol	5320	0.00	4950	93	35-138
1,4-Dichlorobenzene	3320	0.00	2510	76	26-121
2,4-Dinitrotoluene	3320	0.00	2460	74	22-139
4-Nitrophenol	1600	0.00	1600	100	12-105
N-Nitrosodipropylamine	3320	0.00	2640	80	24-141
Pentachlorophenol	5320	0.00	4280	80	6-164
Phenol	5320	0.00	3820	72	22-127
Pyrene	3320	52.5	1670	49	33-155
1,2,4-Trichlorobenzene	3320	0.00	2690	81	30-127

COMPOUND	SPIKE ADDED (ug/Kg)	S CONCENTRATION (ug/Kg)	S % REC #	% RPD #	QC LIMITS RPD REC.
Acenaphthene	3300	2540	77	7	20 34-126
4-Chloro-3-Methylphenol	5280	4820	91	3	20 33-147
2-Chlorophenol	5280	4910	93	0	20 35-138
1,4-Dichlorobenzene	3300	2580	78	2	20 26-121
2,4-Dinitrotoluene	3300	2420	73	1	20 22-139
4-Nitrophenol	1590	1410	89	12	20 12-105
N-Nitrosodipropylamine	3300	2720	82	2	20 24-141
Pentachlorophenol	5280	4110	78	2	20 6-164
Phenol	5280	3510	66	9	20 22-127
Pyrene	3300	1460	43	13	20 33-155
1,2,4-Trichlorobenzene	3300	2790	84	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

000040

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 # : 9808-588
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
P08014 P08014LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P08014BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9808-588-01 RPD : All analytes within QC limits.
RA-TS-004A Spike Recovery : All analytes within QC limits.

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

Method Blank FORM 4
P08014LB

No Target Analytes detected above Practical Quantitation Limit.

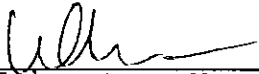
CALIBRATION

Initial Calibration : All criteria met. FORM 6*
Calibration Verification : All criteria met. FORM 7A
*
Initial Calibration(ICAL) : 08/19/98

The ICAL Level RF 0.75 was evaluated as an outlier due an error during dilution of this working standard. This level was removed from the ICAL.

SAMPLE ANALYSIS

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


Laboratory Manager

000042

FORM 2
SOIL PCB SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-588

Level: (low/med) LOW

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P08014LB	54	125							0
02	P08014BS	77	132							0
03	9808-588-1	57	66							0
04	9808-588-1M	61	81							0
05	9808-588-1S	69	92							0
06										
07										
08										
09										
10										
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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

378.742

FORM 4
PCB METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

P08014LB

Lab Name: ETC, INC.

Lab Prep Batch: P08014

SDG No.: 9808-588

Lab File ID: C408231A-05R

Instrument ID: PEST4A

Matrix: (soil/water) SOIL

Date Analyzed: 08/23/98

Level: (low/med) LOW

Time Analyzed: 1349

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P08014BS		C408231A-07R	08/23/98
02	9808-588-1		C408231A-24R	08/24/98
03	9808-588-1M		C408231A-30R	08/24/98
04	9808-588-1S		C408231A-31R	08/24/98
05				
06				
07				
08				
09				
10				
11				
12				
13				
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30				

COMMENTS:

000044

373 743

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

P08014LB

Lab Name: ETC, INC.

SDG No.: 9808-588

Matrix: (soil/water) SOIL

Lab Prep Batch: P08014

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

Lab File ID: C408231A-05R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10 (mL)

Date Analyzed: 08/23/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

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

000045

378 744

FORM 3
SOIL PCB LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P08014

SDG No.: 9808-588

Matrix Spike - Sample No.: P08014BS

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		341.9	102	25-125
Aroclor 1260	333.3		349.4	105	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

000046

373 745

FORM 3
SOIL PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P08014

SDG No.: 9808-588

Matrix Spike - Sample No.: 9808-588-1

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	250.9	76	25-125
Aroclor 1260	328.9	0.000	232.5	71	25-125

COMPOUND	SPIKE ADDED (ug/Kg)	S CONCENTRATION (ug/Kg)	S % REC #	% RPD #	QC LIMITS RPD REC.
Aroclor 1242	327.9	252.1	77	1	20 25-125
Aroclor 1260	327.9	233.2	71	0	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

000047

**COMPOSITE CONFIRMATION SAMPLES COLLECTED
FOLLOWING EXCAVATION IN AREA B**

Date Collected 08/17/98

RA-B-006 (Composite of Grids B1, B2, B3 & B7)

RA-B-007 (Duplicate of RA-B-006)

RA-B-008 (Composite of Grids B4, B5, B6 & B8)

RA-B-EQ-002-CS (Equip. Blank)



ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334

Founded 1972

August 24, 1998

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

Ref: Analytical Testing
ETC Order # 9808483
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

373 748

SOUTHERN REGION

Chemical Analytical Data
Review/Evaluation/Validation

Report Type: ☐ Preliminary ☒ Final Date Received: 9/3/98 Project Number: 920560
 Project Name: DPMT Analysis/Method: 6010B/7000, 8081A, 8082
 Laboratory: ETC 8270C, 9010A
 Lab Project/Case Number: 9808483
 Sample Number(s): RA-B-006, 007, EQ-002-CS, 008

Evaluated By: S. Paranjape Date Evaluated: 9/3/98
 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: <u>Results ND. Data OK for Pest.</u>				
Lab Control Sample Duplicate or Other Spike Recoveries	X			
Comment: <u>N/A</u>				
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:				

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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	4	6	24	24	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. Panjape
 Evaluator's Signature

 9/13/98
 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

<u>ETC</u>	<u>Sample ID</u>	<u>Field ID</u>	<u>Matrix</u>	<u>Method</u>	<u>Method Description</u>
	980848301	RA-B-006	SOIL	6010B	Silver
	980848301	RA-B-006	SOIL	6010B	Aluminum
	980848301	RA-B-006	SOIL	7060A	Arsenic
	980848301	RA-B-006	SOIL	8270C	GC/MS PAH
	980848301	RA-B-006	SOIL	6010B	Barium
	980848301	RA-B-006	SOIL	6010B	Beryllium
	980848301	RA-B-006	SOIL	6010B	Calcium
	980848301	RA-B-006	SOIL	6010B	Cadmium
	980848301	RA-B-006	SOIL	9010A	Cyanide
	980848301	RA-B-006	SOIL	6010B	Cobalt
	980848301	RA-B-006	SOIL	6010B	Chromium
	980848301	RA-B-006	SOIL	6010B	Copper
	980848301	RA-B-006	SOIL	6010B	Iron
	980848301	RA-B-006	SOIL	7471A	Mercury
	980848301	RA-B-006	SOIL	6010B	Potassium
	980848301	RA-B-006	SOIL	6010B	Magnesium
	980848301	RA-B-006	SOIL	6010B	Manganese
	980848301	RA-B-006	SOIL	6010B	Sodium
	980848301	RA-B-006	SOIL	6010B	Nickel
	980848301	RA-B-006	SOIL	8081A	Organochlorine Pesticides
	980848301	RA-B-006	SOIL	7421	Lead
	980848301	RA-B-006	SOIL	8082	PCBs
	980848301	RA-B-006	SOIL	6010B	Antimony
	980848301	RA-B-006	SOIL	7740	Selenium
	980848301	RA-B-006	SOIL	7841	Thallium
	980848301	RA-B-006	SOIL	6010B	Vanadium
	980848301	RA-B-006	SOIL	6010B	Zinc
	980848302	RA-B-007	SOIL	6010B	Silver
	980848302	RA-B-007	SOIL	6010B	Aluminum
	980848302	RA-B-007	SOIL	7060A	Arsenic
	980848302	RA-B-007	SOIL	8270C	GC/MS PAH
	980848302	RA-B-007	SOIL	6010B	Barium
	980848302	RA-B-007	SOIL	6010B	Beryllium
	980848302	RA-B-007	SOIL	6010B	Calcium
	980848302	RA-B-007	SOIL	6010B	Cadmium
	980848302	RA-B-007	SOIL	9010A	Cyanide
	980848302	RA-B-007	SOIL	6010B	Cobalt
	980848302	RA-B-007	SOIL	6010B	Chromium
	980848302	RA-B-007	SOIL	6010B	Copper
	980848302	RA-B-007	SOIL	6010B	Iron
	980848302	RA-B-007	SOIL	7471A	Mercury
	980848302	RA-B-007	SOIL	6010B	Potassium
	980848302	RA-B-007	SOIL	6010B	Magnesium
	980848302	RA-B-007	SOIL	6010B	Manganese
	980848302	RA-B-007	SOIL	6010B	Sodium
	980848302	RA-B-007	SOIL	6010B	Nickel
	980848302	RA-B-007	SOIL	8081A	Organochlorine Pesticides
	980848302	RA-B-007	SOIL	7421	Lead
	980848302	RA-B-007	SOIL	8082	PCBs
	980848302	RA-B-007	SOIL	6010B	Antimony
	980848302	RA-B-007	SOIL	7740	Selenium
	980848302	RA-B-007	SOIL	7841	Thallium
	980848302	RA-B-007	SOIL	6010B	Vanadium
	980848302	RA-B-007	SOIL	6010B	Zinc
	980848303	RA-B-EQ-002-CS	AQUEOUS	6010B	Silver

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ANALYTICAL SUMMARY TABLE

378 752

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>
980848303	RA-B-EQ-002-CS	AQUEOUS	6010B	Aluminum
980848303	RA-B-EQ-002-CS	AQUEOUS	7060A	Arsenic
980848303	RA-B-EQ-002-CS	AQUEOUS	8270C	GC/MS PAH
980848303	RA-B-EQ-002-CS	AQUEOUS	6010B	Barium
980848303	RA-B-EQ-002-CS	AQUEOUS	6010B	Beryllium
980848303	RA-B-EQ-002-CS	AQUEOUS	6010B	Calcium
980848303	RA-B-EQ-002-CS	AQUEOUS	6010B	Cadmium
980848303	RA-B-EQ-002-CS	AQUEOUS	9010A	Cyanide
980848303	RA-B-EQ-002-CS	AQUEOUS	6010B	Cobalt
980848303	RA-B-EQ-002-CS	AQUEOUS	6010B	Chromium
980848303	RA-B-EQ-002-CS	AQUEOUS	6010B	Copper
980848303	RA-B-EQ-002-CS	AQUEOUS	6010B	Iron
980848303	RA-B-EQ-002-CS	AQUEOUS	7470A	Mercury
980848303	RA-B-EQ-002-CS	AQUEOUS	6010B	Potassium
980848303	RA-B-EQ-002-CS	AQUEOUS	6010B	Magnesium
980848303	RA-B-EQ-002-CS	AQUEOUS	6010B	Manganese
980848303	RA-B-EQ-002-CS	AQUEOUS	6010B	Sodium
980848303	RA-B-EQ-002-CS	AQUEOUS	6010B	Nickel
980848303	RA-B-EQ-002-CS	AQUEOUS	8081A	Organochlorine Pesticides
980848303	RA-B-EQ-002-CS	AQUEOUS	7421	Lead
980848303	RA-B-EQ-002-CS	AQUEOUS	8082	PCBs
980848303	RA-B-EQ-002-CS	AQUEOUS	6010B	Antimony
980848303	RA-B-EQ-002-CS	AQUEOUS	7740	Selenium
980848303	RA-B-EQ-002-CS	AQUEOUS	7841	Thallium
980848303	RA-B-EQ-002-CS	AQUEOUS	6010B	Vanadium
980848303	RA-B-EQ-002-CS	AQUEOUS	6010B	Zinc
980848304	RA-B-008	SOIL	6010B	Silver
980848304	RA-B-008	SOIL	6010B	Aluminum
980848304	RA-B-008	SOIL	7060A	Arsenic
980848304	RA-B-008	SOIL	8270C	GC/MS PAH
980848304	RA-B-008	SOIL	6010B	Barium
980848304	RA-B-008	SOIL	6010B	Beryllium
980848304	RA-B-008	SOIL	6010B	Calcium
980848304	RA-B-008	SOIL	6010B	Cadmium
980848304	RA-B-008	SOIL	9010A	Cyanide
980848304	RA-B-008	SOIL	6010B	Cobalt
980848304	RA-B-008	SOIL	6010B	Chromium
980848304	RA-B-008	SOIL	6010B	Copper
980848304	RA-B-008	SOIL	6010B	Iron
980848304	RA-B-008	SOIL	7471A	Mercury
980848304	RA-B-008	SOIL	6010B	Potassium
980848304	RA-B-008	SOIL	6010B	Magnesium
980848304	RA-B-008	SOIL	6010B	Manganese
980848304	RA-B-008	SOIL	6010B	Sodium
980848304	RA-B-008	SOIL	6010B	Nickel
980848304	RA-B-008	SOIL	8081A	Organochlorine Pesticides
980848304	RA-B-008	SOIL	7421	Lead
980848304	RA-B-008	SOIL	8082	PCBs
980848304	RA-B-008	SOIL	6010B	Antimony
980848304	RA-B-008	SOIL	7740	Selenium
980848304	RA-B-008	SOIL	7841	Thallium
980848304	RA-B-008	SOIL	6010B	Vanadium
980848304	RA-B-008	SOIL	6010B	Zinc

373 753

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody

000004



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
 217888

FORM 0019 REV 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 Memphis, TN 38114		LABORATORY CITY, STATE AND ZIP CODE Memphis, TN 38114		ADDRESS 5445 E. 180th Ave., #400 CITY STATE AND ZIP CODE Moreno, CA 90992	
PROJECT ADDRESS 1708 Dunn Ave.		CITY, STATE AND ZIP CODE Memphis, TN 38114		CLIENT USACE		PROJECT MANAGER'S FAX 770-453-7716		PROJECT MANAGER'S PHONE 770-326-2571			
Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont	QC Level	TAT	Analyses	Comments	
1	RA-B-006		8/12/00	1400	NA	4x802	OHM	3 Day	✓	✓	
2	RA-B-007		8/17/00	1430	NA	4x802	OHM	3 Day	✓	✓	
3	RA-B-10-002-CS		8/17/00	1415	NA	4x802	OHM	3 Day	✓	✓	
4	RA-B-008		8/17/00	1445	NA	4x802	OHM	3 Day	✓	✓	
5											
6											
7											
8											
9											
10											
SAMPLES COLLECTED BY S.G.R. & D.		CORRECTION AND AIR BILL NUMBER Delivered in Person		RECEIVED BY Nathan Pera		DATE 8/15/00		TIME 1605		SAMPLE'S CONDITION UPON RECEIPT COOLER TEMPERATURE UPON RECEIPT	
Distribution White - Laboratory (To be returned with Analytical Report), Goldenrod - Project File, Yellow - Project Data Manager											

9828-4183

COOLER RECEIPT FORM

Cooler Receipt Form
9808483 CRF p 1

LIMS # 9808-483 Number of Coolers 1
 Date Received 08/17/98
 PROJECT DDMT/Memphis, TN VDTSR 08/17/98 16 25

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

A PRELIMINARY EXAMINATION PHASE Date cooler was opened 08/17/98
 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 08/17/98

B LOG-IN PHASE Date samples were logged-in 08/17/98
 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)

000006

Environmental Testing & Consulting, Inc.

Sample Reports

378 757

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

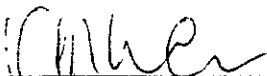
Client Name :OHM Remediation Services
Project Name :DDMT
Memphis, TN

Matrix :SOIL

Date Sample Received :08/17/98

Contract Laboratory Order Number :9808-483

<u>Contract Lab</u> <u>Sample No</u>	<u>Client Sample</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>
9808-483-01	RA-B-006	08/17/98	91	08/18/98	160.3	MC
9808-483-02	RA-B-007	08/17/98	92	08/18/98	160.3	MC
9808-483-04	RA-B-008	08/17/98	91	08/18/98	160.3	MC


LABORATORY MANAGER

000008

378 758

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 # 20560

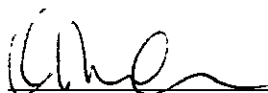
Site ID Norcross, GA 30092
DDMT
Memphis, TN

Date Arrived 08/17/98
ETC Order Number 9808483

ETC Lab ID 9808483-01
Sample ID: RA-B-006

Matrix :SOIL
Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	ND	mg/Kg	1 00	08/20/98	9010A	CY082098


LABORATORY MANAGER

000009

378.759

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 **08/17/98**
ETC Order Number **9808483**

ETC Lab ID **9808483-02**
Sample ID: RA-B-007

Matrix :**SOIL**
Sample Date :**08/17/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	ND	mg/Kg	1.00	08/20/98	9010A	CY082098


LABORATORY MANAGER

000010

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

INORGANIC ANALYSIS DATA SHEET

378 760

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 08/17/98
ETC Order Number 9808483

ETC Lab ID 9808483-03
Sample ID: RA-B-EQ-002-CS

Matrix :AQUEOUS
Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	ND	mg/L	0.010	08/18/98	9010A	CY081898


LABORATORY MANAGER

000011

378 761

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

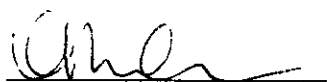
Project # 20560

Date Arrived 08/17/98
ETC Order Number 9808483

ETC Lab ID 9808483-04
Sample ID: RA-B-008

Matrix :SOIL
Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	ND	mg/Kg	1 00	08/20/98	9010A	CY082098


LABORATORY MANAGER

000012

378 762

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 08/17/98
ETC Order Number 9808483

ETC Lab ID 9808483-01
Sample ID: RA-B-006

Matrix :SOIL
Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Metals Digestion Batch	V7-SO-82					JB 3051
Mercury Digestion Batch	V4-SO-26					RM 7471A
Silver	ND	mg/Kg	0.700	15:09	08/20/98	TD 6010B
Aluminum	12,400	mg/Kg	4.00	15:29	08/20/98	TD 6010B
Arsenic	9.49	mg/Kg	0.200	10:56	08/20/98	JF 7060A
Barium	130	mg/Kg	0.200	15:09	08/20/98	TD 6010B
Beryllium	0.562	mg/Kg	0.100	15:09	08/20/98	TD 6010B
Calcium	1,430	mg/Kg	1.00	15:09	08/20/98	TD 6010B
Cadmium	ND	mg/Kg	0.400	15:09	08/20/98	TD 6010B
Cobalt	8.94	mg/Kg	0.700	15:09	08/20/98	TD 6010B
Chromium	14.9	mg/Kg	0.700	15:09	08/20/98	TD 6010B
Copper	18.1	mg/Kg	0.600	15:09	08/20/98	TD 6010B
Iron	20,700	mg/Kg	0.700	15:29	08/20/98	TD 6010B
Mercury	0.042	mg/Kg	0.020	13:50	08/20/98	RM 7471A
Potassium	951	mg/Kg	20.0	15:09	08/20/98	TD 6010B
Magnesium	2,330	mg/Kg	3.00	15:09	08/20/98	TD 6010B
Manganese	711	mg/Kg	0.200	15:09	08/20/98	TD 6010B
Sodium	67.2	mg/Kg	20.0	15:09	08/20/98	TD 6010B
Nickel	18.2	mg/Kg	1.50	15:09	08/20/98	TD 6010B
Lead	14.7	mg/Kg	0.100	11:20	08/20/98	JF 7421
Antimony	ND	mg/Kg	3.20	15:09	08/20/98	TD 6010B
Selenium	0.570	mg/Kg	0.200	10:56	08/20/98	JB 7740
Thallium	0.237	mg/Kg	0.100	13:51	08/20/98	TD 7841
Vanadium	22.8	mg/Kg	0.800	15:09	08/20/98	TD 6010B
Zinc	62.3	mg/Kg	1.00	15:09	08/20/98	TD 6010B


LABORATORY MANAGER

000013

373 763

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 08/17/98
 ETC Order Number 9808483

ETC Lab ID **9808483-02**
Sample ID: RA-B-007

Matrix :SOIL
 Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Metals Digestion Batch	V7-SO-82					
Mercury Digestion Batch	V4-SO-26					
Silver	ND	mg/Kg	0.700	15:15	08/20/98	JB 3051
Aluminum	12,000	mg/Kg	4.00	15:36	08/20/98	RM 7471A
Arsenic	9.13	mg/Kg	0.200	10:59	08/20/98	TD 6010B
Barium	120	mg/Kg	0.200	15:15	08/20/98	JF 7060A
Beryllium	0.528	mg/Kg	0.100	15:15	08/20/98	TD 6010B
Calcium	1,300	mg/Kg	1.00	15:15	08/20/98	TD 6010B
Cadmium	ND	mg/Kg	0.400	15:15	08/20/98	TD 6010B
Cobalt	8.07	mg/Kg	0.700	15:15	08/20/98	TD 6010B
Chromium	14.6	mg/Kg	0.700	15:15	08/20/98	TD 6010B
Copper	16.5	mg/Kg	0.600	15:15	08/20/98	TD 6010B
Iron	19,700	mg/Kg	0.700	15:36	08/20/98	TD 6010B
Mercury	0.041	mg/Kg	0.020	13:51	08/20/98	RM 7471A
Potassium	1,050	mg/Kg	20.0	15:15	08/20/98	TD 6010B
Magnesium	2,220	mg/Kg	3.00	15:15	08/20/98	TD 6010B
Manganese	620	mg/Kg	0.200	15:15	08/20/98	TD 6010B
Sodium	59.2	mg/Kg	20.0	15:15	08/20/98	TD 6010B
Nickel	17.9	mg/Kg	1.50	15:15	08/20/98	TD 6010B
Lead	14.1	mg/Kg	0.100	11:23	08/20/98	JF 7421
Antimony	ND	mg/Kg	3.20	15:15	08/20/98	TD 6010B
Selenium	0.532	mg/Kg	0.200	10:59	08/20/98	JB 7740
Thallium	0.232	mg/Kg	0.100	13:54	08/20/98	TD 7841
Vanadium	22.5	mg/Kg	0.800	15:15	08/20/98	TD 6010B
Zinc	61.4	mg/Kg	1.00	15:15	08/20/98	TD 6010B


 LABORATORY MANAGER

000014

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

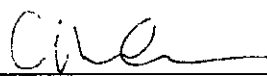
Project # 20560

Date Arrived 08/17/98
 ETC Order Number 9808483

ETC Lab ID 9808483-03
Sample ID: RA-B-EQ-002-CS

Matrix :AQUEOUS
 Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Metals Digestion Batch	V11-AQ-28					NR 3015
Mercury Digestion Batch	V4-AQ-29					RM 7470A
Silver	ND	mg/L	0.009	13:34	08/20/98	TD 6010B
Aluminum	0.080	mg/L	0.060	13:34	08/20/98	TD 6010B
Arsenic	ND	mg/L	0.003	15:41	08/19/98	JF 7060A
Barium	ND	mg/L	0.003	13:34	08/20/98	TD 6010B
Beryllium	ND	mg/L	0.002	13:34	08/20/98	TD 6010B
Calcium	0.281	mg/L	0.015	13:34	08/20/98	TD 6010B
Cadmium	ND	mg/L	0.004	13:34	08/20/98	TD 6010B
Cobalt	ND	mg/L	0.009	13:34	08/20/98	TD 6010B
Chromium	ND	mg/L	0.009	13:34	08/20/98	TD 6010B
Copper	ND	mg/L	0.008	13:34	08/20/98	TD 6010B
Iron	ND	mg/L	0.009	13:34	08/20/98	TD 6010B
Mercury	ND	mg/L	0.0002	14:53	08/18/98	RM 7470A
Potassium	ND	mg/L	0.250	13:34	08/20/98	TD 6010B
Magnesium	ND	mg/L	0.040	13:34	08/20/98	TD 6010B
Manganese	ND	mg/L	0.003	13:34	08/20/98	TD 6010B
Sodium	0.205	mg/L	0.050	13:34	08/20/98	TD 6010B
Nickel	ND	mg/L	0.020	13:34	08/20/98	TD 6010B
Lead	ND	mg/L	0.002	11:02	08/20/98	JF 7421
Antimony	ND	mg/L	0.040	13:34	08/20/98	TD 6010B
Selenium	ND	mg/L	0.003	15:41	08/19/98	JF 7740
Thallium	ND	mg/L	0.002	13:13	08/20/98	TD 7841
Vanadium	ND	mg/L	0.010	13:34	08/20/98	TD 6010B
Zinc	0.014	mg/L	0.010	13:34	08/20/98	TD 6010B


 LABORATORY MANAGER

000015

378 765

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 08/17/98
 ETC Order Number 9808483

ETC Lab ID **9808483-04**
Sample ID: RA-B-008

Matrix :SOIL
 Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Metals Digestion Batch	V7-SO-82				JB	3051
Mercury Digestion Batch	V4-SO-26				RM	7471A
Silver	ND	mg/Kg	0.700	13 55	08/20/98	TD 6010B
Aluminum	13,800	mg/Kg	4 00	14:42	08/20/98	TD 6010B
Arsenic	12.6	mg/Kg	0 200	09:50	08/20/98	JF 7060A
Barium	128	mg/Kg	0 200	13:55	08/20/98	TD 6010B
Beryllium	0.527	mg/Kg	0.100	13:55	08/20/98	TD 6010B
Calcium	1,830	mg/Kg	1 00	13:55	08/20/98	TD 6010B
Cadmium	ND	mg/Kg	0 400	13 55	08/20/98	TD 6010B
Cobalt	8.62	mg/Kg	0.700	13:55	08/20/98	TD 6010B
Chromium	15.6	mg/Kg	0 700	13:55	08/20/98	TD 6010B
Copper	16 9	mg/Kg	0 600	13:55	08/20/98	TD 6010B
Iron	13,800	mg/Kg	0.700	14.42	08/20/98	TD 6010B
Mercury	0 051	mg/Kg	0.020	13:52	08/20/98	RM 7471A
Potassium	1,100	mg/Kg	20.0	13:55	08/20/98	TD 6010B
Magnesium	2,230	mg/Kg	3 00	13:55	08/20/98	TD 6010B
Manganese	683	mg/Kg	0 200	13:55	08/20/98	TD 6010B
Sodium	54 1	mg/Kg	20.0	13:55	08/20/98	TD 6010B
Nickel	17.9	mg/Kg	1.50	13:55	08/20/98	TD 6010B
Lead	20 5	mg/Kg	0 100	11 04	08/20/98	JF 7421
Antimony	ND	mg/Kg	3 20	13:55	08/20/98	TD 6010B
Selenium	ND	mg/Kg	0.200	09.48	08/20/98	JB 7740
Thallium	0.265	mg/Kg	0.100	13:24	08/20/98	TD 7841
Vanadium	24.0	mg/Kg	0.800	13:55	08/20/98	TD 6010B
Zinc	64.5	mg/Kg	1.00	13:55	08/20/98	TD 6010B


 LABORATORY MANAGER

000016

373 766

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 **08/17/98**
ETC Order Number **9808483**

ETC Lab ID **9808483-01**
Sample ID: RA-B-006
QC Batch : P04019

Matrix : **SOIL**
Sample Date : **08/17/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				08/18/98	08/18/98	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	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	54		39	80			
S2 - 2-Fluorobiphenyl	71		43	84			
S3 - 4-Terphenyl-d14	77		40	121			

ND - Not Detected


LABORATORY MANAGER

000017

373 767

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9808-483-1

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-483

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: 2201021

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1(mL)

Date Analyzed: 08/18/98

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. 603-11-2	1,2-BENZENEDICARBOXYLIC ACID	15.81	169	NJ
2.				
3.				
4.				
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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

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

Site ID **DDMT**
Memphis, TN

Project **20560**

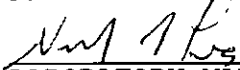
Date Arrived 08/17/98
 ETC Order Number 9808483

ETC Lab ID **9808483-02**
Sample ID: RA-B-007
QC Batch : P04019

Matrix :SOIL
 Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				08/18/98	08/18/98	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	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	39		39	80			
S2 - 2-Fluorobiphenyl	51		43	84			
S3 - 4-Terphenyl-d14	67		40	121			

ND - Not Detected


 LABORATORY MANAGER

000019

373 769

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

Lab Name: ETC, INC.

Contract:

9808-483-2

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-483

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.9 (g/mL) G

Lab File ID: 2301022

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1(mL)

Date Analyzed: 08/18/98

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.				
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30.				

FORM I BNA-GCMS-TIC

000020

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 08/17/98
 ETC Order Number 9808483

ETC Lab ID **9808483-03**
Sample ID: RA-B-EQ-002-CS
QC Batch : P05026

Matrix :AQUEOUS
 Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				08/19/98	08/19/98	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	34 Q		35	85			
S2 - 2-Fluorobiphenyl	40 Q		46	84			
S3 - 4-Terphenyl-d14	39		33	113			

ND - Not Detected


 LABORATORY MANAGER

000021

378 771

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9808-483-3

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-483

Matrix: (soil/water) WATER

Lab Sample ID:

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

Lab File ID: 0801006

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1(mL)

Date Analyzed: 08/19/98

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
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
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27.				
28.				
29.				
30.				

FORM I BNA-GCMS-TIC

000022

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

378 772

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

Project 20560

Site ID DDMT
Memphis, TN

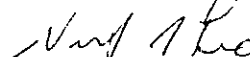
Date Arrived 08/17/98
ETC Order Number 9808483

ETC Lab ID 9808483-04
Sample ID: RA-B-008
QC Batch : P04019

Matrix :SOIL
Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				08/18/98	08/18/98	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	ND	ug/Kg	67				
Benzo(k)fluoranthene	ND	ug/Kg	67				
Benzo(g,h,i)perylene	ND	ug/Kg	67				
Benzo(a)pyrene	121	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	47		39 80				
S2 - 2-Fluorobiphenyl	64		43 84				
S3 - 4-Terphenyl-d14	73		40 121				

ND - Not Detected


LABORATORY MANAGER

000023

373 773

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9808-483-4

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-483

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.6 (g/mL) G

Lab File ID: 2401023

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1(mL)

Date Analyzed: 08/18/98

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.				
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22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

FORM I BNA-GCMS-TIC

000024

378 774

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 **08/17/98**
ETC Order Number **9808483**

ETC Lab ID **9808483-01**
Sample ID: RA-B-006
QC Batch : P06011

Matrix : **SOIL**
Sample Date : **08/17/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/19/98	08/20/98	RG	8081A 3550B
Aldrin	ND	ug/Kg	2.00				
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				
Alpha-Chlordane	ND	ug/Kg	2.00				
Gamma-Chlordane	ND	ug/Kg	2.00				
Chlordane	ND	ug/Kg	2.00				
4,4'-DDD	ND	ug/Kg	2.00				
4,4'-DDE	5.13	ug/Kg	2.00				
4,4'-DDT	ND	ug/Kg	2.00				
Dieldrin	7.16	ug/Kg	2.00				
Endosulfan I	ND	ug/Kg	2.00				
Endosulfan II	ND	ug/Kg	2.00				
Endosulfan Sulfate	ND	ug/Kg	2.00				
Endrin	ND	ug/Kg	2.00				
Endrin Aldehyde	ND	ug/Kg	2.00				
Endrin Ketone	ND	ug/Kg	2.00				
Heptachlor	ND	ug/Kg	2.00				
Heptachlor Epoxide	ND	ug/Kg	2.00				
Methoxychlor	ND	ug/Kg	2.00				
Toxaphene	ND	ug/Kg	2.00				
Surrogate Standard				% Recovery			
S1 - Decachlorobiphenyl	80			64	154		
S2 - Tetrachloro-m-xylene	86			39	130		

ND - Not Detected


LABORATORY MANAGER

000025

373 775

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 **08/17/98**
 ETC Order Number **9808483**

ETC Lab ID **9808483-02****Sample ID: RA-B-007****QC Batch : P06011**

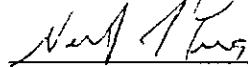
Matrix :SOIL

Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/19/98	08/20/98	RG	8081A 3550B
Aldrin	ND	ug/Kg	2.00				
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				
Alpha-Chlordane	ND	ug/Kg	2.00				
Gamma-Chlordane	ND	ug/Kg	2.00				
Chlordane	ND	ug/Kg	2.00				
4,4'-DDD	ND	ug/Kg	2.00				
4,4'-DDE	5.08	ug/Kg	2.00				
4,4'-DDT	3.88	ug/Kg	2.00				
Dieldrin	7.07	ug/Kg	2.00				
Endosulfan I	ND	ug/Kg	2.00				
Endosulfan II	ND	ug/Kg	2.00				
Endosulfan Sulfate	ND	ug/Kg	2.00				
Endrin	ND	ug/Kg	2.00				
Endrin Aldehyde	ND	ug/Kg	2.00				
Endrin Ketone	ND	ug/Kg	2.00				
Heptachlor	ND	ug/Kg	2.00				
Heptachlor Epoxide	ND	ug/Kg	2.00				
Methoxychlor	ND	ug/Kg	2.00				
Toxaphene	ND	ug/Kg	2.00				

Surrogate Standard	% Recovery	QC Limits
S1 - Decachlorobiphenyl	72	64 154
S2 - Tetrachloro-m-xylene	77	39 130

ND - Not Detected


 LABORATORY MANAGER

000026

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

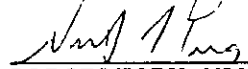
Date Arrived 08/17/98
 ETC Order Number 9808483

ETC Lab ID 9808483-03
Sample ID: RA-B-EQ-002-CS
QC Batch : P07012

Matrix :AQUEOUS
 Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/20/98	08/20/98	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	ND	ug/L	0.25				
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	3.00				
Surrogate Standard				% Recovery		QC Limits	
S1 - Decachlorobiphenyl	81		34	115			
S2 - Tetrachloro-m-xylene	62		31	96			

ND - Not Detected


 LABORATORY MANAGER

000027

373 777

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

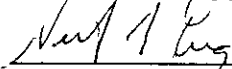
Date Arrived **08/17/98**
 ETC Order Number **9808483**

ETC Lab ID **9808483-04**
Sample ID: RA-B-008
QC Batch : P06011

Matrix : **SOIL**
 Sample Date : **08/17/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/19/98	08/20/98	RG	8081A 3550B
Aldrin	ND	ug/Kg	2.00				
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				
Alpha-Chlordane	ND	ug/Kg	2.00				
Gamma-Chlordane	ND	ug/Kg	2.00				
Chlordane	ND	ug/Kg	2.00				
4,4'-DDD	ND	ug/Kg	2.00				
4,4'-DDE	7.99	ug/Kg	2.00				
4,4'-DDT	5.88	ug/Kg	2.00				
Dieldrin	25.2	ug/Kg	2.00				
Endosulfan I	ND	ug/Kg	2.00				
Endosulfan II	ND	ug/Kg	2.00				
Endosulfan Sulfate	ND	ug/Kg	2.00				
Endrin	ND	ug/Kg	2.00				
Endrin Aldehyde	ND	ug/Kg	2.00				
Endrin Ketone	ND	ug/Kg	2.00				
Heptachlor	ND	ug/Kg	2.00				
Heptachlor Epoxide	ND	ug/Kg	2.00				
Methoxychlor	ND	ug/Kg	2.00				
Toxaphene	ND	ug/Kg	200				
Surrogate Standard				% Recovery			
S1 - Decachlorobiphenyl	91			64	154		
S2 - Tetrachloro-m-xylene	102			39	130		

ND - Not Detected


 LABORATORY MANAGER

000028

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 08/17/98
 ETC Order Number 9808483

ETC Lab ID 9808483-01
Sample ID: RA-B-006
QC Batch : P06011

Matrix :SOIL
 Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				08/19/98	08/20/98	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 - Tetrachloro-m-xylene	69		39 130				
S2 - Decachlorobiphenyl	78		64 154				

ND - Not Detected


 LABORATORY MANAGER

000029

373 779

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 08/17/98
ETC Order Number 9808483

ETC Lab ID **9808483-02**
Sample ID: RA-B-007
QC Batch : P06011

Matrix :SOIL
Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				08/19/98	08/20/98	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 - Tetrachloro-m-xylene	75		39	130			
S2 - Decachlorobiphenyl	89		64	154			

ND - Not Detected


LABORATORY MANAGER

000030

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 08/17/98
 ETC Order Number 9808483

ETC Lab ID **9808483-03**
Sample ID: RA-B-EQ-002-CS
QC Batch : P09005

Matrix :AQUEOUS
 Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				08/20/98	08/20/98	RG	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				
Surrogate Standard	% Recovery		QC Limits				
S1 - Tetrachloro-m-xylene	73		31 96				
S2 - Decachlorobiphenyl	49		34 115				

ND - Not Detected


 LABORATORY MANAGER

000031

373 781

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 08/17/98
ETC Order Number 9808483

ETC Lab ID **9808483-04**
Sample ID: RA-B-008
QC Batch : P06011

Matrix :SOIL
Sample Date :08/17/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				08/19/98	08/20/98	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							
S1 - Tetrachloro-m-xylene	80		39	130			
S2 - Decachlorobiphenyl	91		64	154			

ND - Not Detected


LABORATORY MANAGER

000032

Environmental Testing & Consulting, Inc.

**Quality Control Reports
Inorganics**

000033

373 783

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
INORGANICS

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-483

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

000034

Environmental Testing & Consulting, Inc.
Inorganic QC Data Summary

Client Name OHM Remediation Services
Project DDMT

ETC Order Number 9808-483
File Name 9808-483 QC1

Method Blank

Analyte	Date Analyzed	Blank Concentration mg/L	QC Batch
Cyanide	08/18/98	<0.010	CY081898A

Calibration Verification (CV)

Analyte	Date Analyzed	CV Conc mg/L	CV Conc Found	% Difference
Cyanide	08/18/98	0.200	0.211	6.0

Laboratory Control Sample (LCS)

Analyte	Date Analyzed	LCS Conc mg/L	LCS Conc Found	% Recovery
Cyanide	08/18/98	0.200	0.199	100

Matrix Spike/Matrix Spike Duplicate

Sample ID	Analyte	Spike mg/L	Sample mg/L	MS Conc Found	MS % Recovery	QC Limits	RPD
9808-483-03 MS	Cyanide	0.200	<0.010	0.202	101	68-114	
9808-483-03 MSD	Cyanide	0.200	<0.010	0.203	102	68-114	1

373 785

Environmental Testing & Consulting, Inc.
Inorganic QC Data Summary

Client Name OHM Remediation Services
Project DDMT

ETC Order Number 9808-483
File Name 9808-483 QC2

Method Blank

Analyte	Date Analyzed	Blank Concentration mg/Kg	QC Batch
Cyanide	08/20/98	<1 00	CY082098

Calibration Verification (CV)

Analyte	Date Analyzed	CV Conc mg/L	CV Conc Found	% Difference
Cyanide	08/20/98	0 200	0 211	6 0

Laboratory Control Sample (LCS)

Analyte	Date Analyzed	LCS Conc mg/Kg	LCS Conc Found	% Recovery
Cyanide	08/20/98	20 0	19 1	96 0

Matrix Spike/Matrix Spike Duplicate

Sample ID	Analyte	Spike mg/Kg	Sample mg/Kg	MS Conc Found	MS % Recovery	QC Limits	RPD
9808-483-01 MS	Cyanide	18 5	<1 00	17 1	92 0	70-130	
9808-483-01 MSD	Cyanide	20 0	<1 00	17 9	90 0	70-130	2

Environmental Testing & Consulting, Inc.

Quality Control Reports

Metals (ICP/GFAA/CV)

373 787

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

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-483

HOLDING TIMES

QC Batch(s) for this order : ICP/GFAA V7-SO-82
Mercury V4-SO-26

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.

Dilution			Dilution		
Sample ID	Metal	Factor	Sample ID	Metal	Factor
9808-483-01	Aluminum	1:5 (C)	9808-483-02	Lead	1:5 (C)
9808-483-01	Iron	1:5 (C)	9808-483-04	Arsenic	1:2 (C)
9808-483-01	Lead	1:5 (C)	9808-483-04	Aluminum	1:5 (C)
9808-483-02	Aluminum	1:5 (C)	9808-483-04	Iron	1:5 (C)
9808-483-02	Iron	1:5 (C)	9808-483-04	Lead	1:5 (C)

QUALITY CONTROL**9808-483.MQCBLANK**Method Blank

V7-SO-82BLK - ICP/GFAA Metals
V4-SO-26BLK - Mercury

Calcium identified in V7-SO-82BLK at 3.27 mg/Kg.
Iron identified in V7-SO-82BLK at 1.73 mg/Kg.
Lead identified in V7-SO-82BLK at 0.217 mg/Kg.

9808-483.MQCLCSLaboratory Control Sample(s)

V7-SO-82LCS - ICP/GFAA Metals
V4-SO-26LCS - Mercury

All criteria met.

000038

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

378 788

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-483

QUALITY CONTROL

9808-483.MQCMSMSD

Matrix Spike / Matrix Spike Dup - ICP Metals

9808-483-04 RPD : All analytes within QC limits.
RRA-B-008 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 :

Analyte	mg/L Expected	mg/L Found	% Recovery	QA Evaluation
Antimony	0.500	0.491	98	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 were performed for verification :

Analyte	No Dilution	1:5 Dilution	1:25 Dilution	% Difference	QA Evaluation
Aluminum	-----	13800 mg/Kg	13400 mg/Kg	3	Pass
Calcium	1830	1870	-----	2	Pass
Iron	-----	21000	20500	2	Pass
Manganese	683	705	-----	3	Pass
Potassium	1100	1140	-----	4	Pass
Magnesium	2230	2280	-----	2	Pass
Zinc	64.5	66.7	-----	3	Pass

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

Matrix Spike / Matrix Spike Dup - Graphite Metals

9808-483-04 RPD : All analytes within QC limits.
RRA-B-008 Spike Recovery : All analytes within QC limits.*
*

Recoveries for Selenium 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
Selenium	0.050	0.042	85	Pass

000039

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

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-483

QUALITY CONTROL

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 :

	1:2	1:10	%	QA
<u>Analyte</u>	<u>Dilution</u>	<u>Dilution</u>	<u>Difference</u>	<u>Evaluation</u>
Arsenic	12.6 mg/Kg	12.5 mg/Kg	1	Pass

	1:5	1:25	%	QA
<u>Analyte</u>	<u>Dilution</u>	<u>Dilution</u>	<u>Difference</u>	<u>Evaluation</u>
Lead	20.5 mg/Kg	20.7 mg/Kg	1	Pass

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

Matrix Spike / Matrix Spike Dup - Hg

9808-483-04

RPD : All analytes within QC limits.

RRA-B-008

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

000040

SOLID METHOD BLANK
METALS

Lab Name	Environmental Testing and Consulting, Inc		
Laboratory ID ICP/GFAA Metals	<u>V7-SO-82</u>	BLK	QC Batch <u>V7-SO-82</u>
Laboratory ID Mercury	<u>V4-SO-26</u>	BLK	<u>V4-SO-26</u>
Date Sample Prepared	<u>08/20/98</u>		ICP/GFAA Metals
	<u>08/20/98</u>		Mercury

Metals	Concentration mg/Kg	Detection Limit mg/Kg	Date Analyzed	Method
Silver	<0.700	0.700	08/20/98	6010B
Aluminum	<4.00	4.00	08/20/98	6010B
Arsenic	<0.200	0.200	08/20/98	7060A
Barium	<0.200	0.200	08/20/98	6010B
Beryllium	<0.100	0.100	08/20/98	6010B
Calcium	3.27	1.00	08/20/98	6010B
Cadmium	<0.400	0.400	08/20/98	6010B
Cobalt	<0.700	0.700	08/20/98	6010B
Chromium	<0.700	0.700	08/20/98	6010B
Copper	<0.600	0.600	08/20/98	6010B
Iron	1.73	0.700	08/20/98	6010B
Potassium	<20.0	20.0	08/20/98	6010B
Magnesium	<3.00	3.00	08/20/98	6010B
Manganese	<0.200	0.200	08/20/98	6010B
Sodium	<20.0	20.0	08/20/98	6010B
Nickel	<1.50	1.50	08/20/98	6010B
Lead	0.217	0.100	08/20/98	7421
Antimony	<3.20	3.20	08/20/98	6010B
Selenium	<0.200	0.200	08/20/98	7740
Thallium	<0.100	0.100	08/20/98	7841
Vanadium	<0.800	0.800	08/20/98	6010B
Zinc	<1.00	1.00	08/20/98	6010B
Mercury	<0.020	0.020	08/20/98	7471A

Metals Blank

9808-483 mqcBLANK

000041

373 791

SOLID LABORATORY CONTROL SAMPLE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory Control ID ICP/GFAA Metals V7-SO-82 LCS QC Batch V7-SO-82
Mercury V4-SO-26 LCS V4-SO-26

Date Prepared ICP/GFAA Metals 08/20/98
Mercury 08/20/98

Metals	Spike Added mg/Kg	Found mg/Kg	% R	#	QC Limits
Silver	20 0	21 6	108		80 120
Aluminum	200	215	108		80 120
Arsenic	5 00	4 56	91		85 115
Barium	200	215	108		80 120
Beryllium	20 0	21 0	105		80 120
Calcium	400	431	108		80 120
Cadmium	20 0	21 2	106		80 120
Cobalt	100	106	106		80 120
Chromium	40 0	41 9	105		80 120
Copper	40 0	42 9	107		80 120
Iron	200	215	108		80 120
Potassium	400	419	105		80 120
Magnesium	400	420	105		80 120
Manganese	20 0	21 6	108		80 120
Sodium	400	437	109		80 120
Nickel	100	107	107		80 120
Lead	2 00	2 05	103		85 115
Antimony	200	214	107		80 120
Selenium	5.00	4 49	90		85 115
Thallium	2 00	1 82	91		85 115
Vanadium	100	109	109		80 120
Zinc	20 0	21 8	109		80 120
Mercury	0 167	0 152	91		80 120

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

Metals Laboratory Control Sample

9808-483 mg/LCS
000042

SOLID MATRIX SPIKE METALS

Lab Name Environmental Testing and Consulting, Inc

		QC Batch
Laboratory ID MS ICP/GFAA Metals	9808-483-04	V7-SO-82
Laboratory ID MS Mercury	9808-483-04	V4-SO-26

Date Sample Prepared	08/20/98	ICP/GFAA Metals
	08/20/98	Mercury

Metals	SPIKE Added mg/Kg	SAMPLE Conc mg/Kg	MS Conc mg/Kg	RPD <20% #	MS % Rec #	QC Limits	
Silver	21 1	ND	21 3	3	101	75	125
Aluminum	211	13800	13900	1	47 *	75	125
Arsenic	5 28	12 6	18 4	3	110	70	130
Barium	211	128	353	4	107	75	125
Beryllium	21 1	0 527	22 1	4	102	75	125
Calcium	423	1830	2290	4	109	75	125
Cadmium	21 1	ND	21 5	4	102	75	125
Cobalt	106	8 62	114	4	99	75	125
Chromium	42 3	15 6	58 7	7	102	75	125
Copper	42 3	16 9	62 1	3	107	75	125
Iron	211	21000	23200	5	1043 *	75	125
Potassium	423	1100	1500	1	95	75	125
Magnesium	423	2230	2740	3	121	75	125
Manganese	21 2	683	662	4	-99 *	75	125
Sodium	423	54 1	493	2	104	75	125
Nickel	106	17 9	125	5	101	75	125
Lead	2 11	20 5	21 3	9	38 *	70	130
Antimony	211	ND	0	0	0 *	75	125
Selenium	5 28	ND	3 52	1	67 *	70	130
Thallium	2 11	0 265	2 09	0	87	70	130
Vanadium	106	24 0	125	6	95	75	125
Zinc	21 1	64 5	91 5	8	128 *	75	125
Mercury	0 162	0 051	0 192	1	87	75	125

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits ND - Not Detected

Metals Matrix Spike

9808-483 mqcMSMSD

000043

SOLID MATRIX SPIKE DUPLICATE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP/GFAA Metals	9808-483-04	QC Batch V7-SO-82
Laboratory ID MS Mercury	9808-483-04	V4-SO-26

Date Sample Prepared	08/20/98	ICP/GFAA Metals
	08/20/98	Mercury

Metals	SPIKE Added mg/Kg	SAMPLE Conc mg/Kg	MSD Conc mg/Kg		MSD % Rec	#	QC Limits	
Silver	20 7	ND	20 7		100		75	125
Aluminum	207	14300	13700		-290	*	75	125
Arsenic	5 18	12 6	17 9		102		70	130
Barium	207	128	340		102		75	125
Beryllium	20 7	0 527	21 2		100		75	125
Calcium	415	1830	2190		87		75	125
Cadmium	20 7	ND	20 7		100		75	125
Cobalt	104	8 62	109		97		75	125
Chromium	41 5	15 6	54 6		94		75	125
Copper	41 5	16 9	60 1		104		75	125
Iron	207	21000	22100		531	*	75	125
Potassium	415	1100	1490		94		75	125
Magnesium	415	2230	2650		101		75	125
Manganese	20 7	683	633		-242	*	75	125
Sodium	415	54 1	483		103		75	125
Nickel	104	17 9	119		97		75	125
Lead	2 07	20 5	23 2		130	*	70	130
Antimony	207	ND	0		0	*	75	125
Selenium	5 18	ND	3 50		68	*	70	130
Thallium	2 07	0 265	2 09		88		70	130
Vanadium	104	24 0	118		90		75	125
Zinc	20 7	64 5	84 4		96		75	125
Mercury	0 165	0 051	0 194		87		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

9808-483 mqcMSMSD

000044

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

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN

ETC Order # : 9808-483

HOLDING TIMES

QC Batch(s) for this order : ICP/GFAA V11-AQ-28
Mercury V4-AQ-29

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

9808-483.MQ1BLANK

Method Blank

V11-AQ-28BLK - ICP/GFAA Metals
V4-AQ-29BLK - Mercury

No analytes detected in the Method Blank.

9808-483.MQ1LCS

Laboratory Control Sample(s)

V11-AQ-28LCS - ICP/GFAA Metals
V4-AQ-29LCS - Mercury

All criteria met.

9808-483.MQ1MSMSD

Matrix Spike / Matrix Spike Dup - ICP Metals

9808-483-03 RPD : All analytes within QC limits.
RA-B-EQ-002-CS Spike Recovery : All analytes within QC limits.

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

378 795

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

Client Name : OHM Remediation Services Corp.
Project Name : Fort Chaffee
ETC Order # : 9709-483

QUALITY CONTROL

Matrix Spike / Matrix Spike Dup - Graphite Metals

9808-483-03 RPD : All analytes within QC limits.
RA-B-EQ-002-CS Spike Recovery : All analytes within QC limits.

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

Matrix Spike / Matrix Spike Dup - Hg

9808-483-03 RPD : All analytes within QC limits.
RA-B-EQ-002-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

000046

AQUEOUS METHOD BLANK
METALS

Lab Name	Environmental Testing and Consulting, Inc		
Laboratory ID ICP/GFAA Metals	V11-AQ-28 BLK	QC Batch	V11-AQ-28
Laboratory ID Mercury	V4-AQ-29 BLK		V4-AQ-29
Date Sample Prepared	08/18/98	ICP/GFAA Metals	
	08/18/98	Mercury	

Metals	Concentration mg/L	Detection Limit mg/L	Date Analyzed	Method
Silver	<0 009	0 009	08/20/98	6010B
Aluminum	<0 060	0 060	08/20/98	6010B
Arsenic	<0 003	0 003	08/19/98	7060A
Barium	<0 003	0 003	08/20/98	6010B
Beryllium	<0 002	0 002	08/20/98	6010B
Calcium	<0 015	0 015	08/20/98	6010B
Cadmium	<0 005	0 005	08/20/98	6010B
Cobalt	<0 009	0 009	08/20/98	6010B
Chromium	<0 009	0 009	08/20/98	6010B
Copper	<0 008	0 008	08/20/98	6010B
Iron	<0 009	0 009	08/20/98	6010B
Potassium	<0 250	0 250	08/20/98	6010B
Magnesium	<0 040	0 040	08/20/98	6010B
Manganese	<0 003	0 003	08/20/98	6010B
Sodium	<0 050	0 050	08/20/98	6010B
Nickel	<0 020	0 020	08/20/98	6010B
Lead	<0 002	0 002	08/20/98	7421
Antimony	<0 040	0 040	08/20/98	6010B
Selenium	<0 003	0 003	08/19/98	7740
Thallium	<0 002	0 002	08/20/98	7841
Vanadium	<0 010	0 010	08/20/98	6010B
Zinc	<0 010	0 010	08/20/98	6010B
Mercury	<0 0002	0 0002	08/18/98	7470A

Metals Blank

9808-483 mq1BLANK

000047

378 797

AQUEOUS LABORATORY CONTROL SAMPLE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory Control ID ICP/GFAA Metals V11-AQ-28 LCS QC Batch V11-AQ-28
Mercury V4-AQ-29 LCS V4-AQ-29

Date Prepared ICP/GFAA Metals 08/18/98
Mercury 08/18/98

Metals	Spike Added mg/L	Found mg/L	% R	#	QC Limits	
Silver	0.250	0.286	114		80	120
Aluminum	2.50	2.78	111		80	120
Arsenic	0.063	0.058	92		85	115
Barium	2.50	2.75	110		80	120
Beryllium	0.250	0.271	108		80	120
Calcium	5.00	5.60	112		80	120
Cadmium	0.250	0.277	111		80	120
Cobalt	1.25	1.37	110		80	120
Chromium	0.500	0.555	111		80	120
Copper	0.500	0.556	111		80	120
Iron	2.50	2.78	111		80	120
Potassium	5.00	5.63	113		80	120
Magnesium	5.00	5.46	109		80	120
Manganese	0.250	0.280	112		80	120
Sodium	5.00	5.57	111		80	120
Nickel	1.25	1.39	111		80	120
Lead	0.025	0.026	104		85	115
Antimony	2.50	2.73	109		80	120
Selenium	0.063	0.061	97		85	115
Thallium	0.025	0.025	100		85	115
Vanadium	1.25	1.41	113		80	120
Zinc	0.250	0.281	112		80	120
Mercury	0.0050	0.0058	116		80	120

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

Metals Laboratory Control Sample

9808-483 mq1LCS

000048

/

AQUEOUS MATRIX SPIKE
METALS

Lab Name Environmental Testing and Consulting, Inc

	QC Batch	
Laboratory ID MS ICP/GFAA Metals	9808-483-03	V11-AQ-28
Laboratory ID MS Mercury	9808-483-03	V4-AQ-29

Date Sample Prepared	08/18/98	ICP/GFAA Metals
	08/18/98	Mercury

Metals	SPIKE Added mg/L	SAMPLE Conc mg/L	MS Conc mg/L	RPD <20% #	MS % Rec #	QC Limits	
Silver	0.250	ND	0.279	1	112	75	125
Aluminum	2.50	0.080	2.77	1	108	75	125
Arsenic	0.063	ND	0.060	0	95	85	115
Barium	2.50	ND	2.73	0	109	75	125
Beryllium	0.250	ND	0.267	0	107	75	125
Calcium	5.00	0.281	5.69	2	108	75	125
Cadmium	0.250	ND	0.275	1	110	75	125
Cobalt	1.25	ND	1.36	1	109	75	125
Chromium	0.500	ND	0.542	1	108	75	125
Copper	0.500	ND	0.543	0	109	75	125
Iron	2.50	ND	2.76	1	110	75	125
Potassium	5.00	ND	5.38	1	108	75	125
Magnesium	5.00	ND	5.39	1	108	75	125
Manganese	0.250	ND	0.278	1	111	75	125
Sodium	5.00	0.205	5.53	1	107	75	125
Nickel	1.25	ND	1.36	1	109	75	125
Lead	0.025	ND	0.026	0	104	85	115
Antimony	2.50	ND	2.69	0	108	75	125
Selenium	0.063	ND	0.061	2	97	85	115
Thallium	0.025	ND	0.025	0	100	85	115
Vanadium	1.25	ND	1.39	1	111	75	125
Zinc	0.250	0.014	0.282	2	107	75	125
Mercury	0.0050	ND	0.0058	2	116	75	125

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits ND - Not Detected

Metals Matrix Spike

9808-483 mq1MSMSD

000049

378 799

AQUEOUS MATRIX SPIKE DUPLICATE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP/GFAA Metals	9808-483-03	QC Batch
Laboratory ID MS Mercury	9808-483-03	V11-AQ-28
		V4-AQ-29

Date Sample Prepared	08/18/98	ICP/GFAA Metals
	08/18/98	Mercury

Metals	SPIKE Added mg/L	SAMPLE Conc mg/L	MSD Conc mg/L		MSD % Rec	#	QC Limits	
Silver	0.250	ND	0.277		111		75	125
Aluminum	2.50	0.080	2.75		107		75	125
Arsenic	0.063	ND	0.060		95		85	115
Barium	2.50	ND	2.72		109		75	125
Beryllium	0.250	ND	0.267		107		75	125
Calcium	5.00	0.281	5.60		106		75	125
Cadmium	0.250	ND	0.277		111		75	125
Cobalt	1.25	ND	1.35		108		75	125
Chromium	0.500	ND	0.537		107		75	125
Copper	0.500	ND	0.543		109		75	125
Iron	2.50	ND	2.74		110		75	125
Potassium	5.00	ND	5.32		106		75	125
Magnesium	5.00	ND	5.34		107		75	125
Manganese	0.250	ND	0.276		110		75	125
Sodium	5.00	0.205	5.61		108		75	125
Nickel	1.25	ND	1.37		110		75	125
Lead	0.025	ND	0.026		104		85	115
Antimony	2.50	ND	2.67		107		75	125
Selenium	0.063	ND	0.062		98		85	115
Thallium	0.025	ND	0.025		100		85	115
Vanadium	1.25	ND	1.38		110		75	125
Zinc	0.250	0.014	0.277		105		75	125
Mercury	0.0050	ND	0.0059		118		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

9808-483 mq1MSMSD

000050

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

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN

ETC Order # : 9808-483
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
P06011 P06011LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P06011BS

All criteria met.*

*

Endosulfan I, alpha-chlordane, 4,4'-DDD, and gamma-chlordane were flagged for high recovery in P06011BS. High recovery indicates that detection levels were not affected. These analytes were not identified in the sample associated with this project. The data was not affected

Matrix Spike / Matrix Spike Dup FORM 3

9808-526-01

RPD : All analytes within QC limits.*

RA-TS-004A

Spike Recovery : All analytes within QC limits.*

*

RPD for Endosulfan sulfate was flagged as outside QC Limits due to high recovery in the Matrix Spike Duplicate. MS recovery was within QC Limits.

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

Method Blank FORM 4
P06011LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7**
Endrin/Breakdown : All criteria met. FORM 7***

**

Calibration Verification(CV) : P20819A.52R (Primary)

Analyte	%Diff(15% Max)	Response
4,4'-DDT	24.3	Low

Low response indicates that reported levels for this analyte may be biased low. QC samples 9808-526-01MS/MSD were the only project samples associated with this CV. Recoveries for DDT were 91% and 88% respectively indicating that the data was not affected.

000051

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

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN

ETC Order # : 9808-483
Method (SW-846) : 8081A/3550B

CALIBRATION

**

Calibration Verification(CV) : P20819B.52R (Confirmation)

Analyte	%Diff(15% Max)	Response
4,4'-DDD	21.9	High
4,4'-DDT	24.4	Low
Endrin	18.4	High

Low response for DDT indicates that reported levels for this analyte may be biased low. High recoveries for DDD and Endrin indicate that reported levels for this analyte may be biased high. QC samples 9808-526-01MS/MSD were the only project samples associated with this CV. Recoveries for these analytes were within QC Limits indicating that the data was not affected.

PEM Verification : P20819B (Confirmation)

Analyte	%Breakdown(15% Max)
Endrin	20.2

Endrin breakdown for this sequence was noted at 8.61% for the primary analysis in which the final results were reported. Endrin was not identified in samples associated with this project.

SAMPLE ANALYSIS

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


Laboratory Manager

000052

FORM 2
SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-483

Level:(low/med) LOW

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P06011LB	86	92							0
02	P06011BS	102	111							0
03	9808-483-1	80	86							0
04	9808-483-2	72	77							0
05	9808-483-4	91	102							0
06	9808-526-1	63	82							
07	9808-526-1M	74	90							
08	9808-526-1S	79	84							
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31										

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

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

P06011LB

Lab Name: ETC, INC.

Lab Prep Batch: P06011

SDG No.: 9808-483

Lab File ID: P208191A-09R

Instrument ID: PEST2A

Matrix: (soil/water) SOIL

Date Analyzed: 08/19/98

Level:(low/med) LOW

Time Analyzed: 2334

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P06011BS		P208191A-10R	08/20/98
02	9808-483-1		P208191A-15R	08/20/98
03	9808-483-2		P208191A-16R	08/20/98
04	9808-483-4		P208191A-17R	08/20/98
05	9808-526-1		P208191A-18R	08/20/98
06	9808-526-1M		P208191A-25R	08/20/98
07	9808-526-1S		P208191A-26R	08/20/98
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COMMENTS:

378 804

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

P06011LB

Lab Name: ETC, INC.

SDG No.: 9808-483

Matrix: (soil/water) SOIL

Lab Prep Batch: P06011

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

Lab File ID: P208191A-09R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10 (mL)

Date Analyzed: 08/19/98

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
5103-74-2-----	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
959-98-8/5103-71	Endosulfan I/alpha-chlordane	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

378 805

FORM 3
SOIL PESTICIDE LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P06011

SDG No.: 9808-483

Matrix Spike - Sample No.: P06011BS

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		36.05686	108	31-111
alpha-BHC	33.33333		34.30306	103	22-112
beta-BHC	33.33333		38.40901	115	54-120
delta-BHC	33.33333		25.00525	75	10- 96
gamma-BHC (Lindane)	33.33333		36.17565	108	26-113
gamma-chlordane	33.33333		37.57040	113*	50-106
4,4'-DDE	33.33333		36.48513	109	36-117
4,4'-DDD	33.33333		37.63171	113*	47-112
4,4'-DDT	33.33333		39.22555	118	49-124
Dieldrin	33.33333		36.16646	108	44-108
Endosulfan I/alpha-chlo	33.33333		37.80569	113*	49-103
Endosulfan II	33.33333		37.90887	114	53-115
Endosulfan sulfate	33.33333		35.88507	108	51-110
Endrin	33.33333		37.93722	114	44-118
Endrin aldehyde	33.33333		40.70453	122	48-128
Endrin Ketone	33.33333		37.87373	114	38-130
Heptachlor	33.33333		37.72940	113	47-113
Heptachlor epoxide	33.33333		37.02592	111	47-112
Methoxychlor	33.33333		40.47856	121	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: 3 out of 19 outside limits

COMMENTS:

000056

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P06011

SDG No.: 9808-483

Matrix Spike - Sample No.: 9808-526-1

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	M CONCENTRATION (ug/Kg)	M % REC #	QC. LIMITS REC.
Aldrin	33.00330	4.75974	29.62314	75	31-111
alpha-BHC	33.00330	4.87531	27.59577	69	22-112
beta-BHC	33.00330	0.00000	33.03086	100	54-120
delta-BHC	33.00330	0.00000	21.71782	66	10- 96
gamma-BHC (Lindane)	33.00330	4.24659	29.46326	76	26-113
gamma-chlordane	33.00330	4.02978	32.49895	86	50-106
4,4'-DDE	33.00330	0.00000	31.40754	95	36-117
4,4'-DDD	33.00330	3.63954	32.19476	86	47-112
4,4'-DDT	33.00330	4.93623	35.05667	91	49-124
Dieldrin	33.00330	5.44359	31.03958	78	44-108
Endosulfan I/alpha-chlo	33.00330	3.42453	32.21777	87	49-103
Endosulfan II	33.00330	0.00000	32.45617	98	53-115
Endosulfan sulfate	33.00330	0.00000	30.32419	92	51-110
Endrin	33.00330	3.72892	35.13715	95	44-118
Endrin aldehyde	33.00330	0.00000	34.09107	103	48-128
Endrin Ketone	33.00330	0.00000	32.21453	98	38-130
Heptachlor	33.00330	4.04359	30.84399	81	47-113
Heptachlor epoxide	33.00330	0.00000	31.36527	95	47-112
Methoxychlor	33.00330	0.00000	36.22469	110	39-147

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

* Values outside of QC limits

COMMENTS:

378 807

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P06011

SDG No.: 9808-433

Matrix Spike - Sample No.: 9808-526-1 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	S CONCENTRATION (ug/Kg)	S % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Aldrin	33.11258	29.20335	74	1	20	31-111
alpha-BHC	33.11258	29.48317	74	7	20	22-112
beta-BHC	33.11258	33.24981	100	0	20	54-120
delta-BHC	33.11258	21.95185	66	0	20	10- 96
gamma-BHC (Lindane)	33.11258	30.89920	80	5	20	26-113
gamma-chlordane	33.11258	31.17508	82	5	20	50-106
4,4'-DDE	33.11258	30.08932	91	4	20	36-117
4,4'-DDD	33.11258	30.75097	82	5	20	47-112
4,4'-DDT	33.11258	34.05114	88	3	20	49-124
Dieldrin	33.11258	30.04832	74	5	20	44-108
Endosulfan I/alpha-chlo	33.11258	31.34990	84	4	20	49-103
Endosulfan II	33.11258	31.31468	94	4	20	53-115
Endosulfan sulfate	33.11258	139.09696	420*	128*	20	51-110
Endrin	33.11258	33.92012	91	4	20	44-118
Endrin aldehyde	33.11258	33.94077	102	1	20	48-128
Endrin Ketone	33.11258	32.60582	98	0	20	38-130
Heptachlor	33.11258	32.05698	85	5	20	47-113
Heptachlor epoxide	33.11258	30.71795	93	2	20	47-112
Methoxychlor	33.11258	37.38471	113	3	20	39-147

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: 1 out of 38 outside limits

COMMENTS:

000058

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

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN

ETC Order # : 9808-483
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
P07012 P07012LB

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

Surrogate recovery for Decachlorobiphenyl was flagged as outside QC Limits in P07012LB associated with this project. Surrogate recovery for Tetrachloro-m-xylene was within QC Limits.

Laboratory Control Sample FORM 3
P07012BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9808-589-01 RPD : All analytes within QC limits.
RA-A-034-D5 Spike Recovery : All analytes within QC limits.

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

Method Blank FORM 4
P07012LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7**
Endrin/Breakdown : All criteria met. FORM 7***
**

Calibration Verification(CV) : P20819A.52R (Primary)

Analyte	%Diff(15% Max)	Response
4,4'-DDT	24.3	Low

Low response indicates that reported levels for this analyte may be biased low. QC samples 9808-589-01MS/MSD were the only project samples associated with this CV. Recoveries for DDT were 80% and 83% respectively indicating that the data was not affected.

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

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN

ETC Order # : 9808-483
Method (SW-846) : 8081A/3510C

CALIBRATION

**

Calibration Verification(CV) : P20819B.52R (Confirmation)

Analyte	%Diff(15% Max)	Response
4,4'-DDD	21.9	High
4,4'-DDT	24.4	Low
Endrin	18.4	High

Low response for DDT indicates that reported levels for this analyte may be biased low. High recoveries for DDD and Endrin indicate that reported levels for this analyte may be biased high. QC samples 9808-589-01MS/MSD were the only project samples associated with this CV. Recoveries for these analytes were within QC Limits indicating that the data was not affected.

PEM Verification : P20819B (Confirmation)

Analyte	%Breakdown(15% Max)
Endrin	20.2

Endrin breakdown for this sequence was noted at 8.61% for the primary analysis in which the final results were reported. Endrin was not identified in samples associated with this project.

SAMPLE ANALYSIS

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


Laboratory Manager

000060

FORM 2
WATER PESTICIDE SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-483

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P07012LB	77	23*							1
02	P07012BS	83	61							0
03	9808-483-3	81	62							0
04	9808-589-1	73	84							0
05	9808-589-1M	85	85							0
06	9808-589-1S	84	89							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.

P07012LB

Lab Name: ETC, INC.

Lab Prep Batch: P07012

SDG No.: 9808-483

Lab File ID: P208191A-30R

Instrument ID: PEST2A

Matrix: (soil/water) WATER

Date Analyzed: 08/20/98

Level:(low/med) LOW

Time Analyzed: 1517

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P07012BS		P208191A-32R	08/20/98
02	9808-483-3		P208191A-33R	08/20/98
03	9808-589-1		P208191A-39R	08/20/98
04	9808-589-1M		P208191A-42R	08/20/98
05	9808-589-1S		P208191A-43R	08/20/98
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COMMENTS:

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

378 812
EPA GC SAMPLE NO.

P07012LB

Lab Name: ETC, INC.

SDG No.: 9808-483

Matrix: (soil/water) WATER

Lab Prep Batch: P07012

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

Lab File ID: P208191A-30R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 08/20/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

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

309-00-2-----	Aldrin	0.04000	U
319-84-6-----	alpha-BHC	0.04000	U
319-85-7-----	beta-BHC	0.04000	U
319-86-8-----	delta-BHC	0.04000	U
58-89-9-----	gamma-BHC (Lindane)	0.04000	U
5103-74-2-----	gamma-chlordane	0.04000	U
72-55-9-----	4,4'-DDE	0.04000	U
72-54-8-----	4,4'-DDD	0.04000	U
50-29-3-----	4,4'-DDT	0.04000	U
60-57-1-----	Dieldrin	0.04000	U
959-98-8/5103-71	Endosulfan I/alpha-chlordane	0.04000	U
33213-65-9-----	Endosulfan II	0.04000	U
1031-07-8-----	Endosulfan sulfate	0.04000	U
72-20-8-----	Endrin	0.04000	U
7421-93-4-----	Endrin aldehyde	0.04000	U
53494-70-5-----	Endrin Ketone	0.04000	U
76-44-8-----	Heptachlor	0.04000	U
1024-57-3-----	Heptachlor epoxide	0.04000	U
72-43-5-----	Methoxychlor	0.04000	U
57-74-9-----	Chlordane-total	0.25000	U
8001-35-2-----	Toxaphene	2.50000	U

FORM I PESTICIDE

000063

378 813

FORM 3
WATER PESTICIDE LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P07012

SDG No.: 9808-483

Matrix Spike - Sample No.: P07012BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
Aldrin	1.00000		0.95343	95	34-105
alpha-BHC	1.00000		0.97076	97	41-102
beta-BHC	1.00000		1.09139	109	26-151
delta-BHC	1.00000		0.66927	67	21- 92
gamma-BHC (Lindane)	1.00000		1.00686	101	41-102
gamma-chlordane	1.00000		1.04124	104	50-108
4,4'-DDE	1.00000		0.97075	97	41-111
4,4'-DDD	1.00000		1.01434	101	39-124
4,4'-DDT	1.00000		0.90053	90	39-123
Dieldrin	1.00000		0.98929	99	42-111
Endosulfan I/alpha-chlo	1.00000		1.03904	104	48-117
Endosulfan II	1.00000		1.02291	102	52-114
Endosulfan sulfate	1.00000		0.95434	95	46-111
Endrin	1.00000		0.99874	100	45-117
Endrin aldehyde	1.00000		1.10882	111	48-125
Endrin Ketone	1.00000		1.01915	102	51-112
Heptachlor	1.00000		0.99293	99	43-114
Heptachlor epoxide	1.00000		1.01589	102	42-115
Methoxychlor	1.00000		0.93244	93	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 19 outside limits

COMMENTS:

000064

FORM 3
WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P07012

SDG No.: 9808-483

Matrix Spike - Sample No.: 9803-589-1

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	M CONCENTRATION (ug/L)	M % REC #	QC. LIMITS REC.
Aldrin	4.00000	0.57335	3.71104	78	34-105
alpha-BHC	4.00000	0.58596	3.72002	78	41-102
beta-BHC	4.00000	0.00000	4.13709	103	26-151
delta-BHC	4.00000	0.00000	2.52107	63	21- 92
gamma-BHC (Lindane)	4.00000	0.50959	3.86204	84	41-102
gamma-chlordane	4.00000	0.46514	3.98769	88	50-108
4,4'-DDE	4.00000	0.00000	3.81867	95	41-111
4,4'-DDD	4.00000	0.43634	3.91031	87	39-124
4,4'-DDT	4.00000	0.43589	3.65777	80	39-123
Dieldrin	4.00000	0.79974	4.02663	81	42-111
Endosulfan I/alpha-chlo	4.00000	0.41138	4.01179	90	48-117
Endosulfan II	4.00000	0.00000	3.90385	98	52-114
Endosulfan sulfate	4.00000	0.00000	3.73754	93	46-111
Endrin	4.00000	0.43789	3.82743	85	45-117
Endrin aldehyde	4.00000	0.00000	4.31228	108	48-125
Endrin Ketone	4.00000	0.00000	3.90847	98	51-112
Heptachlor	4.00000	0.45877	3.90867	86	43-114
Heptachlor epoxide	4.00000	0.00000	3.88360	97	42-115
Methoxychlor	4.00000	0.00000	3.71777	93	39-140

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

* Values outside of QC limits

COMMENTS:

FORM 3

WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

378 815

Lab Name: ETC, INC.

Lab Prep Batch: P07012

SDG No.: 9808-483

Matrix Spike - Sample No.: 9808-589-1

COMPOUND	SPIKE ADDED (ug/L)	S CONCENTRATION (ug/L)	S % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Aldrin	4.00000	3.67641	78	0	20	34-105
alpha-BHC	4.00000	3.64126	76	2	20	41-102
beta-BHC	4.00000	4.12217	103	0	20	26-151
delta-BHC	4.00000	2.53304	63	0	20	21- 92
gamma-BHC (Lindane)	4.00000	3.82758	83	1	20	41-102
gamma-chlordane	4.00000	3.94807	87	1	20	50-108
4,4'-DDE	4.00000	3.80142	95	0	20	41-111
4,4'-DDD	4.00000	3.96126	88	1	20	39-124
4,4'-DDT	4.00000	3.75171	83	4	20	39-123
Dieldrin	4.00000	3.99410	80	1	20	42-111
Endosulfan I/alpha-chlo	4.00000	4.04287	91	1	20	48-117
Endosulfan II	4.00000	3.95894	99	1	20	52-114
Endosulfan sulfate	4.00000	3.77717	94	1	20	46-111
Endrin	4.00000	3.83243	85	0	20	45-117
Endrin aldehyde	4.00000	4.35596	109	1	20	48-125
Endrin Ketone	4.00000	3.98557	100	2	20	51-112
Heptachlor	4.00000	3.87606	85	1	20	43-114
Heptachlor epoxide	4.00000	3.85987	96	1	20	42-115
Methoxychlor	4.00000	4.06608	102	9	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:

FORM 7
PESTICIDE CONTINUING CALIBRATION CHECK

378 816

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-483

Instrument ID: PEST2B

Calibration Date: 08/21/98

Time: 0557

Lab File ID: P208191B-52R

Init. Calib. Date(s): 08/19/98

08/19/98

Init. Calib. Times: 1855

2214

GC Column: RTX-5

ID: 0.53 (mm)

COMPOUND	SAMPLE AMOUNT	0.02 AMOUNT	CURVE	%D	MAX %d
Aldrin	0.02004	0.02000	LINR	0.2	15.0
alpha-BHC	0.02059	0.02000	LINR	3.0	15.0
beta-BHC	0.02195	0.02000	LINR	9.8	15.0
delta-BHC	0.02188	0.02000	LINR	9.4	15.0
gamma-BHC (Lindane)	0.02038	0.02000	LINR	1.9	15.0
alpha-chlordane	0.02117	0.02000	LINR	5.8	15.0
gamma-chlordane	0.02124	0.02000	LINR	6.2	15.0
Dieldrin/DDE	0.02118	0.02000	LINR	5.9	15.0
4,4'-DDD	0.02438	0.02000	LINR	21.9	15.0 <-
4,4'-DDT	0.01512	0.02000	LINR	24.4	15.0 <-
Endosulfan I	0.02122	0.02000	LINR	6.1	15.0
Endosulfan II	0.02168	0.02000	LINR	8.4	15.0
Endosulfan sulfate	0.02173	0.02000	LINR	8.6	15.0
Endrin	0.02369	0.02000	LINR	18.4	15.0 <-
Endrin aldehyde	0.02017	0.02000	LINR	0.8	15.0
Endrin Ketone	0.02150	0.02000	LINR	7.5	15.0
Heptachlor	0.01988	0.02000	LINR	0.6	15.0
Heptachlor epoxide	0.02109	0.02000	LINR	5.4	15.0
Methoxychlor	0.01808	0.02000	LINR	9.6	15.0
Tetrachloro-m-xylene	0.01944	0.02000	LINR	2.8	15.0
Decachlorobiphenyl	0.01712	0.02000	LINR	14.4	15.0

FORM VII PESTICIDE

000067

DISPOSAL CHARACTERIZATION SAMPLE

Date Collected 08/19/98

RA-A-034-DS



ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6331

378 818

Founded 1972

August 24, 1998

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

Ref: Analytical Testing
ETC Order # 9808589
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 'Nathan A. Pera, IV'.

Nathan A. Pera, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT

378 819

Chemical Analytical Data Review/Evaluation/Validation

SOUTHERN REGION

Report Type: ☐ Preliminary ☒ Final Date Received: 9/13/98 Project Number: 920560
 Project Name: DDMT Analysis/Method: TCLP-VOA, BNA, Pest, Herb, metals
 Laboratory: ETC Lab Project/Case Number: 9808589
 Sample Number(s): RA-A-034-DS

Evaluated By: S. Paranyape Date Evaluated: 9/4/98

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:				

N/A

378 820

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	1	5	5	5	100
General Comments:					

Summary: ☐ See attached pages

Check Applicable:

- ☐ Lab contacted--Corrective actions in process
- ☐ Corrective actions received and 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

Date Contacted: _____
Date Received/Accepted: _____

S. Paranjape
Evaluator's Signature

4/4/98

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)

378 822

Environmental Testing and Consulting, Inc.
2924 Walnut Grove Road - Memphis, TN 38111 - (901)327-2750

Cross Reference Table

Project : DDMT

Sample ID
RA-A-034-D5

Laboratory ID
9808-589-01

000002

378 823

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody

000003

[illegible]

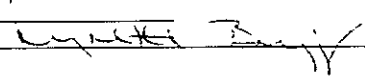
378 825

COOLER RECEIPT FORM

Cooler Receipt Form
9808588 CRF p 1

LIMS # 9808-588 AND 9808-589 Number of Coolers 1
Date Received 08/19/98
VDTSR 08/19/98 1535
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 08/19/98
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? 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

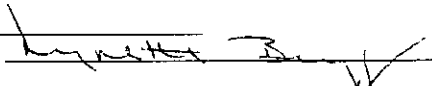
6 Were custody papers filled out properly (ink, signed, etc)? YES

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 08/19/98

B LOG-IN PHASE Date samples were logged-in 08/19/98
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

378 826

Environmental Testing & Consulting, Inc.

Sample Reports

000006

378 827

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 08/19/98
ETC Order Number 9808589

ETC Lab ID 9808589-01
Sample ID: RA-A-034-D5

Matrix :SOIL
Sample Date :08/19/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Metals Digestion Batch	V6-TC-02					JB 3015A
Mercury Digestion Batch	V3-TC-29					RM 7470
TCLP Extraction	Leachate	mg/L				TL 1311
Silver - TCLP	ND	mg/L	0 500	20:29	08/20/98	TD 6010B
Arsenic - TCLP	ND	mg/L	0 500	20:29	08/20/98	TD 6010B
Barium - TCLP	ND	mg/L	5.00	20:29	08/20/98	TD 6010B
Cadmium - TCLP	ND	mg/L	0 100	20:29	08/20/98	TD 6010B
Chromium - TCLP	ND	mg/L	0 500	20 29	08/20/98	TD 6010B
Mercury - TCLP	ND	mg/L	0.020	15:01	08/21/98	RM 7470A
Lead - TCLP	ND	mg/L	0.500	20:29	08/20/98	TD 6010B
Selenium - TCLP	ND	mg/L	0 500	20 29	08/20/98	TD 6010B


LABORATORY MANAGER

J000067

378 828

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 # 20560
 FID # DACA45-96-D-0014

Date Arrived 08/19/98
 ETC Order Number 9808589

ETC Lab ID 9808589-01
Sample ID: RA-A-034-D5

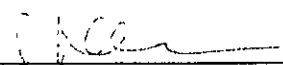
Matrix :SOIL
 Sample Date :08/19/98

TEST	RESULT UNITS: (mg/L)	DL	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Extraction ZHE	Leachate		08/19/98		TL	1311
TCLP Volatile Organics				08/20/98	JH	8260B
QC Batch	V2082001					
Benzene	ND	0.010				
Carbon Tetrachloride	ND	0.010				
Chlorobenzene	ND	0.010				
Chloroform	ND	0.010				
1,4-Dichlorobenzene	ND	0.010				
1,2-Dichloroethane	ND	0.010				
1,1-Dichloroethene	ND	0.010				
Methyl Ethyl Ketone	ND	1.00				
Tetrachloroethene	ND	0.010				
Trichloroethene	ND	0.010				
Vinyl Chloride	ND	0.010				

Surrogate Standard	% Recovery	QC Limits
S1 - Dibromofluoromethane	101	87 107
S2 - Toluene-d8	98	91 108
S3 - 4-Bromofluorobenzene	101	88 107

ND - Not Detected

DL - Detection Limit


 LABORATORY MANAGER

000008

FORM 1
VOA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

378 829
CLIENT SAMPLE NO.

9808-589-1T

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-589

Matrix: (soil/water) WATER

Lab Sample ID:

Sample wt/vol: 10.00 (g/mL) ML

Lab File ID: 0601002

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 08/20/98

GC Column: ID: 2.00 (mm)

Dilution Factor: 10.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

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 VOA-GCMS-TIC

000009

378 830

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

OHM Project 20560

Date Arrived 08/19/98
 ETC Order Number 9808589

ETC Lab ID 9808589-01
Sample ID: RA-A-034-D5
QC Batch : P05028

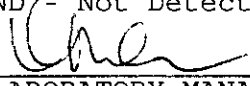
Matrix :SOIL
 Sample Date :08/19/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Semivolatiles				08/20/98	08/24/98	CB	8270C 3510C
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				
2-Methylphenol	ND	mg/L	0.008				
3-Methylphenol	ND	mg/L	0.008				
4-Methylphenol	ND	mg/L	0.008				
Nitrobenzene	ND	mg/L	0.008				
Pentachlorophenol	ND	mg/L	0.020				
Pyridine	ND	mg/L	0.008				
2,4,5-Trichlorophenol	ND	mg/L	0.008				
2,4,6-Trichlorophenol	ND	mg/L	0.008				

Surrogate Standard	% Recovery	QC Limits
S1 - Nitrobenzene-d5	60	35 85
S2 - 2-Fluorobiphenyl	76	46 84
S3 - 4-Terphenyl-d14	90	33 113
S4 - Phenol-d6	35	12 48
S5 - 2,4,6-Tribromophenol	90	10 100
S6 - 2-Fluorophenol	46	21 73

TCLP Extraction Organics Leachate 08/19/98 TL 1311

ND - Not Detected


 LABORATORY MANAGER

J000010

378 831

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
 5445 Triangle Parkway
 Suite 400
 Norcross, GA 30092
Site ID DDMT
 Memphis, TN

Date Arrived 08/19/98
ETC Order Number 9808589

ETC Lab ID 9808589-01
Sample ID: RA-A-034-D5
QC Batch : P07012

Matrix :SOIL
Sample Date :08/19/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Pesticides				08/20/98	08/20/98	RG	8081A 3510C
QC Batch	NA	mg/L					
Gamma-BHC (Lindane)	ND	mg/L	0.001				
Chlordane	ND	mg/L	0.010				
Endrin	ND	mg/L	0.001				
Heptachlor	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	84		34				115
S2 - Tetrachloro-m-xylene	73		31				96
TCLP Extraction Organics	Leachate			08/19/98		TL	1311

ND - Not Detected


LABORATORY MANAGER

000011

378 832

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

OHM Project **20560**

Site ID **DDMT**
Memphis, TN

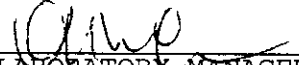
Date Arrived **08/19/98**
ETC Order Number **9808589**

ETC Lab ID **9808589-01**
Sample ID: RA-A-034-D5
QC Batch : P11005

Matrix : **SOIL**
Sample Date : **08/19/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Herbicides				08/20/98	08/21/98	RG	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	80		25		125		
TCLP Extraction Organics	Leachate			08/19/98		TL	1311

ND - Not Detected


LABORATORY MANAGER

000012

Environmental Testing & Consulting, Inc.

Quality Control Reports

Metals (ICP/GFAA/CV)

378 834

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
METALS - TCLP

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-589

HOLDING TIMES

QC Batch(s) for this order : ICP Metals V6-TC-02
Mercury V3-TC-29

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
CETAC M-6000A Mercury Analyzer

Dilutions Required : No dilutions required.

QUALITY CONTROL

9808-589.MQCBLANK

Method Blank

V6-TC-02BLK - ICP Metals
V3-TC-29BLK - Mercury

No analytes detected in the Method Blank.

9808-589.MQCLCS

Laboratory Control Sample(s)

V6-TC-02LCS - ICP Metals
V3-TC-29LCS - Mercury

All criteria met.

9808-589.MQCMSMSD

Matrix Spike / Matrix Spike Dup - ICP Metals

9808-589-01 RPD : All analytes within QC limits.*
RA-A-034-D5 Spike Recovery : All analytes within QC limits.*
*

RPD for Chromium was flagged as outside QC Limits due to high
recovery in the Matrix Spike. MSD recovery was within QC Limits.

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

000014

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
METALS - TCLP

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-589

QUALITY CONTROL

Matrix Spike / Matrix Spike Dup - Hg
9808-589-01 RPD : All analytes within QC limits.
RA-A-034-D5 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.

W. J. [Signature]
Laboratory Manager

TCLP METHOD BLANK
METALS

Lab Name	Environmental Testing and Consulting, Inc		
Laboratory ID ICP/GFAA Metals	V6-TC-02	BLK	QC Batch V6-TC-02
Laboratory ID Mercury	V3-TC-29	BLK	V3-TC-29
Date Sample Prepared	08/20/98		ICP/GFAA Metals
	08/21/98		Mercury

Metals	Concentration mg/L	Detection Limit mg/L	Date Analyzed	Method
Silver	<0 500	0 500	08/20/98	6010B
Aluminum				6010B
Arsenic	<0 500	0 500	08/20/98	6010B
Barium	<5 00	5 00	08/20/98	6010B
Beryllium				6010B
Calcium				6010B
Cadmium	<0 100	0 100	08/20/98	6010B
Cobalt				6010B
Chromium	<0 500	0 500	08/20/98	6010B
Copper				6010B
Iron				6010B
Potassium				6010B
Magnesium				6010B
Manganese				6010B
Sodium				6010B
Nickel				6010B
Lead	<0 500	0 500	08/20/98	6010B
Antimony				6010B
Selenium	<0 500	0 500	08/20/98	6010B
Thallium				6010B
Vanadium				6010B
Zinc				6010B
Mercury	<0 020	0 020	08/21/98	7470A

Metals Blank

000016
9808-589 mqcBLANK

TCLP LABORATORY CONTROL SAMPLE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory Control ID	ICP/GFAA Metals	<u>V6-TC-02</u>	LCS	QC Batch
	Mercury	<u>V3-TC-29</u>	LCS	<u>V6-TC-02</u>
				<u>V3-TC-29</u>

Date Prepared	ICP/GFAA Metals	<u>08/20/98</u>	
	Mercury	<u>08/21/98</u>	

Metals	Spike Added mg/L	Found mg/L	% R	#	QC Limits
Silver	0.250	0.258	103		80 120
Aluminum					80 120
Arsenic	1.25	1.31	105		80 120
Barium	2.50	2.67	107		80 120
Beryllium					80 120
Calcium					80 120
Cadmium	0.250	0.253	101		80 120
Cobalt					80 120
Chromium	0.500	0.498	100		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	1.20	96		80 120
Antimony					80 120
Selenium	1.25	1.32	106		80 120
Thallium					80 120
Vanadium					80 120
Zinc					80 120
Mercury	0.0050	0.0053	106		80 120

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

Metals Laboratory Control Sample

000017
9808-589 mqcLCS

TCLP MATRIX SPIKE
METALS

Lab Name Environmental Testing and Consulting, Inc

	QC Batch
Laboratory ID MS ICP/GFAA Metals	9808-589-01 V6-TC-02
Laboratory ID MS Mercury	9808-589-01 V3-TC-29

Date Sample Prepared	08/20/98	ICP/GFAA Metals
	08/21/98	Mercury

Metals	SPIKE Added mg/L	SAMPLE Conc mg/L	MS Conc mg/L	RPD <20% #	MS % Rec #	QC Limits	
Silver	0.250	ND	0.247	4	99	50	150
Aluminum						50	150
Arsenic	1.25	ND	1.36	1	109	50	150
Barium	2.50	1.48	3.96	1	99	50	150
Beryllium						50	150
Calcium						50	150
Cadmium	0.250	ND	0.254	2	102	50	150
Cobalt						50	150
Chromium	0.500	ND	1.24	84 *	248 *	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	4	95	50	150
Antimony						50	150
Selenium	1.25	ND	1.40	1	112	50	150
Thallium						50	150
Vanadium						50	150
Zinc						50	150
Mercury	0.0050	ND	0.0054	2	108	50	150

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits ND - Not Detected

Metals Matrix Spike

000018

9808-589 mqcMSMSD

TCLP MATRIX SPIKE DUPLICATE
METALS

Lab Name Environmental Testing and Consulting, Inc

	QC Batch
Laboratory ID MS ICP/GFAA Metals	9808-589-01 V6-TC-02
Laboratory ID MS Mercury	9808-589-01 V3-TC-29

Date Sample Prepared	08/20/98	ICP/GFAA Metals
	08/21/98	Mercury

Metals	SPIKE Added mg/L	SAMPLE Conc mg/L	MSD Conc mg/L	MSD % Rec	#	QC Limits	
Silver	0.250	ND	0.257	103		50	150
Aluminum						50	150
Arsenic	1.25	ND	1.37	110		50	150
Barium	2.50	1.48	3.91	97		50	150
Beryllium						50	150
Calcium						50	150
Cadmium	0.250	ND	0.258	103		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	1.24	99		50	150
Antimony						50	150
Selenium	1.25	ND	1.42	114		50	150
Thallium						50	150
Vanadium						50	150
Zinc						50	150
Mercury	0.0050	ND	0.0055	110		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

9808-589-01 V6-TC-02
9808-589-01 V3-TC-29

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC/MS Volatiles

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS VOLATILE COMPOUNDS - TCLP

378 841

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

ETC Order # : 9808-589
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
V2082001 V208201LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
V308201BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3 - Water
9808-589-01 RPD : All analytes within QC limits.
RA-A-034-D5 Spike Recovery : All analytes within QC limits.

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

Method Blank FORM 4
V208201LB

No Target Analytes detected above Practical Quantitation Limit.
Methylene Chloride identified in V208201LB at 0.913J ug/L.

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
Calibration Verification : All criteria met. FORM 7*
*
Calibration Verification : All criteria met. FORM 7A*
*

Multiple analytes for Calibration Verification 08/20/98 were flagged with a percent difference >30.0%. These analytes were not identified in samples associated with this calibration verification. The data was not affected.

Volatile Internal Standard Area and RT FORM 8
Daily Check Standard(s) Internal Standard Areas and Retention Times within QC limits.

000021

378 842

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS VOLATILE COMPOUNDS - TCLP

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

ETC Order # : 9808-589
Method (SW-846) : 1311/8260B

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC, 5971MSD
Dilutions Required : No dilutions required.


Laboratory Manager

000022

FORM 2
WATER VOA-GCMS SYSTEM MONITORING COMPOUND RECOVERY

378 843

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-589

	CLIENT SAMPLE NO.	SMC1 (DBF) #	SMC2 (TOL) #	SMC3 (BFB) #	OTHER	TOT OUT
01	V308201BS	100	97	98		0
02	V208201LB	96	99	98		0
03	9808-589-1T	101	98	101		0
04	9808-589-1TM	98	99	98		0
05	9808-589-1TS	100	98	99		0
06						
07						
08						
09						
10						
11						
12						
13						
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25						
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27						
28						
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

FORM 4
VOA-GCMS METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

V208201LB

Lab Name: ETC, INC.

Lab Prep Batch: V2082001

SDG No.: 9808-589

Lab File ID: 0401001

Lab Prep Batch: V2082001

Date Analyzed: 08/20/98

Time Analyzed: 1354

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	V308201BS		0201001LCS	1123
02	9808-589-1T		0601002	1544
03	9808-589-1TM		1201008	2004
04	9808-589-1TS		1301009	2047
05				
06				
07				
08				
09				
10				
11				
12				
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30				

COMMENTS:

FORM 1
VOA-GCMS ORGANICS ANALYSIS DATA SHEET

378 845
CLIENT SAMPLE NO.

V208201LB

Lab Name: ETC, INC.

SDG No.: 9808-589

Matrix: (soil/water) WATER

Lab Prep Batch: V2082001

Sample wt/vol: 10.00 (g/mL) ML

Lab File ID: 0401001

Level: (low/med) LOW

Date Analyzed: 08/20/98

Dilution Factor: 1.0

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

67-64-1-----	Acetone	50.0	U
71-43-2-----	Benzene	1.00	U
108-86-1-----	Bromobenzene	1.00	U
75-27-4-----	Bromodichloromethane	1.00	U
75-25-2-----	Bromoform	1.00	U
74-83-9-----	Bromomethane	1.00	U
107-02-8-----	Acrolein	50.0	U
78-93-3-----	Methyl-Ethyl Ketone	20.0	U
75-15-0-----	Carbon Disulfide	1.00	U
56-23-5-----	Carbon Tetrachloride	1.00	U
108-90-7-----	Chlorobenzene	1.00	U
124-48-1-----	Chlorodibromomethane	1.00	U
75-00-3-----	Chloroethane	1.00	U
107-13-1-----	Acrylonitrile	20.0	U
110-75-0-----	2-chloroethyl vinyl ether	1.00	U
1634-04-4-----	Methyl-tertbutyl-Ether	5.00	U
67-66-3-----	Chloroform	2.00	U
74-87-3-----	Chloromethane	1.00	U
96-12-8-----	1,2-Dibromo-3-chloropropane	1.00	U
74-95-3-----	Dibromomethane	1.00	U
95-50-1-----	1,2-Dichlorobenzene	1.00	U
541-73-1-----	1,3-Dichlorobenzene	1.00	U
106-46-7-----	1,4-Dichlorobenzene	1.00	U
141-78-6-----	Ethyl Acetate	1.00	U
67-64-1-----	Dichlorodifluoromethane	1.00	U
75-34-3-----	1,1-Dichloroethane	1.00	U
107-06-2-----	1,2-Dichloroethane	1.00	U
75-35-4-----	1,1-Dichloroethene	1.00	U
156-59-4-----	cis-1,2-Dichloroethene	1.00	U
156-60-5-----	trans-1,2-Dichloroethene	1.00	U
78-87-5-----	1,2-Dichloropropane	1.00	U
142-28-9-----	1,3-Dichloropropane	1.00	U
10061-01-5-----	cis-1,3-Dichloropropene	1.00	U

FORM I VOA-GCMS

000025

FORM 1
VOA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

V208201LB

Lab Name: ETC, INC.

SDG No.: 9808-589

Matrix: (soil/water) WATER

Lab Prep Batch: V2082001

Sample wt/vol: 10.00 (g/mL) ML

Lab File ID: 0401001

Level: (low/med) LOW

Date Analyzed: 08/20/98

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
10061-02-6	trans-1,3-Dichloropropene	1.00	U
100-41-4	Ethylbenzene	1.00	U
591-78-6	2-Hexanone	10.0	U
75-09-2	Methylene Chloride	0.913	J
108-10-1	4-Methyl-2-Pentanone	5.00	U
91-20-3	Naphthalene	1.00	U
100-42-5	Styrene	1.00	U
630-20-6	1,1,1,2-Tetrachloroethane	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane	1.00	U
127-18-4	Tetrachloroethene	1.00	U
108-88-3	Toluene	1.00	U
71-55-6	1,1,1-Trichloroethane	1.00	U
79-00-5	1,1,2-Trichloroethane	1.00	U
79-01-6	Trichloroethene	1.00	U
75-69-4	Trichlorofluoromethane	1.00	U
96-18-4	1,2,3-Trichloropropane	1.00	U
108-05-4	Vinyl Acetate	1.00	U
75-01-4	Vinyl Chloride	1.00	U
1330-20-7	Xylene-mp	1.00	U
95-47-6	Xylene-o	1.00	U

FORM I VOA-GCMS

000026

378 847

FORM 1
VOA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

V208201LB

Lab Name: ETC, INC.

SDG No.: 9808-589

Matrix: (soil/water) WATER

Lab Prep Batch: V2082001

Sample wt/vol: 10.00 (g/mL) ML

Lab File ID: 0401001

Level: (low/med) LOW

Date Analyzed: 08/20/98

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
71-43-2-----	Benzene	1.00	U
78-93-3-----	Methyl-Ethyl Ketone	100	U
56-23-5-----	Carbon Tetrachloride	1.00	U
108-90-7-----	Chlorobenzene	1.00	U
67-66-3-----	Chloroform	1.00	U
106-46-7-----	1,4-Dichlorobenzene	1.00	U
107-06-2-----	1,2-Dichloroethane	1.00	U
75-35-4-----	1,1-Dichloroethene	1.00	U
127-18-4-----	Tetrachloroethene	1.00	U
108-88-3-----	Toluene	1.00	U
79-01-6-----	Trichloroethene	1.00	U
75-01-4-----	Vinyl Chloride	1.00	U

FORM I VOA-GCMS

000027

378 848

FORM 3
WATER VOA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V2082001

SDG No.: 9808-589

Matrix Spike - Sample No.: V308201BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Acetone	100		111	111	59-151
Acetonitrile	1000		989	99	57-143
Benzene	100		94.2	94	72-124
Bromobenzene	100		85.1	85	77-120
Bromochloromethane	100		100	100	74-120
Bromodichloromethane	100		92.4	92	68-119
Bromoform	100		100	100	66-136
Bromomethane	100		92.2	92	40-134
Methyl-Ethyl Ketone	100		114	114	55-151
n-Butylbenzene	100		92.8	93	69-129
sec-Butylbenzene	100		93.8	94	72-127
tert-Butylbenzene	100		91.5	92	73-126
Carbon Disulfide	100		107	107	60-133
Carbon Tetrachloride	100		96.1	96	64-123
Chlorobenzene	100		85.5	86	77-112
Chlorodibromomethane	100		95.2	95	72-118
Chloroethane	100		96.5	96	64-142
2-Chloroethyl vinyl Eth	100		53.5	54	22-165
Chloroform	100		93.1	93	70-115
Chloromethane	100		93.8	94	58-139
2-Chlorotoluene	100		86.4	86	65-132
4-Chlorotoluene	100		87.3	87	67-127
1,2-Dibromo-3-chloropro	100		97.7	98	56-134
1,2-Dibromoethane	100		96.0	96	74-118
Dibromomethane	100		95.2	95	75-114
1,2-Dichlorobenzene	100		83.5	84	80-113
1,3-Dichlorobenzene	100		82.0	82	77-119
1,4-Dichlorobenzene	100		85.0	85	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

378 849

Lab Name: ETC, INC.

Lab Prep Batch: V2082001

SDG No.: 9808-589

Matrix Spike - Sample No.: V308201BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Dichlorodifluoromethane	100		75.6	76	48-145
1,1-Dichloroethane	100		95.5	96	76-118
1,2-Dichloroethane	100		96.5	96	62-124
1,1-Dichloroethene	100		94.7	95	69-121
cis-1,2-Dichloroethene	100		93.7	94	76-114
trans-1,2-Dichloroethene	100		95.2	95	72-121
1,2-Dichloropropane	100		94.2	94	64-133
1,3-Dichloropropane	100		95.6	96	68-128
2,2-Dichloropropane	100		100	100	67-132
1,1-Dichloropropene	100		96.9	97	76-117
cis-1,3-Dichloropropene	100		98.0	98	77-120
trans-1,3-Dichloropropene	100		95.1	95	73-124
Ethylbenzene	100		86.0	86	77-111
Hexachlorobutadiene	100		89.6	90	69-137
2-Hexanone	100		110	110	53-144
Isopropylbenzene	100		88.8	89	74-125
4-Isopropyltoluene	100		94.8	95	72-127
Methylene Chloride	100		90.5	90	67-115
4-Methyl-2-Pentanone	100		107	107	42-144
Naphthalene	100		86.2	86	53-124
n-Propylbenzene	100		90.7	91	75-125
Styrene	100		86.2	86	77-117
1,1,1,2-Tetrachloroethane	100		89.8	90	79-113
1,1,2,2-Tetrachloroethane	100		93.7	94	67-126
Tetrachloroethene	100		85.6	86	77-115
Toluene	100		85.5	86	77-115
1,2,3-Trichlorobenzene	100		84.6	85	62-132
1,2,4-Trichlorobenzene	100		86.3	86	68-132

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

Lab Name: ETC, INC.

Lab Prep Batch: V2082001

SDG No.: 9808-589

Matrix Spike - Sample No.: V308201BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
1,1,1-Trichloroethane	100		93.9	94	63-122
1,1,2-Trichloroethane	100		96.3	96	69-117
Trichloroethene	100		89.5	90	75-113
Trichlorofluoromethane	100		99.3	99	55-130
1,2,3-Trichloropropane	100		98.4	98	62-130
1,2,4-Trimethylbenzene	100		88.6	89	69-126
1,3,5-Trimethylbenzene	100		89.6	90	69-128
Vinyl Acetate	100		140	140	28-146
Vinyl Chloride	100		92.8	93	65-134
Xylene-mp	200		174	87	77-115
Xylene-o	100		86.6	87	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: 0 out of 67 outside limits

COMMENTS:

FORM 3
WATER VOA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

378 851

Lab Name: ETC, INC.

Lab Prep Batch: V2082001

SDG No.: 9808-589

Matrix Spike - Sample No.: 9808-589-1T

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Benzene	100	0.000	89.0	89	72-124
Chlorobenzene	100	0.000	83.8	84	77-112
1,1-Dichloroethene	100	0.000	91.0	91	69-121
Trichloroethene	100	0.000	86.7	87	75-113

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
Benzene	100	102	102	14	20	72-124
Chlorobenzene	100	94.2	94	11	20	77-112
1,1-Dichloroethene	100	103	103	12	20	69-121
Trichloroethene	100	97.8	98	12	20	75-113

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 VOA-GCMS

000031

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC/MS Semi-Volatiles

ENVIRONMENTAL TESTING AND CONSULTING, INC. 378 853
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - TCLP

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

ETC Order # : 9808-589
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
P05028 P05028LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P05028BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9808-589-01 RPD : All analytes within QC limits.*
RA-A-034-D5 Spike Recovery : All analytes within QC limits.*
*

Recoveries for Hexachlorobutadiene and Nitrobenzene were flagged outside QC Limits in the Matrix Spike. MSD recoveries were within QC Limits.

RPDs for multiple analytes were flagged as outside QC Limits due to higher recovery in the Matrix Spike Duplicate.

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

Method Blank FORM 4
P05028LB

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
Calibration Verification : All criteria met. FORM 7*
*

2,4-Dinitrotoluene for Calibration Verification 08/24/98 was flagged with a percent difference >30.0%. This analyte was not identified in samples associated with this calibration verification. The data was not affected.

000033

378 854

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 Memphis TN

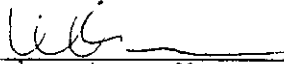
ETC Order # : 9808-589
Method (SW-846) : 1311/8270C

CALIBRATION

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

000034

FORM 2
WATER BNA-GCMS SURROGATE RECOVERY

378 855

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-589

	CLIENT SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	S7 #	S8 #	TOT OUT
01	P05028LB	34	26	47	61	76	77			0
02	P05028BS	54	39	56	71	97	88			0
03	9808-589-1T	46	35	60	76	90	90			0
04	9808-589-1TM	43	33	40	51	87	82			0
05	9808-589-1TS	52	36	52	67	93	89			0
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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

378 856

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

CLIENT SAMPLE NO

P05028LB

Lab Name: ETC, INC.

Lab Prep Batch: P05028

SDG No.: 9808-589

Lab File ID: 1001010

Instrument ID: BNA2

Matrix: (soil/water) WATER

Date Analyzed: 08/24/98

Level:(low/med) LOW

Time Analyzed: 2040

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

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P05028BS		1101011	08/24/98
02	9808-589-1T		1201012	08/24/98
03	9808-589-1TM		1301013	08/24/98
04	9808-589-1TS		1401014	08/24/98
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COMMENTS:

000036

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

378 857
CLIENT SAMPLE NO.

P05028LB

Lab Name: ETC, INC.

SDG No.: 9808-589

Matrix: (soil/water) WATER

Lab Prep Batch: P05028

Sample wt/vol: 250.0 (g/mL) ML

Lab File ID: 1001010

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 08/24/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7-----	1,4-Dichlorobenzene	8.0	U
121-14-2-----	2,4-Dinitrotoluene	8.0	U
118-74-1-----	Hexachlorobenzene	8.0	U
87-68-3-----	Hexachlorobutadiene	8.0	U
67-72-1-----	Hexachloroethane	8.0	U
95-48-7-----	2-Methylphenol	8.0	U
106-44-5-----	3&4-Methylphenol	8.0	U
98-95-3-----	Nitrobenzene	8.0	U
87-86-5-----	Pentachlorophenol	20.0	U
95-95-4-----	2,4,5-Trichlorophenol	8.0	U
88-06-2-----	2,4,6-Trichlorophenol	8.0	U
110-86-1-----	Pyridine	8.0	U

FORM I BNA-GCMS

000037

378 858

FORM 3
WATER BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P05028

SDG No.: 9808-589

Matrix Spike - Sample No.: P05028BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
1,4-Dichlorobenzene	100		71.6	72	31- 97
2,4-Dinitrotoluene	100		79.1	79	34-130
Hexachlorobenzene	100		96.4	96	65-133
Hexachlorobutadiene	100		70.3	70	50-112
Hexachloroethane	100		64.4	64	37-100
2-Methylphenol	160		115	72	40-117
3&4-Methylphenol	160		92.4	58	46- 99
Nitrobenzene	100		71.4	71	57-120
Pentachlorophenol	160		130	81	22-171
2,4,5-Trichlorophenol	160		128	80	31-147
2,4,6-Trichlorophenol	160		128	80	30-163
Pyridine	100		43.7	44	10- 82

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 12 outside limits

COMMENTS:

FORM III BNA-GCMS

000028

FORM 3
WATER BNA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

378 859

Lab Name: ETC, INC.

Lab Prep Batch: P05028

SDG No.: 9808-589

Matrix Spike - Sample No.: 9808-589-1T

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	M CONCENTRATION (ug/L)	M % REC #	QC. LIMITS REC.
1,4-Dichlorobenzene	400	0.00	183	46	31- 97
2,4-Dinitrotoluene	400	0.00	275	69	34-130
Hexachlorobenzene	400	0.00	318	80	65-133
Hexachlorobutadiene	400	0.00	195	49*	50-112
Hexachloroethane	400	0.00	166	42	37-100
2-Methylphenol	640	0.00	353	55	40-117
3&4-Methylphenol	640	0.00	304	48	46- 99
Nitrobenzene	400	0.00	190	48*	57-120
Pentachlorophenol	640	0.00	489	76	22-171
2,4,5-Trichlorophenol	640	0.00	406	63	31-147
2,4,6-Trichlorophenol	640	0.00	396	62	30-163
Pyridine	400	0.00	152	38	10- 82

COMPOUND	SPIKE ADDED (ug/L)	S CONCENTRATION (ug/L)	S % REC #	% RPD #	QC LIMITS RPD	REC.
1,4-Dichlorobenzene	400	246	62	30*	20	31- 97
2,4-Dinitrotoluene	400	292	73	6	20	34-130
Hexachlorobenzene	400	374	94	16	20	65-133
Hexachlorobutadiene	400	251	63	25*	20	50-112
Hexachloroethane	400	219	55	27*	20	37-100
2-Methylphenol	640	428	67	20	20	40-117
3&4-Methylphenol	640	311	48	0	20	46- 99
Nitrobenzene	400	263	66	32*	20	57-120
Pentachlorophenol	640	497	78	2	20	22-171
2,4,5-Trichlorophenol	640	469	73	15	20	31-147
2,4,6-Trichlorophenol	640	468	73	16	20	30-163
Pyridine	400	187	47	21*	20	10- 82

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

* Values outside of QC limits

RPD: 5 out of 12 outside limits

Spike Recovery: 2 out of 24 outside limits

COMMENTS:

FORM III BNA-GCMS

000039

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC Pesticides

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

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-589
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
P07012 P07012LB2

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P07012BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9808-589-01 RPD : All analytes within QC limits.
RA-A-034-D5 Spike Recovery : All analytes within QC limits.

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

Method Blank FORM 4
P07012LB2

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7**
Endrin/Breakdown : All criteria met. FORM 7***
**

Calibration Verification(CV) : P20819A.52R (Primary)

Analyte	%Diff(15% Max)	Response
4,4'-DDT	24.3	Low

This analyte was not a Target Analyte for this project. The data was not affected.

378 862

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

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN

ETC Order # : 9808-589
Method (SW-846) : 8081A/3510C

CALIBRATION

**

Calibration Verification(CV) : P20819B.52R (Confirmation)

Analyte	%Diff(15% Max)	Response
4,4'-DDD	21.9	High
4,4'-DDT	24.4	Low
Endrin	18.4	High

High recovery Endrin indicate that reported levels for this analyte may be biased high. Endrin was not identified in any project sample associated with this CV. The data was not affected.

PEM Verification : P20819B (Confirmation)

Analyte	%Breakdown(15% Max)
Endrin	20.2

Endrin breakdown for this sequence was noted at 8.61% for the primary analysis in which the final results were reported. Endrin was not identified in samples associated with this project.

SAMPLE ANALYSIS

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


Laboratory Manager

000042

FORM 2
WATER PESTICIDE SURROGATE RECOVERY

378 863

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-589

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P07012LB2	91	78							0
02	P07012BS	83	61							0
03	9808-589-1	73	84							0
04	9808-589-1M	85	85							0
05	9808-589-1S	84	89							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

000043

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

P07012LB2

Lab Prep Batch: P07012

SDG No.: 9808-580

Lab File ID: P208191A-31R

Instrument ID: PEST2A

Matrix: (soil/water) WATER

Date Analyzed: 08/20/98

Level: (low/med) LOW

Time Analyzed: 1557

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P07012BS		P208191A-32R	08/20/98
02	9808-589-1		P208191A-39R	08/20/98
03	9808-589-1M		P208191A-42R	08/20/98
04	9808-589-1S		P208191A-43R	08/20/98
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COMMENTS:

378 865

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

P07012LB2

Lab Name: ETC, INC.

SDG No.: 9808-589

Matrix: (soil/water) WATER

Lab Prep Batch: P07012

Sample wt/vol: 250.0 (g/mL) ML

Lab File ID: P208191A-31R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10 (mL)

Date Analyzed: 08/20/98

Injection Volume: 1.0 (uL)

Dilution Factor: 10.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/Kg) UG/L	Q
58-89-9-----	gamma-BHC (Lindane)_____	1.00000	U
72-20-8-----	Endrin_____	1.00000	U
76-44-8-----	Heptachlor_____	1.00000	U
72-43-5-----	Methoxychlor_____	1.00000	U

FORM I PESTICIDE

000045

378 866

FORM 3
WATER PESTICIDE LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P07012

SDG No.: 9808-589

Matrix Spike - Sample No.: P07012BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
Aldrin	1.00000		0.95343	95	34-105
alpha-BHC	1.00000		0.97076	97	41-102
beta-BHC	1.00000		1.09139	109	26-151
delta-BHC	1.00000		0.66927	67	21- 92
gamma-BHC (Lindane)	1.00000		1.00686	101	41-102
gamma-chlordane	1.00000		1.04124	104	50-108
4,4'-DDE	1.00000		0.97075	97	41-111
4,4'-DDD	1.00000		1.01434	101	39-124
4,4'-DDT	1.00000		0.90053	90	39-123
Dieldrin	1.00000		0.98929	99	42-111
Endosulfan I/alpha-chlo	1.00000		1.03904	104	48-117
Endosulfan II	1.00000		1.02291	102	52-114
Endosulfan sulfate	1.00000		0.95434	95	46-111
Endrin	1.00000		0.99874	100	45-117
Endrin aldehyde	1.00000		1.10882	111	48-125
Endrin Ketone	1.00000		1.01915	102	51-112
Heptachlor	1.00000		0.99293	99	43-114
Heptachlor epoxide	1.00000		1.01589	102	42-115
Methoxychlor	1.00000		0.93244	93	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 19 outside limits

COMMENTS:

FORM 3
WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P07012

SDG No.: 9808-589

Matrix Spike - Sample No.: 9808-589-1

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	M CONCENTRATION (ug/L)	M % REC #	QC. LIMITS REC.
Aldrin	4.00000	0.57335	3.71104	78	34-105
alpha-BHC	4.00000	0.58596	3.72002	78	41-102
beta-BHC	4.00000	0.00000	4.13709	103	26-151
delta-BHC	4.00000	0.00000	2.52107	63	21- 92
gamma-BHC (Lindane)	4.00000	0.50959	3.86204	84	41-102
gamma-chlordane	4.00000	0.46514	3.98769	88	50-108
4,4'-DDE	4.00000	0.00000	3.81867	95	41-111
4,4'-DDD	4.00000	0.43634	3.91031	87	39-124
4,4'-DDT	4.00000	0.43589	3.65777	80	39-123
Dieldrin	4.00000	0.79974	4.02663	81	42-111
Endosulfan I/alpha-chlo	4.00000	0.41138	4.01179	90	48-117
Endosulfan II	4.00000	0.00000	3.90385	98	52-114
Endosulfan sulfate	4.00000	0.00000	3.73754	93	46-111
Endrin	4.00000	0.43789	3.82743	85	45-117
Endrin aldehyde	4.00000	0.00000	4.31228	108	48-125
Endrin Ketone	4.00000	0.00000	3.90847	98	51-112
Heptachlor	4.00000	0.45877	3.90867	86	43-114
Heptachlor epoxide	4.00000	0.00000	3.88360	97	42-115
Methoxychlor	4.00000	0.00000	3.71777	93	39-140

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

* Values outside of QC limits

COMMENTS:

378 868

FORM 3
WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P07012

SDG No.: 9808-589

Matrix Spike - Sample No.: 9808-589-1

COMPOUND	SPIKE ADDED (ug/L)	S CONCENTRATION (ug/L)	S % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Aldrin	4.00000	3.67641	78	0	20	34-105
alpha-BHC	4.00000	3.64126	76	2	20	41-102
beta-BHC	4.00000	4.12217	103	0	20	26-151
delta-BHC	4.00000	2.53304	63	0	20	21- 92
gamma-BHC (Lindane)	4.00000	3.82758	83	1	20	41-102
gamma-chlordane	4.00000	3.94807	87	1	20	50-108
4,4'-DDE	4.00000	3.80142	95	0	20	41-111
4,4'-DDD	4.00000	3.96126	88	1	20	39-124
4,4'-DDT	4.00000	3.75171	83	4	20	39-123
Dieldrin	4.00000	3.99410	80	1	20	42-111
Endosulfan I/alpha-chlo	4.00000	4.04287	91	1	20	48-117
Endosulfan II	4.00000	3.95894	99	1	20	52-114
Endosulfan sulfate	4.00000	3.77717	94	1	20	46-111
Endrin	4.00000	3.83243	85	0	20	45-117
Endrin aldehyde	4.00000	4.35596	109	1	20	48-125
Endrin Ketone	4.00000	3.98557	100	2	20	51-112
Heptachlor	4.00000	3.87606	85	1	20	43-114
Heptachlor epoxide	4.00000	3.85987	96	1	20	42-115
Methoxychlor	4.00000	4.06608	102	9	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:

000048

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC Herbicides

378 870

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
HERBICIDE - TCLP

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-589
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
P11005 P11005LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P11005BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9808-589-01 RPD : All analytes within QC limits.*
RA-A-034-D5 Spike Recovery : All analytes within QC limits.
*
RPD for 2,4-D was flagged as outside QC Limits due to higher recovery in the Matrix Spike. MS/MSD recoveries were within QC Limits.

Refer to Laboratory Control Samples for system verification.

Method Blank FORM 4
P11005LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7A

SAMPLE ANALYSIS

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


Laboratory Manager

000050

FORM 2
WATER HERBICIDE SURROGATE RECOVERY

378 871

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-589

	EPA GC SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P11005LB	80								0
02	P11005BS	61								0
03	9808-589-1	80								0
04	9808-589-1M	81								0
05	9808-589-1S	57								0
06										
07										
08										
09										
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12										
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29										
30										

QC LIMITS
(25-125)

S1 = 2,4,5-T

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

FORM 4
HERBICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

P11005LB

Lab Prep Batch: P11005

SDG No.: 9808-589

Lab File ID: T208211A-08R

Instrument ID: PEST2A

Matrix: (soil/water) WATER

Date Analyzed: 08/21/98

Level: (low/med) LOW

Time Analyzed: 1443

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P11005BS		T208211A-09R	08/21/98
02	9808-589-1		T208211A-11R	08/21/98
03	9808-589-1M		T208211A-12R	08/21/98
04	9808-589-1S		T208211A-13R	08/21/98
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
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19				
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22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM 1
HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

P11005LB

Lab Name: ETC, INC.

SDG No.: 9808-589

Matrix: (soil/water) WATER

Lab Prep Batch: P11005

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

Lab File ID: T208211A-08R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 5 (mL)

Date Analyzed: 08/21/98

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	1.00	U
93-72-1-----	Silvex	1.00	U

FORM I HERBICIDE

000053

378 874

FORM 3
WATER HERBICIDE LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P11005

SDG No.: 9808-589

Matrix Spike - Sample No.: P11005BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
2,4-D	2.50		1.66	66	25-125
Silvex	2.50		1.37	55	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 HERBICIDE

000054

378 875

FORM 3

WATER HERBICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P11005

SDG No.: 9808-589

Matrix Spike - Sample No.: 9808-589-1

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	M CONCENTRATION (ug/L)	M % REC #	QC. LIMITS REC.
2,4-D	10.00	0.000	8.40	84	25-125
Silvex	10.00	0.000	6.42	64	25-125

COMPOUND	SPIKE ADDED (ug/L)	S CONCENTRATION (ug/L)	S % REC #	% RPD #	QC LIMITS RPD REC.
2,4-D	10.00	6.42	64	27*	20 25-125
Silvex	10.00	5.91	59	8	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

000055

**COMPOSITE CONFIRMATION SAMPLE COLLECTED
FOLLOWING FIELD SCREENING
(CLEAN GRIDS IN AREA C – 0"-6")
*Date Collected 08/20/98***

**RA-C-009 (Composite of Grids C6, C7 & C15)
RA-C-EQ-003-CS (Equip. Blank)**



ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334

Founded 1972

378 877

August 31, 1998

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

Ref: Analytical Testing
ETC Order # 9808641
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

378 878

Chemical Analytical Data
Review/Evaluation/Validation

SOUTHERN REGION

Report Type: ☐ Preliminary ☒ Final Date Received: 9/10/98 Project Number: 20560
 Project Name: DDMT Analysis/Method: 4021 ECR 2 6000/7000
 Laboratory: ETC Lab Project/Case Number: 3270, 7013
 Sample Number(s): RA-C-007, C-EC-013-C5

Evaluated By: S. P. ... Date Evaluated: 9/10/98
 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: <u>cut for DDE DDT Results flagged & accepted</u>				
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		N/A			
Comment:					
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	2	5	10	10	100
General Comments:					

Summary: ☐ See attached pages

Results flagged for LCS recoveries

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 _____

 5 Pasay
 Evaluator's Signature

 9/16/98
 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.
NC	Result reported from Primary Column. Result did not confirm.
*	QC Data (percent recovery/RPD for a particular analyte was outside QC Limits)

378 881

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>	
980864101	RA-C-009	SOIL	6010B	Silver	
980864101	RA-C-009	SOIL	6010B	Aluminum	
980864101	RA-C-009	SOIL	7060A	Arsenic	
980864101	RA-C-009	SOIL	8270C	GC/MS PAH	
980864101	RA-C-009	SOIL	6010B	Barium	
980864101	RA-C-009	SOIL	6010B	Beryllium	
980864101	RA-C-009	SOIL	6010B	Calcium	
980864101	RA-C-009	SOIL	6010B	Cadmium	
980864101	RA-C-009	SOIL	9010A	Cyanide	
980864101	RA-C-009	SOIL	6010B	Cobalt	
980864101	RA-C-009	SOIL	6010B	Chromium	
980864101	RA-C-009	SOIL	6010B	Copper	
980864101	RA-C-009	SOIL	6010B	Iron	
980864101	RA-C-009	SOIL	7471A	Mercury	
980864101	RA-C-009	SOIL	6010B	Potassium	
980864101	RA-C-009	SOIL	6010B	Magnesium	
980864101	RA-C-009	SOIL	6010B	Manganese	
980864101	RA-C-009	SOIL	6010B	Sodium	
980864101	RA-C-009	SOIL	6010B	Nickel	
980864101	RA-C-009	SOIL	8081A	Organochlorine Pesticides	
980864101	RA-C-009	SOIL	7421	Lead	
980864101	RA-C-009	SOIL	8082	PCBs	
980864101	RA-C-009	SOIL	6010B	Antimony	
980864101	RA-C-009	SOIL	7740	Selenium	
980864101	RA-C-009	SOIL	7841	Thallium	
980864101	RA-C-009	SOIL	6010B	Vanadium	
980864101	RA-C-009	SOIL	6010B	Zinc	
980864102	RA-C-EQ-003-CS	AQUEOUS	6010B	Silver	
980864102	RA-C-EQ-003-CS	AQUEOUS	6010B	Aluminum	
980864102	RA-C-EQ-003-CS	AQUEOUS	7060A	Arsenic	
980864102	RA-C-EQ-003-CS	AQUEOUS	8270C	GC/MS PAH	
980864102	RA-C-EQ-003-CS	AQUEOUS	6010B	Barium	
980864102	RA-C-EQ-003-CS	AQUEOUS	6010B	Beryllium	
980864102	RA-C-EQ-003-CS	AQUEOUS	6010B	Calcium	
980864102	RA-C-EQ-003-CS	AQUEOUS	6010B	Cadmium	
980864102	RA-C-EQ-003-CS	AQUEOUS	9010A	Cyanide	
980864102	RA-C-EQ-003-CS	AQUEOUS	6010B	Cobalt	
980864102	RA-C-EQ-003-CS	AQUEOUS	6010B	Chromium	
980864102	RA-C-EQ-003-CS	AQUEOUS	6010B	Copper	
980864102	RA-C-EQ-003-CS	AQUEOUS	6010B	Iron	
980864102	RA-C-EQ-003-CS	AQUEOUS	7470A	Mercury	
980864102	RA-C-EQ-003-CS	AQUEOUS	6010B	Potassium	
980864102	RA-C-EQ-003-CS	AQUEOUS	6010B	Magnesium	
980864102	RA-C-EQ-003-CS	AQUEOUS	6010B	Manganese	
980864102	RA-C-EQ-003-CS	AQUEOUS	6010B	Sodium	
980864102	RA-C-EQ-003-CS	AQUEOUS	6010B	Nickel	
980864102	RA-C-EQ-003-CS	AQUEOUS	8081A	Organochlorine Pesticides	
980864102	RA-C-EQ-003-CS	AQUEOUS	7421	Lead	
980864102	RA-C-EQ-003-CS	AQUEOUS	8082	PCBs	
980864102	RA-C-EQ-003-CS	AQUEOUS	6010B	Antimony	
980864102	RA-C-EQ-003-CS	AQUEOUS	7740	Selenium	
980864102	RA-C-EQ-003-CS	AQUEOUS	7841	Thallium	
980864102	RA-C-EQ-003-CS	AQUEOUS	6010B	Vanadium	
980864102	RA-C-EQ-003-CS	AQUEOUS	6010B	Zinc	

378 882

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody

000003



**OHM Remediation
Services Corp**

Subsidiary of OHM Corporation
US Route 224 East • Findlay,

US Route 224 East • Findlay, Ohio 45840 • (419) 423-3526

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY

218016

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 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	Analytes	Comments	
1	RH-C-009		8/20/98	1030	4x8oz	51m	3day	✓	✓	Please fax results on DUE DATE to SITE and to Lab Coordinator	
2	RH-C-EQ-003-C3		8/20/98	1515	6x1.5	51m	3day	✓	✓		
3											
4											
5											
6											
7											
8											
9											
10											

FORM 0019 REV 2/9

COOLER RECEIPT FORM

Cooler Receipt Form
9808641 CRF p 1

LIMS # 9808-641 Number of Coolers
 Date Received
 PROJECT DDMT/Memphis, TN VDTSR

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

- A PRELIMINARY EXAMINATION PHASE Date cooler was opened 08/20/98
 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 08/20/98
- B LOG-IN PHASE Date samples were logged-in 08/20/98
 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)

000005

378 885

Environmental Testing & Consulting, Inc.

Sample Reports

000006

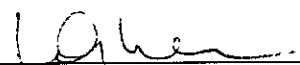
378 886

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

Client Name :OHM Remediation Services
Project Name :DDMT

Date Sample Received :08/20/98
Contract Laboratory Order Number :9808-641

<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>
9808-641-01	RA-C-009	08/20/98	88	08/21/98	160.3	MC


LABORATORY MANAGER

000007

378 887

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 08/20/98
ETC Order Number 9808641

ETC Lab ID 9808641-01
Sample ID: RA-C-009

Matrix :SOIL
Sample Date :08/20/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	ND	mg/Kg	1.00	08/24/98	9010A	CY082498

Add
Cyanide


LABORATORY MANAGER

000008

378 888

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 **08/20/98**
ETC Order Number **9808641**

ETC Lab ID **9808641-02**
Sample ID: RA-C-EQ-003-CS

Matrix : **AQUEOUS**
Sample Date : **08/20/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	ND	mg/L	0.010	08/21/98	9010A	CY082198


LABORATORY MANAGER

000009

378 889

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 08/20/98
 ETC Order Number 9808641

ETC Lab ID **9808641-01**
Sample ID: RA-C-009

Matrix :SOIL
 Sample Date :08/20/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Metals Digestion Batch	V7-SO-86				JB	3051
Mercury Digestion Batch	V4-SO-27				RM	7471A
Silver	ND	mg/Kg	0.700	14:06	08/25/98	TD 6010B
Aluminum	10,400	mg/Kg	4.00	14:06	08/25/98	TD 6010B
Arsenic	27.7	mg/Kg	0.200	10:53	08/24/98	JF 7060A
Barium	126	mg/Kg	0.200	14:06	08/25/98	TD 6010B
Beryllium	0.479	mg/Kg	0.100	14:06	08/25/98	TD 6010B
Calcium	2,750	mg/Kg	1.00	14:06	08/25/98	TD 6010B
Cadmium	ND	mg/Kg	0.400	14:06	08/25/98	TD 6010B
Cobalt	7.21	mg/Kg	0.700	14:06	08/25/98	TD 6010B
Chromium	14.1	mg/Kg	0.700	14:06	08/25/98	TD 6010B
Copper	19.6	mg/Kg	0.600	14:06	08/25/98	TD 6010B
Iron	18,400	mg/Kg	0.700	14:51	08/25/98	TD 6010B
Mercury	0.065	mg/Kg	0.020	14:12	08/24/98	RM 7471A
Potassium	1,150	mg/Kg	20.0	14:06	08/25/98	TD 6010B
Magnesium	2,080	mg/Kg	3.00	14:06	08/25/98	TD 6010B
Manganese	702	mg/Kg	0.200	14:06	08/25/98	TD 6010B
Sodium	63.2	mg/Kg	20.0	14:06	08/25/98	TD 6010B
Nickel	16.5	mg/Kg	1.50	14:06	08/25/98	TD 6010B
Lead	54.3	mg/Kg	0.100	11:03	08/24/98	TD 7421
Antimony	ND	mg/Kg	3.20	14:06	08/25/98	TD 6010B
Selenium	ND	mg/Kg	0.200	15:51	08/24/98	TD 7740
Thallium	0.238	mg/Kg	0.100	16:31	08/24/98	TD 7841
Vanadium	21.9	mg/Kg	0.800	14:06	08/25/98	TD 6010B
Zinc	87.0	mg/Kg	1.00	14:06	08/25/98	TD 6010B


 LABORATORY MANAGER

000010

378 890

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

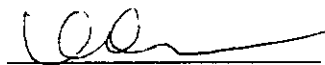
Project # 20560

Date Arrived 08/20/98
ETC Order Number 9808641

ETC Lab ID 9808641-02
Sample ID: RA-C-EQ-003-CS

Matrix :AQUEOUS
Sample Date :08/20/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Metals Digestion Batch	V11-AQ-36					JB 3015
Mercury Digestion Batch	V4-AQ-30					RM 7470A
Silver	ND	mg/L	0.009	13.44	08/25/98	TD 6010B
Aluminum	ND	mg/L	0.060	13.44	08/25/98	TD 6010B
Arsenic	ND	mg/L	0.003	10.39	08/24/98	JF 7060A
Barium	ND	mg/L	0.003	13.44	08/25/98	TD 6010B
Beryllium	ND	mg/L	0.002	13.44	08/25/98	TD 6010B
Calcium	0.085	mg/L	0.015	13.44	08/25/98	TD 6010B
Cadmium	ND	mg/L	0.004	13.44	08/25/98	TD 6010B
Cobalt	ND	mg/L	0.009	13.44	08/25/98	TD 6010B
Chromium	ND	mg/L	0.009	13.44	08/25/98	TD 6010B
Copper	ND	mg/L	0.008	13.44	08/25/98	TD 6010B
Iron	0.014	mg/L	0.009	13.44	08/25/98	TD 6010B
Mercury	ND	mg/L	0.0002	15.17	08/21/98	RM 7470A
Potassium	ND	mg/L	0.250	13.44	08/25/98	TD 6010B
Magnesium	ND	mg/L	0.040	13.44	08/25/98	TD 6010B
Manganese	ND	mg/L	0.003	13.44	08/25/98	TD 6010B
Sodium	ND	mg/L	0.050	13.44	08/25/98	TD 6010B
Nickel	ND	mg/L	0.020	13.44	08/25/98	TD 6010B
Lead	ND	mg/L	0.002	09.22	08/24/98	TD 7421
Antimony	ND	mg/L	0.040	13.44	08/25/98	TD 6010B
Selenium	ND	mg/L	0.003	10.39	08/24/98	JF 7740
Thallium	ND	mg/L	0.002	15.15	08/24/98	TD 7841
Vanadium	ND	mg/L	0.010	13.44	08/25/98	TD 6010B
Zinc	ND	mg/L	0.010	13.44	08/25/98	TD 6010B


LABORATORY MANAGER

000011

378 891

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
 FID # DACA45-96-D-0014

Site ID Norcross, GA 30092

DDMT
 Memphis, TN

Date Arrived 08/20/98
 ETC Order Number 9808641

ETC Lab ID 9808641-01

Sample ID: RA-C-009

Matrix :SOIL
 Sample Date :08/20/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				08/21/98	08/24/98	CB	8270C
QC Batch	P04021	ug/Kg					
Acenaphthene	ND	ug/Kg	67.0				
Acenaphthylene	ND	ug/Kg	67.0				
Anthracene	ND	ug/Kg	67.0				
Benzo(a)anthracene	260	ug/Kg	67.0				
Benzo(b)fluoranthene	397	ug/Kg	67.0				
Benzo(k)fluoranthene	142	ug/Kg	67.0				
Benzo(g,h,i)perylene	214	ug/Kg	67.0				
Benzo(a)pyrene	289	ug/Kg	67.0				
Chrysene	351	ug/Kg	67.0				
Dibenzo(a,h)anthracene	ND	ug/Kg	67.0				
Fluoranthene	541	ug/Kg	67.0				
Fluorene	ND	ug/Kg	67.0				
Indeno(1,2,3-cd)pyrene	249	ug/Kg	67.0				
Naphthalene	ND	ug/Kg	67.0				
Phenanthrene	270	ug/Kg	67.0				
Pyrene	408	ug/Kg	67.0				

Surrogate Standard	% Recovery	QC Limits
S1 - Nitrobenzene-d5	62	39 80
S2 - 2-Fluorobiphenyl	68	43 84
S3 - 4-Terphenyl-d14	59	40 121


 LABORATORY MANAGER

ND - Not Detected

000012

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

378 892
CLIENT SAMPLE NO.

9808-641-1

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-641

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: 1001010

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 08/24/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

Number TICs found: 2

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 57-10-3	HEXADECANOIC ACID	11.62	207	NJ
2. 603-11-2	1,2-BENZENEDICARBOXYLIC ACID	15.72	213	NJ
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
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FORM I BNA-GCMS-TIC

000013

378 893

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

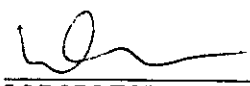
Project # 20560
FID # DACA45-96-D-0014

Date Arrived 08/20/98
ETC Order Number 9808641

ETC Lab ID 9808641-02
Sample ID: RA-C-EQ-003-CS

Matrix :AQUEOUS
Sample Date :08/20/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				08/21/98	08/24/98	CB	8270C
QC Batch	P05030	ug/L					
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	52		35 85				
S2 - 2-Fluorobiphenyl	59		46 84				
S3 - 4-Terphenyl-d14	85		33 113				


LABORATORY MANAGER

ND - Not Detected

000014

378 894

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9808-641-2

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-641

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: 08/24/98

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
1.				
2.				
3.				
4.				
5.				
6.				
7.				
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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

378 895

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

Project # 20560
FID # DACA45-96-D-0014

Site ID
DDMT
Memphis, TN

Date Arrived 08/20/98
ETC Order Number 9808641

ETC Lab ID 9808641-01
Sample ID: RA-C-009

Matrix :SOIL
Sample Date :08/20/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				08/21/98	08/24/98	RG	8081A
QC Batch	P06012	ug/Kg					
Aldrin	ND	ug/Kg	20.0				
Alpha-BHC	ND	ug/Kg	20.0				
Beta-BHC	ND	ug/Kg	20.0				
Delta-BHC	ND	ug/Kg	20.0				
Gamma-BHC (Lindane)	ND	ug/Kg	20.0				
Alpha-Chlordane	ND	ug/Kg	20.0				
Gamma-Chlordane	ND	ug/Kg	20.0				
Chlordane	ND	ug/Kg	200				
4,4'-DDD	ND	ug/Kg	20.0				
4,4'-DDE	37.3	ug/Kg	20.0				
4,4'-DDT	35.0	ug/Kg	20.0				
Dieldrin	248	ug/Kg	20.0				
Endosulfan I	ND	ug/Kg	20.0				
Endosulfan II	ND	ug/Kg	20.0				
Endosulfan Sulfate	ND	ug/Kg	20.0				
Endrin	ND	ug/Kg	20.0				
Endrin Aldehyde	ND	ug/Kg	20.0				
Endrin Ketone	ND	ug/Kg	20.0				
Heptachlor	ND	ug/Kg	20.0				
Heptachlor Epoxide	ND	ug/Kg	20.0				
Methoxychlor	ND	ug/Kg	20.0				
Toxaphene	ND	ug/Kg	2000				

Surrogate Standard	% Recovery	QC Limits	
S1 - Decachlorobiphenyl	73	64	154
S2 - Tetrachloro-m-xylene	61	39	130


LABORATORY MANAGER

ND - Not Detected

000016

378 896

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
FID # DACA45-96-D-0014

Site ID DDMT
Memphis, TN

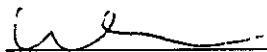
Date Arrived 08/20/98
ETC Order Number 9808641

ETC Lab ID 9808641-02
Sample ID: RA-C-EQ-003-CS

Matrix :AQUEOUS
Sample Date :08/20/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides							8081A
QC Batch	P07013	ug/L		08/21/98	08/24/98	RG	
Aldrin	ND	ug/L	0.040				
Alpha-BHC	ND	ug/L	0.040				
Beta-BHC	ND	ug/L	0.040				
Delta-BHC	ND	ug/L	0.040				
Gamma-BHC (Lindane)	ND	ug/L	0.040				
Alpha-Chlordane	ND	ug/L	0.040				
Gamma-Chlordane	ND	ug/L	0.040				
Chlordane	ND	ug/L	0.250				
4,4'-DDD	ND	ug/L	0.040				
4,4'-DDE	ND	ug/L	0.040				
4,4'-DDT	ND	ug/L	0.040				
Dieldrin	ND	ug/L	0.040				
Endosulfan I	ND	ug/L	0.040				
Endosulfan II	ND	ug/L	0.040				
Endosulfan Sulfate	ND	ug/L	0.040				
Endrin	ND	ug/L	0.040				
Endrin Aldehyde	ND	ug/L	0.040				
Endrin Ketone	ND	ug/L	0.040				
Heptachlor	ND	ug/L	0.040				
Heptachlor Epoxide	ND	ug/L	0.040				
Methoxychlor	ND	ug/L	0.040				
Toxaphene	ND	ug/L	3.00				

Surrogate Standard	% Recovery	QC Limits	
S1 - Decachlorobiphenyl	51	34	115
S2 - Tetrachloro-m-xylene	72	31	96


LABORATORY MANAGER

ND - Not Detected

000017

378 897

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 # 20560
FID # DACA45-96-D-0014

Date Arrived 08/20/98
ETC Order Number 9808641

ETC Lab ID 9808641-01
Sample ID: RA-C-009

Matrix :SOIL
Sample Date :08/20/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs							8082
QC Batch	P08014	ug/Kg		08/21/98	08/24/98	RG	
PCB-1016	ND	ug/Kg	35.0				
PCB-1221	ND	ug/Kg	35.0				
PCB-1232	ND	ug/Kg	35.0				
PCB-1242	ND	ug/Kg	35.0				
PCB-1248	ND	ug/Kg	35.0				
PCB-1254	ND	ug/Kg	35.0				
PCB-1260	ND	ug/Kg	35.0				
Surrogate Standard	% Recovery		QC Limits				
S1 - Tetrachloro-m-xylene	60		39	130			
S2 - Decachlorobiphenyl	75		64	154			


LABORATORY MANAGER

ND - Not Detected

000018

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
 FID # DACA45-96-D-0014

Site ID DDMT
 Memphis, TN

Date Arrived 08/20/98
 ETC Order Number 9808641

ETC Lab ID 9808641-02
Sample ID: RA-C-EQ-003-CS

Matrix :AQUEOUS
 Sample Date :08/20/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs							8082
QC Batch	P09006	ug/L		08/21/98	08/24/98	RG	
PCB-1016	ND	ug/L	0.500				
PCB-1221	ND	ug/L	0.500				
PCB-1232	ND	ug/L	0.500				
PCB-1242	ND	ug/L	0.500				
PCB-1248	ND	ug/L	0.500				
PCB-1254	ND	ug/L	0.500				
PCB-1260	ND	ug/L	0.500				
Surrogate Standard	% Recovery		QC Limits				
S1 - Tetrachloro-m-xylene	70		31	96			
S2 - Decachlorobiphenyl	52		34	115			


 LABORATORY MANAGER

ND - Not Detected

000019

378 899

Environmental Testing & Consulting, Inc.

**Quality Control Reports
Inorganics**

000020

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
INORGANICS

378 900

Client Name : _OHM Remediation Services Corp.
Project Name : _Defense Depot - Memphis TN
ETC Order # : _9808-641

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

000021

378 901

Environmental Testing & Consulting, Inc.
Inorganic QC Data Summary

Client Name OHM Remediation Services
Project DDMT

ETC Order Number 9808-641
File Name 9808-641 2

Method Blank

Analyte	Date Analyzed	Blank Concentration mg/Kg	QC Batch
Cyanide	08/24/98	<1 00	CY082498

Calibration Verification (CV)

Analyte	Date Analyzed	CV Conc mg/L	CV Conc Found	% Difference
Cyanide	08/24/98	0 200	0 205	3 0

Laboratory Control Sample (LCS)

Analyte	Date Analyzed	LCS Conc mg/Kg	LCS Conc Found	% Recovery
Cyanide	08/24/98	20 0	19 6	98 0

Matrix Spike/Matrix Spike Duplicate

Sample ID	Analyte	Spike mg/Kg	Sample mg/Kg	MS Conc Found	MS % Recovery	QC Limits	RPD
9808-641-01 MS	Cyanide	20 0	<1 00	18 4	92 0	70-130	
9808-641-01 MSD	Cyanide	20 0	<1 00	18 0	90 0	70-130	2 0

Environmental Testing & Consulting, Inc.
Inorganic QC Data Summary

Client Name OHM Remediation Services
Project DDMT

ETC Order Number 9808-641
File Name 9808-641 1

Method Blank

Analyte	Date Analyzed	Blank Concentration mg/L	QC Batch
Cyanide	08/21/98	<0.010	CY082198

Calibration Verification (CV)

Analyte	Date Analyzed	CV Conc mg/L	CV Conc Found	% Difference
Cyanide	08/21/98	0.200	0.206	3.0

Laboratory Control Sample (LCS)

Analyte	Date Analyzed	LCS Conc mg/L	LCS Conc Found	% Recovery
Cyanide	08/21/98	0.200	0.198	99.0

Matrix Spike/Matrix Spike Duplicate

Sample ID	Analyte	Spike mg/L	Sample mg/L	MS Conc Found	MS % Recovery	QC Limits	RPD
9808-641-02 MS	Cyanide	0.200	<0.010	0.194	97.0	68-114	
9808-641-02 MSD	Cyanide	0.200	<0.010	0.191	96.0	68-114	1.0

378 903

Environmental Testing & Consulting, Inc.

Quality Control Reports

Metals (ICP/GFAA/CV)

000024

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 # : 9808-641

HOLDING TIMES

QC Batch(s) for this order : ICP/GFAA V7-SO-86
 Mercury V4-SO-27

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		Sample ID	Dilution	
	Metal	Factor		Metal	Factor
9808-641-01	Arsenic	1:4 (C)	9808-641-01	Lead	1:20 (C)
9808-641-01	Iron	1:5 (C)			

Due to low recoveries and failing Post Digestion Spike, all Selenium and Thallium data was reported based on the Method of Standard Additions.

QUALITY CONTROL**9808-641.MQCBLANK**Method Blank

V7-SO-86BLK - ICP/GFAA Metals
 V4-SO-27BLK - Mercury

Calcium identified in V7-SO-86BLK at 2.60 mg/Kg.
 Iron identified in V7-SO-86BLK at 1.10 mg/Kg.
 Lead identified in V7-SO-86BLK at 0.117 mg/Kg.

9808-641.MQCLCSLaboratory Control Sample(s)

V7-SO-86LCS - ICP/GFAA Metals
 V4-SO-27LCS - Mercury

All criteria met.

378 905

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 # : 9808-641

QUALITY CONTROL

9808-641.MQCMSMSD

Matrix Spike / Matrix Spike Dup - ICP Metals

9808-641-01

RPD : All analytes within QC limits.

RA-C-009

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 :

Analyte	mg/L Expected	mg/L Found	% Recovery	QA Evaluation
Antimony	0.500	0.497	99	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 were performed for verification :

Analyte	No Dilution	1:5 Dilution	1:25 Dilution	% Difference	QA Evaluation
Aluminum	10400 mg/Kg	10500 mg/Kg	-----	1	Pass
Calcium	2750	2850	-----	4	Pass
Iron	----	18400	17900	3	Pass
Manganese	702	725	-----	3	Pass
Potassium	1150	1110	-----	3	Pass
Magnesium	2080	2120	-----	2	Pass
Zinc	87.0	89.9	-----	3	Pass

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

Matrix Spike / Matrix Spike Dup - Graphite Metals

9808-641-01

RPD : All analytes within QC limits.

RA-C-009

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 :

Analyte	1:4 Dilution	1:20 Dilution	1:100 Dilution	% Difference	QA Evaluation
Arsenic	27.7 mg/Kg	27.4 mg/Kg	-----	1	Pass
Lead	----	54.3	52.6	3	Pass

Recoveries for Selenium and Thallium 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.

000026

378 906

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 # : 9808-641

QUALITY CONTROL

Matrix Spike / Matrix Spike Dup - Hg

9808-641-01

RPD : All analytes within QC limits.

RA-C-009

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

000027

378 907

SOLID METHOD BLANK
METALS

Lab Name

Environmental Testing and Consulting, Inc

Laboratory ID ICP/GFAA Metals

V7-SO-86 BLK

QC Batch

Laboratory ID Mercury

V4-SO-27 BLK

V7-SO-86

V4-SO-27

Date Sample Prepared

08/21/98

ICP/GFAA Metals

08/24/98

Mercury

Metals	Concentration mg/Kg	Detection Limit mg/Kg	Date Analyzed	Method
Silver	<0 700	0 700	08/25/98	6010B
Aluminum	<4 00	4 00	08/25/98	6010B
Arsenic	<0 200	0 200	08/24/98	7060A
Barium	<0 200	0 200	08/25/98	6010B
Beryllium	<0 100	0 100	08/25/98	6010B
Calcium	2 60	1 00	08/25/98	6010B
Cadmium	<0 400	0 400	08/25/98	6010B
Cobalt	<0 700	0 700	08/25/98	6010B
Chromium	<0 700	0 700	08/25/98	6010B
Copper	<0 600	0 600	08/25/98	6010B
Iron	1 10	0 700	08/25/98	6010B
Potassium	<20 0	20 0	08/25/98	6010B
Magnesium	<3 00	3 00	08/25/98	6010B
Manganese	<0 200	0 200	08/25/98	6010B
Sodium	<20 0	20 0	08/25/98	6010B
Nickel	<1 50	1 50	08/25/98	6010B
Lead	0 117	0 100	08/24/98	7421
Antimony	<3 20	3 20	08/25/98	6010B
Selenium	<0 200	0 200	08/24/98	7740
Thallium	<0 100	0 100	08/24/98	7841
Vanadium	<0 800	0 800	08/25/98	6010B
Zinc	<1 00	1 00	08/25/98	6010B
Mercury	<0 020	0 020	08/24/98	7471A

Metals Blank

J00028

9808-641 mqcBLANK

SOLID LABORATORY CONTROL SAMPLE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory Control ID ICP/GFAA Metals V7-SO-86 LCS QC Batch V7-SO-86
Mercury V4-SO-27 LCS V4-SO-27

Date Prepared ICP/GFAA Metals 08/21/98
Mercury 08/24/98

Metals	Spike Added mg/Kg	Found mg/Kg	% R	#	QC Limits
Silver	20 0	20 2	101		80 120
Aluminum	200	205	103		80 120
Arsenic	5 00	4 28	86		85 115
Barium	200	202	101		80 120
Beryllium	20 0	19 5	98		80 120
Calcium	400	398	100		80 120
Cadmium	20 0	19 9	100		80 120
Cobalt	100	97 6	98		80 120
Chromium	40 0	39 1	98		80 120
Copper	40 0	41 4	104		80 120
Iron	200	201	101		80 120
Potassium	400	402	101		80 120
Magnesium	400	392	98		80 120
Manganese	20 0	20 0	100		80 120
Sodium	400	425	106		80 120
Nickel	100	98 8	99		80 120
Lead	2 00	1 99	100		85 115
Antimony	200	195	98		80 120
Selenium	5.00	4 28	86		85 115
Thallium	2 00	1 83	92		85 115
Vanadium	100	101	101		80 120
Zinc	20 0	19 8	99		80 120
Mercury	0 167	0 155	93		80 120

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

Metals Laboratory Control Sample

000029
9808-641 mqcLCS

378 909

SOLID MATRIX SPIKE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP/GFAA Metals	9808-641-01	QC Batch	V7-SO-86
Laboratory ID MS Mercury	9808-641-01		V4-SO-27

Date Sample Prepared	08/21/98	ICP/GFAA Metals
	08/24/98	Mercury

Metals	SPIKE Added mg/Kg	SAMPLE Conc mg/Kg	MS Conc mg/Kg	RPD <20% #	MS % Rec #	QC Limits	
Silver	22 3	ND	22 2	1	100	75	125
Aluminum	223	10400	10100	9	-135 *	75	125
Arsenic	5 36	27 7	31 6	6	73	70	130
Barium	223	126	364	1	107	75	125
Beryllium	22 3	0 479	22 6	1	99	75	125
Calcium	446	2750	3300	6	123	75	125
Cadmium	22 3	ND	22 7	1	102	75	125
Cobalt	111	7 21	116	2	98	75	125
Chromium	44 6	14 1	57 7	3	98	75	125
Copper	44 6	19 6	66 3	4	105	75	125
Iron	223	18400	17600	8	-359 *	75	125
Potassium	446	1150	1650	3	112	75	125
Magnesium	446	2080	2500	6	94	75	125
Manganese	22 3	702	693	12	-40 *	75	125
Sodium	446	63 2	540	5	107	75	125
Nickel	111	16 5	127	2	100	75	125
Lead	2 14	54 3	55 9	12	75	70	130
Antimony	223	ND	3 90	0	2 *	75	125
Selenium	5 36	0 231	3 28	16	57 *	70	130
Thallium	2 14	0 205	1 63	4	67 *	70	130
Vanadium	111	21 9	126	2	94	75	125
Zinc	22 3	87 0	114	7	121	75	125
Mercury	0 181	0.065	0 213	0	82	75	125

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits ND - Not Detected

Metals Matrix Spike

000030
9808-641 mqcMSMSD

SOLID MATRIX SPIKE DUPLICATE
METALS

Lab Name Environmental Testing and Consulting, Inc

	QC Batch
Laboratory ID MS ICP/GFAA Metals	9808-641-01 V7-SO-86
Laboratory ID MS Mercury	9808-641-01 V4-SO-27

Date Sample Prepared	08/21/98 ICP/GFAA Metals	
	08/24/98 Mercury	

Metals	SPIKE Added mg/Kg	SAMPLE Conc mg/Kg	MSD Conc mg/Kg		MSD % Rec	#	QC Limits
Silver	22 3	ND	22 4		100		75 125
Aluminum	223	10400	11100		314	*	75 125
Arsenic	5 68	27 7	33 4		100		70 130
Barium	223	126	362		106		75 125
Beryllium	22 3	0 479	22 9		101		75 125
Calcium	446	2750	3520		173	*	75 125
Cadmium	22 3	ND	22 5		101		75 125
Cobalt	111	7 21	118		100		75 125
Chromium	44 6	14 1	59 3		101		75 125
Copper	44 6	19 6	69 0		111		75 125
Iron	223	18400	19000		269	*	75 125
Potassium	446	1150	1700		123		75 125
Magnesium	446	2080	2650		128	*	75 125
Manganese	22 3	702	785		372	*	75 125
Sodium	446	63 2	515		101		75 125
Nickel	111	16 5	130		102		75 125
Lead	2 27	54 3	63 0		383	*	70 130
Antimony	223	ND	ND			*	75 125
Selenium	5 68	5 36	3 84		-27	*	70 130
Thallium	2 27	2 14	1 70		-19	*	70 130
Vanadium	111	21 9	129		97		75 125
Zinc	22 3	87 0	122		157	*	75 125
Mercury	0 180	0 065	0 213		82		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

000031

9808-641 mqcMSMSD

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 # : 9808-641

HOLDING TIMES

QC Batch(s) for this order : ICP/GFAA V11-AQ-36
Mercury V4-AQ-30

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**9808-641.MQ1BLANK**Method Blank

V11-AQ-36BLK - ICP/GFAA Metals
V4-AQ-30BLK - Mercury

No analytes detected in the Method Blank.

9808-641.MQ1LCSLaboratory Control Sample(s)

V11-AQ-36LCS - ICP/GFAA Metals
V4-AQ-30LCS - Mercury

All criteria met.

9808-641.MQ1MSMSDMatrix Spike / Matrix Spike Dup - ICP Metals

9808-641-02 RPD : All analytes within QC limits.
RA-C-EQ-003-CS Spike Recovery : All analytes within QC limits.

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

000032

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

378 912

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot - Memphis TN
ETC Order # : 9808-641

QUALITY CONTROL

Matrix Spike / Matrix Spike Dup - Graphite Metals

9808-641-02 RPD : All analytes within QC limits.
RA-C-EQ-003-CS Spike Recovery : All analytes within QC limits.

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

Matrix Spike / Matrix Spike Dup - Hg

9808-641-02 RPD : All analytes within QC limits.
RA-C-EQ-003-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

000033

WATER METHOD BLANK
METALS

Lab Name

Environmental Testing and Consulting, Inc

Laboratory ID ICP/GFAA Metals

V11-AQ-36 BLK

QC Batch

Laboratory ID Mercury

V4-AQ-30 BLK

V11-AQ-36

V4-AQ-30

Date Sample Prepared

08/21/98

ICP/GFAA Metals

08/21/98

Mercury

Metals	Concentration mg/L	Detection Limit mg/L	Date Analyzed	Method
Silver	<0 009	0 009	08/25/98	6010B
Aluminum	<0 060	0 060	08/25/98	6010B
Arsenic	<0 003	0 003	08/24/98	7060A
Barium	<0 003	0 003	08/25/98	6010B
Beryllium	<0 002	0 002	08/25/98	6010B
Calcium	<0 015	0 015	08/25/98	6010B
Cadmium	<0 005	0 005	08/25/98	6010B
Cobalt	<0 009	0 009	08/25/98	6010B
Chromium	<0 009	0 009	08/25/98	6010B
Copper	<0 008	0 008	08/25/98	6010B
Iron	<0 009	0 009	08/25/98	6010B
Potassium	<0 250	0 250	08/25/98	6010B
Magnesium	<0 040	0 040	08/25/98	6010B
Manganese	<0 003	0 003	08/25/98	6010B
Sodium	<0 050	0 050	08/25/98	6010B
Nickel	<0 020	0 020	08/25/98	6010B
Lead	<0 002	0 002	08/24/98	7421
Antimony	<0 040	0 040	08/25/98	6010B
Selenium	<0 003	0 003	08/24/98	7740
Thallium	<0 002	0 002	08/24/98	7841
Vanadium	<0 010	0 010	08/25/98	6010B
Zinc	<0 010	0 010	08/25/98	6010B
Mercury	<0 0002	0 0002	08/23/98	7470A

Metals Blank

000034

9808-641 mq1BLANK

WATER LABORATORY CONTROL SAMPLE
METALS

Lab Name

Environmental Testing and Consulting, Inc

Laboratory Control ID

ICP/GFAA Metals V11-AQ-36 LCS
Mercury V4-AQ-30 LCS

QC Batch

V11-AQ-36
V4-AQ-30

Date Prepared

ICP/GFAA Metals 08/21/98
Mercury 08/21/98

Metals	Spike Added mg/L	Found mg/L	% R	#	QC Limits	
Silver	0.250	0.275	110		80	120
Aluminum	2.50	2.78	111		80	120
Arsenic	0.063	0.059	94		85	115
Barium	2.50	2.73	109		80	120
Beryllium	0.250	0.259	104		80	120
Calcium	5.00	5.32	106		80	120
Cadmium	0.250	0.262	105		80	120
Cobalt	1.25	1.31	105		80	120
Chromium	0.500	0.519	104		80	120
Copper	0.500	0.554	111		80	120
Iron	2.50	2.70	108		80	120
Potassium	5.00	5.36	107		80	120
Magnesium	5.00	5.25	105		80	120
Manganese	0.250	0.269	108		80	120
Sodium	5.00	5.87	117		80	120
Nickel	1.25	1.33	106		80	120
Lead	0.025	0.025	100		85	115
Antimony	2.50	2.60	104		80	120
Selenium	0.063	0.059	94		85	115
Thallium	0.025	0.023	92		85	115
Vanadium	1.25	1.36	109		80	120
Zinc	0.250	0.267	107		80	120
Mercury	0.0050	0.0053	106		80	120

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

Metals Laboratory Control Sample

000035
9808-641 mq1LCS

378 915

WATER MATRIX SPIKE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP/GFAA Metals	9808-641-02	QC Batch V11-AQ-36
Laboratory ID MS Mercury	9808-641-02	V4-AQ-30

Date Sample Prepared	08/21/98	ICP/GFAA Metals
	08/21/98	Mercury

Metals	SPIKE Added mg/L	SAMPLE Conc mg/L	MS Conc mg/L	RPD <20% #	MS % Rec #	QC Limits	
Silver	0.250	ND	0.277	0	111	75	125
Aluminum	2.50	ND	2.84	1	114	75	125
Arsenic	0.063	ND	0.062	3	98	85	115
Barium	2.50	ND	2.84	4	114	75	125
Beryllium	0.250	ND	0.264	1	106	75	125
Calcium	5.00	0.085	5.51	1	109	75	125
Cadmium	0.250	ND	0.264	3	106	75	125
Cobalt	1.25	ND	1.33	1	106	75	125
Chromium	0.500	ND	0.536	1	107	75	125
Copper	0.500	ND	0.561	0	112	75	125
Iron	2.50	0.014	2.76	1	110	75	125
Potassium	5.00	ND	5.67	3	113	75	125
Magnesium	5.00	ND	5.37	1	107	75	125
Manganese	0.250	ND	0.273	0	109	75	125
Sodium	5.00	ND	5.83	6	117	75	125
Nickel	1.25	ND	1.35	0	108	75	125
Lead	0.025	ND	0.026	4	104	85	115
Antimony	2.50	ND	2.61	1	104	75	125
Selenium	0.063	ND	0.060	0	95	85	115
Thallium	0.025	ND	0.023	0	92	85	115
Vanadium	1.25	ND	1.40	1	112	75	125
Zinc	0.250	ND	0.278	0	111	75	125
Mercury	0.0050	ND	0.0053	4	106	75	125

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits ND - Not Detected

Metals Matrix Spike

000036

9808-641 mq1MSMSD

WATER MATRIX SPIKE DUPLICATE METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP/GFAA Metals 9808-641-02 QC Batch V11-AQ-36
Laboratory ID MS Mercury 9808-641-02 V4-AQ-30

Date Sample Prepared 08/21/98 ICP/GFAA Metals
08/21/98 Mercury

Metals	SPIKE Added mg/L	SAMPLE Conc mg/L	MSD Conc mg/L		MSD % Rec	#	QC Limits
Silver	0.250	ND	0.278		111	75	125
Aluminum	2.50	ND	2.82		113	75	125
Arsenic	0.063	ND	0.060		95	85	115
Barium	2.50	ND	2.73		109	75	125
Beryllium	0.250	ND	0.266		106	75	125
Calcium	5.00	0.085	5.56		110	75	125
Cadmium	0.250	ND	0.271		108	75	125
Cobalt	1.25	ND	1.34		107	75	125
Chromium	0.500	ND	0.544		109	75	125
Copper	0.500	ND	0.561		112	75	125
Iron	2.50	0.014	2.74		109	75	125
Potassium	5.00	ND	5.50		110	75	125
Magnesium	5.00	ND	5.42		108	75	125
Manganese	0.250	ND	0.272		109	75	125
Sodium	5.00	ND	5.51		110	75	125
Nickel	1.25	ND	1.35		108	75	125
Lead	0.025	ND	0.025		100	85	115
Antimony	2.50	ND	2.64		106	75	125
Selenium	0.063	ND	0.060		95	85	115
Thallium	0.025	ND	0.023		92	85	115
Vanadium	1.25	ND	1.38		110	75	125
Zinc	0.250	ND	0.278		111	75	125
Mercury	0.0050	ND	0.0051		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

000037

9808-641 mq1MSMSD

378 917

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

378 918

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

ETC Order # : 9808-641
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
P04021 P04021LB

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

*
Surrogate recovery for 2-Fluorobiphenyl was flagged for high recovery in P04021BS. High recovery indicates reported analyte may be biased high.

Surrogate recoveries for Nitrobenzene-d5 and 2-Fluorobiphenyl were flagged as outside QC Limits in sample 9808-588-01 (RA-TS-004A). Recovery for Nitrobenzene-d5 was flagged as outside QC Limits in sample 9808-588-01MSD. Review of extraction information and the raw data showed no obvious matrix interference. Surrogate recoveries for sample within this project were within QC Limits.

Laboratory Control Sample FORM 3
P04021BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9808-588-01 RPD : All analytes within QC limits.
RA-TS-004A Spike Recovery : All analytes within QC limits.

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

Method Blank FORM 4
P04021LB

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
Calibration Verification : All criteria met. FORM 7*
*

Calibration Verification(CV) : Date 08/24/98 0942

Analyte	%Diff(30% Max)	Response
Benzoic Acid	44.2	Low

Benzoic Acid was not a Target Analyte associated with this project.
The data was not affected.

000039

378 919

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 # : 9808-641
Method (SW-846) : 8270C/3550B

CALIBRATION

Calibration Verification(CV) : Date 08/24/98 1632

<u>Analyte</u>	<u>%Diff(30% Max)</u>	<u>Response</u>
2,4-Dinitrotoluene	30.2	High

2,4-Dinitrotoluene was not a Target Analyte associated with this project. The data was not affected.

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

FORM 2
SOIL BNA-GCMS SURROGATE RECOVERY

378 920

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-641

Level:(low/med) LOW

	CLIENT SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	S7 #	S8 #	TOT OUT
01	P04021LB	68	65	69	77	81	89			0
02	9808-641-1	0	0	62	68	0	59			0
03	P04021BS	0	0	77	95*	0	90			1
04	9808-588-1	32	37	32*	38*	53	47			2
05	9808-588-1M	74	79	78	80	83	51			0
06	9808-588-1S	79	84	80*	83	85	43			1
07										
08										
09										
10										
11										
12										
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28										
29										
30										

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

000041

378 921

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

CLIENT SAMPLE NO

Lab Name: ETC, INC.

P04021LB

Lab Prep Batch: P04021

SDG No.: 9808-641

Lab File ID: 0701007

Instrument ID: BNA2

Matrix: (soil/water) SOIL

Date Analyzed: 08/24/98

Level: (low/med) LOW

Time Analyzed: 1219

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

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	9808-641-1		1001010	08/24/98
02	P04021BS		0501005	08/24/98
03	9808-588-1		1501015	08/24/98
04	9808-588-1M		1601016	08/24/98
05	9808-588-1S		1701017	08/25/98
06				
07				
08				
09				
10				
11				
12				
13				
14				
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24				
25				
26				
27				
28				
29				
30				

COMMENTS:

378 922

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

P04021LB

Lab Name: ETC, INC.

SDG No.: 9808-641

Matrix: (soil/water) SOIL

Lab Prep Batch: P04021

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

Lab File ID: 0701007

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 08/24/98

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	66.7	U
208-96-8-----	Acenaphthylene	66.7	U
120-12-7-----	Anthracene	66.7	U
205-99-2-----	Benzo(b) fluoranthene	66.7	U
56-55-3-----	Benzo(a) Anthracene	66.7	U
207-08-9-----	Benzo(k) fluoranthene	66.7	U
191-24-2-----	Benzo(g,h,i) perylene	66.7	U
50-32-8-----	Benzo(a) pyrene	66.7	U
218-01-9-----	Chrysene	66.7	U
53-70-3-----	Dibenzo(a,h) anthracene	66.7	U
206-44-0-----	Fluoranthene	66.7	U
86-73-7-----	Fluorene	66.7	U
193-39-5-----	Indeno(1,2,3-cd) pyrene	66.7	U
91-57-6-----	2-Methylnaphthalene	66.7	U
91-20-3-----	Naphthalene	66.7	U
85-01-8-----	Phenanthrene	66.7	U
129-00-0-----	Pyrene	66.7	U

FORM I BNA-GCMS

000043

378 923

FORM 3
SOIL BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P04021

SDG No.: 9808-641

Matrix Spike - Sample No.: P04021BS

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
Acenaphthene	1670		1360	81	34-126
Acenaphthylene	1670		1550	93	62-123
Anthracene	1670		1340	80	68-124
Benzo(b)fluoranthene	1670		1500	90	67-126
Benzo(a)Anthracene	1670		1530	92	60-133
Benzo(k)fluoranthene	1670		1560	93	75-131
Benzo(g,h,i)perylene	1670		1300	78	53-137
Benzo(a)pyrene	1670		1530	92	68-129
Chrysene	1670		1300	78	67-131
Dibenzo(a,h)anthracene	1670		1240	74	51-138
Fluoranthene	1670		1500	90	71-132
Fluorene	1670		1450	87	65-126
Indeno(1,2,3-cd)pyrene	1670		1250	75	34-170
Naphthalene	1670		1220	73	62-113
Phenanthrene	1670		1390	83	66-128
Pyrene	1670		1510	90	33-155

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 16 outside limits

COMMENTS:

FORM 3
SOIL BNA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

378 924

Lab Name: ETC, INC.

Lab Prep Batch: P04021

SDG No.: 9808-641

Matrix Spike - Sample No.: 9808-588-1

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Acenaphthene	3320	0.00	2410	72	34-126
4-Chloro-3-Methylphenol	5320	0.00	4690	88	33-147
2-Chlorophenol	5320	0.00	4950	93	35-138
1,4-Dichlorobenzene	3320	0.00	2520	76	26-121
2,4-Dinitrotoluene	3320	0.00	2460	74	22-139
4-Nitrophenol	1600	0.00	1600	100	12-105
N-Nitrosodipropylamine	3320	0.00	2640	80	24-141
Pentachlorophenol	5320	0.00	4280	80	6-164
Phenol	5320	0.00	3820	72	22-127
Pyrene	3320	56.8	1670	48	33-155
1,2,4-Trichlorobenzene	3320	0.00	2690	81	30-127

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Acenaphthene	3300	2540	77	7	20	34-126
4-Chloro-3-Methylphenol	5280	4820	91	3	20	33-147
2-Chlorophenol	5280	4910	93	0	20	35-138
1,4-Dichlorobenzene	3300	2590	78	2	20	26-121
2,4-Dinitrotoluene	3300	2420	73	1	20	22-139
4-Nitrophenol	1590	1410	89	12	20	12-105
N-Nitrosodipropylamine	3300	2720	82	2	20	24-141
Pentachlorophenol	5280	4110	78	2	20	6-164
Phenol	5280	3510	66	9	20	22-127
Pyrene	3300	1460	42	13	20	33-155
1,2,4-Trichlorobenzene	3300	2790	84	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

000045

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 # : 9808-641
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
P05030 P05030LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P05030BS/BD

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
P05030LB

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
Calibration Verification : All criteria met. FORM 7*

*
Calibration Verification(CV) : Date 08/24/98 0942

Analyte	%Diff(30% Max)	Response
Benzoic Acid	44.2	Low

Benzoic Acid was not a Target Analyte associated with this project.
The data was not affected.

Calibration Verification(CV) : Date 08/24/98 1632

Analyte	%Diff(30% Max)	Response
2,4-Dinitrotoluene	30.2	High

2,4-Dinitrotoluene was not a Target Analyte associated with this
project. The data was not affected.

000046

378 926

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 # : 9808-641
Method (SW-846) : 8270C/3510C

CALIBRATION

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

000047

378 927

FORM 2
WATER BNA-GCMS SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-641

	CLIENT SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	S7 #	S8 #	TOT OUT
01	P05030LB	0	0	79	78	0	91			0
02	P05030BS	0	0	80	83	0	87			0
03	9808-641-2	0	0	52	59	0	85			0
04	P05030BD	0	0	72	82	0	89			0
05										
06										
07										
08										
09										
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S1 (2FP) = 2-Fluorophenol

S2 (PHL) = Phenol-d6

S3 (NBZ) = Nitrobenzene-d5

S4 (FBP) = 2-Fluorobiphenyl

S5 (TBP) = 2,4,6-Tribromophenol

S6 (TPH) = Terphenyl-d14

QC LIMITS

(0- 73)

(0- 48)

(35- 85)

(46- 84)

(0-100)

(33-113)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

000048

378 928

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

CLIENT SAMPLE NO

P05030LB

Lab Name: ETC, INC.

Lab Prep Batch: P05030

Lab File ID: 0301003

Matrix: (soil/water) WATER

Level:(low/med) LOW

SDG No.: 9808-641

Instrument ID: BNA2

Date Analyzed: 08/24/98

Time Analyzed: 1012

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

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P05030BS		0401004	08/24/98
02	9808-641-2		0601006	08/24/98
03	P05030BD		0601006	08/24/98
04				
05				
06				
07				
08				
09				
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COMMENTS:

378 929

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

P05030LB

Lab Name: ETC, INC.

SDG No.: 9808-641

Matrix: (soil/water) WATER

Lab Prep Batch: P05030

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

Lab File ID: 0301003

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1(mL)

Date Analyzed: 08/24/98

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	2.0	U	
208-96-8-----	Acenaphthylene	2.0	U	
120-12-7-----	Anthracene	2.0	U	
205-99-2-----	Benzo(b) fluoranthene	2.0	U	
56-55-3-----	Benzo(a) Anthracene	2.0	U	
207-08-9-----	Benzo(k) fluoranthene	2.0	U	
191-24-2-----	Benzo(g,h,i) perylene	2.0	U	
50-32-8-----	Benzo(a) pyrene	2.0	U	
218-01-9-----	Chrysene	2.0	U	
53-70-3-----	Dibenzo(a,h) anthracene	2.0	U	
206-44-0-----	Fluoranthene	2.0	U	
86-73-7-----	Fluorene	2.0	U	
193-39-5-----	Indeno(1,2,3-cd) pyrene	2.0	U	
91-57-6-----	2-Methylnaphthalene	2.0	U	
91-20-3-----	Naphthalene	2.0	U	
85-01-8-----	Phenanthrene	2.0	U	
129-00-0-----	Pyrene	2.0	U	

FORM I BNA-GCMS

000050

378 930

FORM 3
WATER BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P05030

SDG No.: 9808-641

Matrix Spike - Sample No.: P05030BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
Acenaphthene	50.0		35.6	71	37-123
Acenaphthylene	50.0		40.9	82	67-118
Anthracene	50.0		38.3	77	68-124
Benzo(b)fluoranthene	50.0		40.2	80	68-127
Benzo(a)Anthracene	50.0		45.8	92	69-125
Benzo(k)fluoranthene	50.0		47.5	95	73-128
Benzo(g,h,i)perylene	50.0		36.8	74	53-138
Benzo(a)pyrene	50.0		43.9	88	73-125
Chrysene	50.0		38.0	76	70-124
Dibenzo(a,h)anthracene	50.0		35.2	70	57-136
Fluoranthene	50.0		42.1	84	55-135
Fluorene	50.0		39.8	80	66-121
Indeno(1,2,3-cd)pyrene	50.0		45.2	90	57-140
Naphthalene	50.0		28.2	56	55-113
Phenanthrene	50.0		40.6	81	65-126
Pyrene	50.0		41.4	83	40-149

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

* Values outside of QC limits

COMMENTS:

000051

378 931

FORM 3
WATER BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P05030

SDG No.: 9808-641

Matrix Spike - Sample No.: P05030BD

COMPOUND	SPIKE ADDED (ug/L)	BD CONCENTRATION (ug/L)	BD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Acenaphthene	50.0	35.1	70	1	20	37-123
Acenaphthylene	50.0	41.0	82	0	20	67-118
Anthracene	50.0	38.2	76	1	20	68-124
Benzo(b)fluoranthene	50.0	40.8	82	2	20	68-127
Benzo(a)Anthracene	50.0	42.9	86	7	20	69-125
Benzo(k)fluoranthene	50.0	45.1	90	5	20	73-128
Benzo(g,h,i)perylene	50.0	40.9	82	10	20	53-138
Benzo(a)pyrene	50.0	42.3	85	3	20	73-125
Chrysene	50.0	36.1	72	5	20	70-124
Dibenzo(a,h)anthracene	50.0	34.9	70	0	20	57-136
Fluoranthene	50.0	42.9	86	2	20	55-135
Fluorene	50.0	39.8	80	0	20	66-121
Indeno(1,2,3-cd)pyrene	50.0	37.6	75	18	20	57-140
Naphthalene	50.0	29.4	59	5	20	55-113
Phenanthrene	50.0	39.4	79	2	20	65-126
Pyrene	50.0	42.5	85	2	20	40-149

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

* Values outside of QC limits

RPD: 0 out of 16 outside limits

Spike Recovery: 0 out of 32 outside limits

COMMENTS:

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 - Memphis TN

ETC Order # : 9808-641
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
P06012 P06012LB

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

*
Surrogate recoveries for Decachlorobiphenyl were flagged as outside QC Limits in sample 9808-641-01MS/MSD(RA-C-009). Surrogate recoveries for Tetrachloro-m-xylene were within QC Limits.

Laboratory Control Sample FORM 3
P06012BS

All criteria met.*
*

Recoveries for multiple analytes were flagged for high recovery in P06012BS. Recoveries for analytes 4,4'-DDE and Dieldrin, which were identified in the soils sample associated with this project, were slightly high indicating that the results may be biased high.

Matrix Spike / Matrix Spike Dup FORM 3
9808-641-01 RPD : All analytes within QC limits.*
RA-C-009 Spike Recovery : All analytes within QC limits.*
*

RPD for 4,4'-DDT was flagged as outside QC Limits due to higher recovery in the Matrix Spike. MS/MSD recoveries were 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
P06012LB

No Target Analytes detected above Practical Quantitation Limit.

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

378 934

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot - Memphis TN

ETC Order # : 9808-641
Method (SW-846) : 8081A/3550B

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7*
Endrin/Breakdown : All criteria met. FORM 7

**

Calibration Verification(CV) : P308241A-20R (Primary)

Analyte	%Diff(15% Max)	Response
Aldrin	17.6	High
alpha-BHC	26.6	High
beta-BHC	20.6	High
delta-BHC	20.6	High
gamma-BHC(Lindane)	21.2	High
alpha-Chlordane	19.6	High
gamma-Chlordane	15.7	High
4,4'-DDE	15.2	High
4,4'-DDT	19.4	High
Endosulfan I	18.0	High
Endrin	24.2	High
Heptachlor	18.4	High
Heptachlor epoxide	16.5	High
Methoxychlor	18.8	High

High recoveries for multiple analytes indicates reported levels for these analytes may be biased high. Samples were reported from Sequence P308241B (Confirmation) in which all Calibration Verification checks were within the 15% Limit. The data was not affected.

SAMPLE ANALYSIS

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

*

Dilution of 1:100 was performed on sample 9808-641-01 to bring the Target Analyte(s) within calibration range.


Laboratory Manager

000055

FORM 2
SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-641

Level: (low/med) LOW

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P06012LB	89	94							0
02	P06012BS	105	131							0
03	9808-641-1	61	73							0
04	9808-641-1M	76	48D							1
05	9808-641-1S	78	41D							1
06										
07										
08										
09										
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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

: 378 936

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

P06012LB

Lab Name: ETC, INC.

Lab Prep Batch: P06012

SDG No.: 9808-641

Lab File ID: P308241B-10R

Instrument ID: PEST3B

Matrix: (soil/water) SOIL

Date Analyzed: 08/24/98

Level:(low/med) LOW

Time Analyzed: 1901

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P06012BS		P308241B-12R	08/24/98
02	9808-641-1		P308241B-15R	08/24/98
03	9808-641-1M		P308241B-16R	08/24/98
04	9808-641-1S		P308241B-17R	08/24/98
05				
06				
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08				
09				
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COMMENTS:

378 937

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

P06012LB

SDG No.: 9808-641

Matrix: (soil/water) SOIL

Lab Prep Batch: P06012

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

Lab File ID: P308241B-10R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 08/24/98

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	1.33	U	
319-84-6	-----alpha-BHC	1.33	U	
319-85-7	-----beta-BHC	1.33	U	
319-86-8	-----delta-BHC	1.33	U	
58-89-9	-----gamma-BHC	1.33	U	
5103-71-9	-----alpha-chlordane	1.33	U	
5103-74-2	-----gamma-chlordane	1.33	U	
72-54-8	-----4,4'-DDD	1.33	U	
72-55-9	-----4,4'-DDE	1.33	U	
50-29-3	-----4,4'-DDT	1.33	U	
60-57-1	-----Dieldrin	1.33	U	
959-98-8	-----Endosulfan I	1.33	U	
33213-65-9	-----Endosulfan II	1.33	U	
1031-07-8	-----Endosulfan sulfate	1.33	U	
72-20-8	-----Endrin	1.33	U	
7421-93-4	-----Endrin aldehyde	1.33	U	
53494-70-5	-----Endrin ketone	1.33	U	
76-44-8	-----Heptachlor	1.33	U	
1024-57-3	-----Heptachlor epoxide	1.33	U	
72-43-5	-----Methoxychlor	1.33	U	
57-74-9	-----Chlordane, Total	8.33	U	
8001-35-2	-----Toxaphene	83.33	U	

FORM I PESTICIDE

000058

FORM 3
SOIL PESTICIDE LABORATORY CONTROL SAMPLE

378 938

Lab Name: ETC, INC.

Lab Prep Batch: P06012

SDG No.: 9808-641

Matrix Spike - Sample No.: P06012BS

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
Aldrin	33.33		38.93	117*	31-111
alpha-BHC	33.33		37.41	112	22-112
beta-BHC	33.33		40.68	122*	54-120
delta-BHC	33.33		33.77	101*	10- 96
gamma-BHC	33.33		38.01	114*	26-113
alpha-chlordane	33.33		41.18	124*	49-103
gamma-chlordane	33.33		40.91	123*	50-106
4,4'-DDD	33.33		41.14	123*	47-112
4,4'-DDE	33.33		39.24	118*	36-117
4,4'-DDT	33.33		41.10	123	49-124
Dieldrin	33.33		39.69	119*	44-108
Endosulfan I	33.33		40.44	121*	49-103
Endosulfan II	33.33		40.49	121*	53-115
Endosulfan sulfate	33.33		40.31	121*	51-110
Endrin	33.33		41.57	125*	44-118
Endrin aldehyde	33.33		40.60	122	48-128
Endrin ketone	33.33		41.16	123	38-130
Heptachlor	33.33		39.75	119*	47-113
Heptachlor epoxide	33.33		40.17	120*	47-112
Methoxychlor	33.33		43.86	132	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: 15 out of 20 outside limits

COMMENTS:

378 939

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P06012

SDG No.: 9808-641

Matrix Spike - Sample No.: 9808-641-1

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	M CONCENTRATION (ug/Kg)	M % REC #	QC. LIMITS REC.
Aldrin	33.11	0.000	54.42	164*	31-111
alpha-BHC	33.11	35.54	58.38	69	22-112
beta-BHC	33.11	0.000	49.16	148*	54-120
delta-BHC	33.11	40.32	61.12	63	10- 96
gamma-BHC	33.11	0.000	55.76	168*	26-113
alpha-chlordane	33.11	40.50	57.42	51	49-103
gamma-chlordane	33.11	0.000	55.67	168*	50-106
4,4'-DDD	33.11	38.14	68.03	90	47-112
4,4'-DDE	33.11	66.66	92.65	78	36-117
4,4'-DDT	33.11	60.00	88.10	85	49-124
Dieldrin	33.11	217.9	259.4	125*	44-108
Endosulfan I	33.11	0.000	55.15	166*	49-103
Endosulfan II	33.11	0.000	54.82	166*	53-115
Endosulfan sulfate	33.11	0.000	56.79	172*	51-110
Endrin	33.11	0.000	53.92	163*	44-118
Endrin aldehyde	33.11	0.000	61.44	186*	48-128
Endrin ketone	33.11	0.000	61.81	187*	38-130
Heptachlor	33.11	0.000	49.57	150*	47-113
Heptachlor epoxide	33.11	0.000	54.20	164*	47-112
Methoxychlor	33.11	0.000	48.58	147	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

378 940

Lab Name: ETC, INC.

Lab Prep Batch: P06012

SDG No.: 9808-641

Matrix Spike - Sample No.: 9808-641-1

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	S CONCENTRATION (ug/Kg)	S % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Aldrin	33.00	56.12	170*	4	20	31-111
alpha-BHC	33.00	59.60	73	6	20	22-112
beta-BHC	33.00	49.95	151*	2	20	54-120
delta-BHC	33.00	62.71	68	8	20	10- 96
gamma-BHC	33.00	58.12	176*	5	20	26-113
alpha-chlordane	33.00	57.97	53	4	20	49-103
gamma-chlordane	33.00	56.11	170*	1	20	50-106
4,4'-DDD	33.00	67.21	88	2	20	47-112
4,4'-DDE	33.00	88.36	66	17	20	36-117
4,4'-DDT	33.00	81.56	65	27*	20	49-124
Dieldrin	33.00	259.6	126*	1	20	44-108
Endosulfan I	33.00	56.08	170*	2	20	49-103
Endosulfan II	33.00	55.11	167*	1	20	53-115
Endosulfan sulfate	33.00	56.44	171*	0	20	51-110
Endrin	33.00	54.86	166*	2	20	44-118
Endrin aldehyde	33.00	61.52	186*	0	20	48-128
Endrin ketone	33.00	58.34	177*	5	20	38-130
Heptachlor	33.00	50.42	153*	2	20	47-113
Heptachlor epoxide	33.00	55.44	168*	2	20	47-112
Methoxychlor	33.00	51.46	156*	6	20	39-147

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

RPD: 1 out of 20 outside limits
Spike Recovery: 27 out of 40 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 # : 9808-641
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
P07013 P07013LB

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

*
Surrogate recoveries for Decachlorobiphenyl were flagged as outside QC Limits in P07013BS/BD associated with this project. Surrogate recoveries for Tetrachloro-m-xylene were within QC Limits.

Laboratory Control Sample FORM 3
P07013BS/BD

All criteria met.*

*
Recoveries for multiple analytes were flagged for high recovery in P07013BS/BD.

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
P07013LB

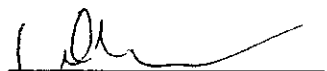
No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration	: All criteria met. FORM 6
Calibration Verification	: 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

000062

FORM 2
WATER PESTICIDE SURROGATE RECOVERY

378 942

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-641

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P07013LB	90	42							0
02	P07013BS	97*	40							1
03	P07013BD	101*	37							1
04	9808-641-2	72	51							
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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

000063

378 943

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

P07013LB

Lab Prep Batch: P07013

SDG No.: 9808-641

Lab File ID: P308241A-11R

Instrument ID: PEST3A

Matrix: (soil/water) WATER

Date Analyzed: 08/24/98

Level: (low/med) LOW

Time Analyzed: 1931

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P07013BS		P308241A-13R	08/24/98
02	P07013BD		P308241A-14R	08/24/98
03	9808-641-2		P308241A-19R	08/24/98
04				
05				
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COMMENTS:

378 944

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

P07013LB

Lab Name: ETC, INC.

SDG No.: 9808-641

Matrix: (soil/water) WATER

Lab Prep Batch: P07013

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

Lab File ID: P308241B-11R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10 (mL)

Date Analyzed: 08/24/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
309-00-2-----	Aldrin	0.0400	U
319-84-6-----	alpha-BHC	0.0400	U
319-85-7-----	beta-BHC	0.0400	U
319-86-8-----	delta-BHC	0.0400	U
58-89-9-----	gamma-BHC	0.0400	U
5103-71-9-----	alpha-chlordane	0.0400	U
5103-74-2-----	gamma-chlordane	0.0400	U
72-54-8-----	4,4'-DDD	0.0400	U
72-55-9-----	4,4'-DDE	0.0400	U
50-29-3-----	4,4'-DDT	0.0400	U
60-57-1-----	Dieldrin	0.0400	U
959-98-8-----	Endosulfan I	0.0400	U
33213-65-9-----	Endosulfan II	0.0400	U
1031-07-8-----	Endosulfan sulfate	0.0400	U
72-20-8-----	Endrin	0.0400	U
7421-93-4-----	Endrin aldehyde	0.0400	U
53494-70-5-----	Endrin ketone	0.0400	U
76-44-8-----	Heptachlor	0.0400	U
1024-57-3-----	Heptachlor epoxide	0.0400	U
72-43-5-----	Methoxychlor	0.0400	U
57-74-9-----	Chlordane, Total	0.250	U
8001-35-2-----	Toxaphene	2.50	U

FORM I PESTICIDE

000065

378 945 FORM 3
WATER PESTICIDE LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P07013

SDG No.: 9808-641

Matrix Spike - Sample No.: P07013BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
Aldrin	1.00		1.04	104	34-105
alpha-BHC	1.00		1.03	103*	41-102
beta-BHC	1.00		1.19	119	26-151
delta-BHC	1.00		0.658	66	21- 92
gamma-BHC	1.00		1.09	109*	41-102
alpha-chlordane	1.00		1.15	115	48-117
gamma-chlordane	1.00		1.14	114*	50-108
4,4'-DDD	1.00		1.17	117	39-124
4,4'-DDE	1.00		1.10	110	41-111
4,4'-DDT	1.00		1.07	107	39-123
Dieldrin	1.00		1.18	118*	42-111
Endosulfan I	1.00		1.17	117	48-117
Endosulfan II	1.00		1.18	118*	52-114
Endosulfan sulfate	1.00		1.07	107	46-111
Endrin	1.00		1.19	119*	45-117
Endrin aldehyde	1.00		1.12	112	48-125
Endrin ketone	1.00		1.16	116*	51-112
Heptachlor	1.00		1.09	109	43-114
Heptachlor epoxide	1.00		1.18	118*	42-115
Methoxychlor	1.00		1.12	112	39-140

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

378 946

Lab Name: ETC, INC.

Lab Prep Batch: P07013

SDG No.: 9808-641

Matrix Spike - Sample No.: P07013BD

COMPOUND	SPIKE ADDED (ug/L)	BD CONCENTRATION (ug/L)	BD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Aldrin	1.00	1.10	110*	6	20	34-105
alpha-BHC	1.00	1.03	103*	0	20	41-102
beta-BHC	1.00	1.20	120	1	20	26-151
delta-BHC	1.00	0.661	66	0	20	21- 92
gamma-BHC	1.00	1.08	108*	1	20	41-102
alpha-chlordane	1.00	1.19	119*	3	20	48-117
gamma-chlordane	1.00	1.19	119*	4	20	50-108
4,4'-DDD	1.00	1.21	121	3	20	39-124
4,4'-DDE	1.00	1.17	117*	6	20	41-111
4,4'-DDT	1.00	1.12	112	4	20	39-123
Dieldrin	1.00	1.20	120*	2	20	42-111
Endosulfan I	1.00	1.20	120*	2	20	48-117
Endosulfan II	1.00	1.19	119*	1	20	52-114
Endosulfan sulfate	1.00	1.07	107	0	20	46-111
Endrin	1.00	1.22	122*	2	20	45-117
Endrin aldehyde	1.00	1.18	118	5	20	48-125
Endrin ketone	1.00	1.16	116*	0	20	51-112
Heptachlor	1.00	1.12	112	3	20	43-114
Heptachlor epoxide	1.00	1.18	118*	0	20	42-115
Methoxychlor	1.00	1.18	118	5	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 20 outside limits

Spike Recovery: 20 out of 40 outside limits

COMMENTS:

378 947

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC PCBs

000068

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

378 948

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot - Memphis TN

ETC Order # : 9808-641
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
P08014 P08014LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P08014BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9808-588-01 RPD : All analytes within QC limits.
RA-TS-004A Spike Recovery : All analytes within QC limits.

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

Method Blank FORM 4
P08014LB

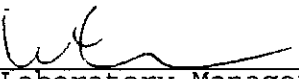
No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7A

SAMPLE ANALYSIS

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


Laboratory Manager

000069

378 949

FORM 2
SOIL PCB SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-641

Level: (low/med) LOW

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P08014LB	54	125							
02	P08014BS	77	132							0
03	9808-641-1	60	75							0
04	9808-588-1	57	66							0
05	9808-588-1M	61	81							0
06	9808-588-1S	69	92							0
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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

FORM 4
PCB METHOD BLANK SUMMARY

378 950
EPA GC SAMPLE NO.

P08014LB

Lab Name: ETC, INC.

Lab Prep Batch: P08014

Lab File ID: C408231A-05R

Matrix: (soil/water) SOIL

Level:(low/med) LOW

SDG No.: 9808-641

Instrument ID: PEST4A

Date Analyzed: 08/23/98

Time Analyzed: 1349

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P08014BS		C408231A-07R	08/23/98
02	9808-588-1		C408231A-24R	08/24/98
03	9808-641-1		C408231A-25R	08/24/98
04	9808-588-1M		C408231A-30R	08/24/98
05	9808-588-1S		C408231A-31R	08/24/98
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COMMENTS:

378 951

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

P08014LB

Lab Name: ETC, INC.

SDG No.: 9808-641

Matrix: (soil/water) SOIL

Lab Prep Batch: P08014

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

Lab File ID: C408231A-05R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10 (mL)

Date Analyzed: 08/23/98

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

J000072

378 952

FORM 3
SOIL PCB LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P08014

SDG No.: 9808-641

Matrix Spike - Sample No.: P08014BS

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		341.9	102	25-125
Aroclor 1260	333.3		349.4	105	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

000073

378 953

FORM 3
SOIL PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P08014

SDG No.: 9808-641

Matrix Spike - Sample No.: 9808-588-1 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	250.9	76	25-125
Aroclor 1260	328.9	0.000	232.5	71	25-125

COMPOUND	SPIKE ADDED (ug/Kg)	S CONCENTRATION (ug/Kg)	S % REC #	% RPD #	QC LIMITS RPD REC.
Aroclor 1242	327.9	252.1	77	1	20 25-125
Aroclor 1260	327.9	233.2	71	0	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

000074

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

378 954

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot - Memphis TN

ETC Order # : 9808-641
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
P09006 P09006LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P09006BS/BD

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
P09006LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7A

SAMPLE ANALYSIS

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


Laboratory Manager

000075

378 955

FORM 2
WATER PCB SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-641

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P09006LB	77	68							0
02	P09006BS	78	48							0
03	P09006BD	78	57							0
04	9808-641-2	70	52							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

378 956

FORM 4
PCB METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

P09006LB

Lab Name: ETC, INC.

Lab Prep Batch: P09006

Lab File ID: C408231A-06R

Matrix: (soil/water) WATER

Level:(low/med) LOW

SDG No.: 9808-641

Instrument ID: PEST4A

Date Analyzed: 08/23/98

Time Analyzed: 1427

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P09006BS		C408231A-08R	08/23/98
02	P09006BD		C408231A-09R	08/23/98
03	9808-641-2		C408231A-26R	08/24/98
04				
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COMMENTS:

378 957

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

P09006LB

Lab Name: ETC, INC.

SDG No.: 9808-641

Matrix: (soil/water) WATER

Lab Prep Batch: P09006

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

Lab File ID: C408231A-06R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10 (mL)

Date Analyzed: 08/23/98

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

000078

FORM 3
WATER PCB LABORATORY CONTROL SAMPLE

378 958

Lab Name: ETC, INC.

Lab Prep Batch: P09006

SDG No.: 9808-641

Matrix Spike - Sample No.: P09006BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
Aroclor 1242	10.00		9.27	93	25-125
Aroclor 1260	10.00		9.22	92	25-125

COMPOUND	SPIKE ADDED (ug/L)	BD CONCENTRATION (ug/L)	BD % REC #	% RPD #	QC LIMITS RPD	REC.
Aroclor 1242	10.00	9.41	94	1	20	25-125
Aroclor 1260	10.00	9.52	95	3	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

000079

**INDIVIDUAL CONFIRMATION GRID SAMPLES PER RESULTS
OF THE COMPOSITE CONFIRMATION SAMPLES COLLECTED
FOLLOWING INITIAL EXCAVATION IN AREA B**

Date Collected 08/24/99

RA-B-CS-B4

RA-B-CS-B5

RA-B-CS-B6

RA-B-CS-B8

RA-B-EQ-003 (Equip. Blank)



378 960

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road • Memphis TN 38111 • (901) 327-2750 • FAX (901) 327-6331
Founded 1972

August 27, 1998

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

Ref: Analytical Testing
ETC Order # 9808720
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

378 961

Chemical Analytical Data
Review/Evaluation/Validation

SOUTHERN REGION

Report Type: ☐ Preliminary ☒ Final Date Received: 9/10/98 Project Number: 20560
 Project Name: DDMT Analysis/Method: 8270B, PAH
 Laboratory: ETC Lab Project/Case Number: 9808-720
 Sample Number(s): RA-B-C5-B4, B5, B6, B8, B-EQ 003-C5

Evaluated By: S. Paranjape Date Evaluated: 9/10/98
 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	☒	☒	☒	☐
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 (daily, method, instrument)	☒	☒	☒	☐
Comment:				
Field Blanks (trip, eqpt rinsate, ambient, matrix)	☒	☒	☒	☐
Comment:				

378 962

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		N/A			
Comment:					
Internal Standard Areas and Retention Times (Organics Only)					
Comment:					
Chromatograms		✓	✓		
Comment:					
Sample Prep Worksheets					
Comment:					
Raw Data Calculations		N/A			
Comment:					
Laboratory Duplicates					
Comment:					
Instrument Performance Checks (Organics Only)		✓	✓		
Comment:					
Tentatively Identified Compounds (TICs)		N/A			
Comment:					
Completeness	# Samples	# Analyses	Tot # Analyses	Tot # Accept Analyses	% Complete
Completeness = (Tot # Analyses / Tot # Accepted Analyses) x 100	5	5	5	5	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. Pasany
Evaluator's Signature

9/10/98
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.
NC	Result reported from Primary Column. Result did not confirm.
*	QC Data (percent recovery/RPD for a particular analyte was outside QC Limits)

378 964

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>
980872001	RA-B-CS-B4	SOIL	8270C	GC/MS PAH	P04024
980872002	RA-B-CS-B5	SOIL	8270C	GC/MS PAH	P04024
980872003	RA-B-CS-B6	SOIL	8270C	GC/MS PAH	P04028
980872004	RA-B-CS-B8	SOIL	8270C	GC/MS PAH	P04028
980872005	RA-B-EQ-003-CS	AQUEOUS	8270C	GC/MS PAH	P05031

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) 423-3526

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY

218017

FORM 0019 REV 2007

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 PHONE NUMBER 901-743-1117		PROJECT FAX 901-743-1048		LABORATORY PHONE 901-327-2750		LABORATORY FAX 901-327-6334	
PROJECT CONTACT Steve Offner		PROJECT PHONE NUMBER 901-743-1117		PROJECT FAX 901-743-1048		CLIENT USACE		LABORATORY ADDRESS 2924 Walnut Grove Road Memphis, TN 38111		ADDRESS 5445 Triangle Pkwy, #400 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		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	QC Level	TAT	Analyses		
1	RA-B-C-5-B4		8-24-98	1410	1240	3	3000	✓	Please fax results on DUE DATE to SITE and to Lab Coordinator		
2	RA-B-C-5-B5		8-24-98	1420	1432	3	3000	✓			
3	RA-B-C-5-B6		8-24-98	1430	1440	3	3000	✓			
4	RA-B-C-5-B8		8-24-98	1440	1452	3	3000	✓			
5	RA-B-C-5-B9		8-24-98	1450	1500	3	3000	✓			
6											
7											
8											
9											
10											
SAMPLES COLLECTED BY: Steve Offner / M. Rodriguez										COOLER TEMPERATURE UPON RECEIPT	
RETURNED BY: M. Rodriguez										COOLER TEMPERATURE UPON RECEIPT	
Distribution: White - Laboratory (To be returned with Analytical Report), Goldenrod - Project File, Yellow - Project Data Manager											

COOLER RECEIPT FORM

378 967

Cooler Receipt Form
9808720 CRF p 1

LIMS # 9808-720 Number of Coolers _____
Date Received _____
PROJECT DDMT/Memphis, TN VDTSR _____

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

A PRELIMINARY EXAMINATION PHASE Date cooler was opened 08/24/98
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 Crushed YES

10 Have designated person initial here to acknowledge receipt of cooler LB date 08/24/98

B LOG-IN PHASE Date samples were logged-in 08/24/98
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

378 968

Environmental Testing & Consulting, Inc.

Sample Reports

000006

ENVIRONMENTAL TESTING & CONSULTING, INC. 378 969
Memphis, TN
INORGANIC ANALYSIS DATA SHEET
PERCENT SOLIDS

Client Name :OHM Remediation Services
Project Name :DDMT

Date Sample Received :08/24/98
Contract Laboratory Order Number :9808-720

<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>
9808-720-01	RA-B-CS-B4	08/24/98	98	08/25/98	160.3	MC
9808-720-02	RA-B-CS-B5	08/24/98	98	08/25/98	160.3	MC
9808-720-03	RA-B-CS-B6	03/24/98	100	08/25/98	160.3	MC
9808-720-04	RA-B-CS-B8	08/24/98	97	08/25/98	160.3	MC


LABORATORY MANAGER

000007

378 970

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 08/24/98
ETC Order Number 9808720

ETC Lab ID 9808720-01

Sample ID: RA-B-CS-B4**QC Batch : P04024**

Matrix :SOIL

Sample Date :08/24/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				08/26/98	08/27/98	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	47J	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	34J	ug/Kg	67				
Dibenzo(a,h)anthracene	ND	ug/Kg	67				
Fluoranthene	56J	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	50J	ug/Kg	67				

Surrogate Standard	% Recovery	QC Limits
S1 - Nitrobenzene-d5	78	39 80
S2 - 2-Fluorobiphenyl	89 Q	43 84
S3 - 4-Terphenyl-d14	100	40 121

ND - Not Detected


LABORATORY MANAGER

000008

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

378 971
CLIENT SAMPLE NO.

9808-720-1

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.8 (g/mL) G

Lab File ID: 0901009

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 08/26/98

GC Column: DB-5MS ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (mL)

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.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
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26.				
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28.				
29.				
30.				

FORM I BNA-GCMS-TIC

000009

378 972

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 08/24/98
ETC Order Number 9808720

ETC Lab ID **9808720-02**
Sample ID: RA-B-CS-B5
QC Batch : P04024

Matrix :SOIL
Sample Date :08/24/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				08/26/98	08/26/98	CB	8270C 3550B
Acenaphthene	ND	ug/Kg	67				
Acenaphthylene	ND	ug/Kg	67				
Anthracene	ND	ug/Kg	67				
Benzo(a)anthracene	108	ug/Kg	67				
Benzo(b)fluoranthene	201	ug/Kg	67				
Benzo(k)fluoranthene	110	ug/Kg	67				
Benzo(g,h,i)perylene	86	ug/Kg	67				
Benzo(a)pyrene	132	ug/Kg	67				
Chrysene	145	ug/Kg	67				
Dibenzo(a,h)anthracene	ND	ug/Kg	67				
Fluoranthene	218	ug/Kg	67				
Fluorene	ND	ug/Kg	67				
Indeno(1,2,3-cd)pyrene	71	ug/Kg	67				
Naphthalene	ND	ug/Kg	67				
Phenanthrene	74	ug/Kg	67				
Pyrene	186	ug/Kg	67				

Surrogate Standard	% Recovery	QC Limits
S1 - Nitrobenzene-d5	68	39 80
S2 - 2-Fluorobiphenyl	83	43 84
S3 - 4-Terphenyl-d14	73	40 121

ND - Not Detected


LABORATORY MANAGER

000010

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

378 973
CLIENT SAMPLE NO.

9808-720-2

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.6 (g/mL) G

Lab File ID: 1001010

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 08/26/98

GC Column: DB-5MS ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (mL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 27554-26-3	1,2-BENZENEDICARBOXYLIC ACID	15.66	1850	NJ
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
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30.				

FORM I BNA-GCMS-TIC

000011

378 974

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 08/24/98
 ETC Order Number 9808720

ETC Lab ID 9808720-03
Sample ID: RA-B-CS-B6
QC Batch : P04028

Matrix :SOIL
 Sample Date :08/24/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				08/26/98	08/26/98	CB	8270C 3550B
Acenaphthene	ND	ug/Kg	67				
Acenaphthylene	ND	ug/Kg	67				
Anthracene	44J	ug/Kg	67				
Benzo(a)anthracene	237	ug/Kg	67				
Benzo(b)fluoranthene	302	ug/Kg	67				
Benzo(k)fluoranthene	203	ug/Kg	67				
Benzo(g,h,i)perylene	184	ug/Kg	67				
Benzo(a)pyrene	218	ug/Kg	67				
Chrysene	275	ug/Kg	67				
Dibenzo(a,h)anthracene	ND	ug/Kg	67				
Fluoranthene	499	ug/Kg	67				
Fluorene	ND	ug/Kg	67				
Indeno(1,2,3-cd)pyrene	143	ug/Kg	67				
Naphthalene	ND	ug/Kg	67				
Phenanthrene	261	ug/Kg	67				
Pyrene	396	ug/Kg	67				

Surrogate Standard	% Recovery	QC Limits
S1 - Nitrobenzene-d5	71	39 80
S2 - 2-Fluorobiphenyl	82	43 84
S3 - 4-Terphenyl-d14	66	40 121

ND - Not Detected


 LABORATORY MANAGER

000012

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

378 975
CLIENT SAMPLE NO.

9808-720-3

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.5 (g/mL) G

Lab File ID: 1101011

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 08/26/98

GC Column: DB-5MS ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (mL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 629-59-4	TETRADECANE	6.92	139	NJ
2. 117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	15.67	390	NJ
3. 629-92-5	NONADECANE	16.73	273	NJ
4. 192-97-2	BENZO[E]PYRENE	17.71	141	NJ
5.				
6.				
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30.				

FORM I BNA-GCMS-TIC

000013

378 976

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 **20560**

Date Arrived 08/24/98
 ETC Order Number 9808720

ETC Lab ID **9808720-04**
Sample ID: RA-B-CS-B8
QC Batch : P04028

Matrix :SOIL
 Sample Date :08/24/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				08/26/98	08/26/98	CB	8270C 3550B
Acenaphthene	ND	ug/Kg	67				
Acenaphthylene	ND	ug/Kg	67				
Anthracene	ND	ug/Kg	67				
Benzo(a)anthracene	65J	ug/Kg	67				
Benzo(b)fluoranthene	108	ug/Kg	67				
Benzo(k)fluoranthene	51J	ug/Kg	67				
Benzo(g,h,i)perylene	ND	ug/Kg	67				
Benzo(a)pyrene	66J	ug/Kg	67				
Chrysene	95	ug/Kg	67				
Dibenzo(a,h)anthracene	ND	ug/Kg	67				
Fluoranthene	137	ug/Kg	67				
Fluorene	ND	ug/Kg	67				
Indeno(1,2,3-cd)pyrene	ND	ug/Kg	67				
Naphthalene	ND	ug/Kg	67				
Phenanthrene	89	ug/Kg	67				
Pyrene	119	ug/Kg	67				
Surrogate Standard	% Recovery		QC Limits				
S1 - Nitrobenzene-d5	74		39 80				
S2 - 2-Fluorobiphenyl	80		43 84				
S3 - 4-Terphenyl-d14	64		40 121				

ND - Not Detected


 LABORATORY MANAGER

000014

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

378 977
CLIENT SAMPLE NO.

9808-720-4

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Matrix: (soil/water) SOIL

Lab Sample ID:

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

Lab File ID: 1201012

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 08/26/98

GC Column: DB-5MS ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (mL)

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.				
4.				
5.				
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FORM I BNA-GCMS-TIC

000015

378 978

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 08/24/98
 ETC Order Number 9808720

ETC Lab ID 9808720-05

Sample ID: RA-B-EQ-003-CS**QC Batch : P05031**

Matrix :AQUEOUS

Sample Date :08/24/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				08/25/98	08/26/98	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	71	35 85
S2 - 2-Fluorobiphenyl	72	46 84
S3 - 4-Terphenyl-d14	97	33 113

ND - Not Detected


 LABORATORY MANAGER

000016

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

378 979
CLIENT SAMPLE NO.

9808-720-5

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Matrix: (soil/water) WATER

Lab Sample ID:

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

Lab File ID: 0901009

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 08/26/98

GC Column: DB-5MS ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (mL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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FORM I BNA-GCMS-TIC

000017

378 980

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC/MS Semi-Volatiles

000018

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - SOIL

378 981

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-720
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
P04024 P04024LB

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

Surrogate recoveries were flagged as outside QC Limits in sample 9808-720-01 (RA-B-CS-B4), P04024LB, and P04024BS associated with this project. Sample 9808-720-01 and P04024LB were re-analyzed for verification with similar recoveries.

Laboratory Control Sample FORM 3
P04024BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9808-720-04 RPD : All analytes within QC limits.*
RA-B-CS-B8 Spike Recovery : All analytes within QC limits.*
*

RPD for Benzo(b)fluoranthene was flagged as outside QC Limits due to low recovery in the Matrix Spike Duplicate. MS recovery was within QC Limits.

Recovery for Fluoranthene 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
P04024LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

DFTPP Daily 12 Hour Tune : All criteria met. FORM 5
Calibration Verification : 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.

000019

378 982

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 # : 9808-720
Method (SW-846) : 8270C/3550B

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC, 5971MSD
Dilutions Required : No dilutions required.


Laboratory Manager

000020

FORM 2
SOIL BNA-GCMS SURROGATE RECOVERY

378 983

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Level:(low/med) LOW

	CLIENT SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	S7 #	S8 #	TOT OUT
01	P04024LB	0	0	89*	102*	0	111			2
02	P04024BS	0	0	80	96*	0	94			1
03	9808-720-1	0	0	82*	94*	0	98			2
04	9808-720-2	0	0	68	83	0	73			0
05	9808-720-3	0	0	71	82	0	66			0
06	9808-720-4	0	0	74	80	0	64			0
07	9808-720-4M	0	0	70	80	0	63			0
08	9808-720-4S	0	0	68	80	0	55			0
09	P04024LB	0	0	87*	94*	0	116			2
10	9808-720-1	0	0	78	89*	0	100			1
11										
12										
13										
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QC LIMITS
S1 (2FP) = 2-Fluorophenol (0- 0)
S2 (PHL) = Phenol-d6 (0- 0)
S3 (NBZ) = Nitrobenzene-d5 (39- 80)
S4 (FBP) = 2-Fluorobiphenyl (43- 84)
S5 (TBP) = 2,4,6-Tribromophenol (0- 0)
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

000021

378 984

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

CLIENT SAMPLE NO

Lab Name: ETC, INC.

P04024LB

Lab Prep Batch: P04024

SDG No.: 9808-720

Lab File ID: 0301003

Instrument ID: BNA2

Matrix: (soil/water) SOIL

Date Analyzed: 08/26/98

Level: (low/med) LOW

Time Analyzed: 1734

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

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P04024BS		0401004	08/26/98
02	9808-720-1		0901009	08/26/98
03	9808-720-2		1001010	08/26/98
04	9808-720-3		1101011	08/26/98
05	9808-720-4		1201012	08/26/98
06	9808-720-4M		1301013	08/26/98
07	9808-720-4S		1401014	08/26/98
08	9808-720-1		0601006	08/27/98
09				
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COMMENTS:

000022

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

378 985
CLIENT SAMPLE NO.

P04024LB

Lab Name: ETC, INC.

SDG No.: 9808-720

Matrix: (soil/water) SOIL

Lab Prep Batch: P04024

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: 08/26/98

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	66.7	U
208-96-8-----	Acenaphthylene	66.7	U
120-12-7-----	Anthracene	66.7	U
205-99-2-----	Benzo(b) fluoranthene	66.7	U
56-55-3-----	Benzo(a) Anthracene	66.7	U
207-08-9-----	Benzo(k) fluoranthene	66.7	U
191-24-2-----	Benzo(g,h,i) perylene	66.7	U
50-32-8-----	Benzo(a) pyrene	66.7	U
218-01-9-----	Chrysene	66.7	U
53-70-3-----	Dibenzo(a,h) anthracene	66.7	U
206-44-0-----	Fluoranthene	66.7	U
86-73-7-----	Fluorene	66.7	U
193-39-5-----	Indeno(1,2,3-cd) pyrene	66.7	U
91-57-6-----	2-Methylnaphthalene	66.7	U
91-20-3-----	Naphthalene	66.7	U
85-01-8-----	Phenanthrene	66.7	U
129-00-0-----	Pyrene	66.7	U

FORM I BNA-GCMS

000023

378 986

FORM 3
SOIL BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P04024

SDG No.: 9808-720

Matrix Spike - Sample No.: P04024BS

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
Acenaphthene	1670		1340	80	34-126
Acenaphthylene	1670		1520	91	62-123
Anthracene	1670		1310	78	68-124
Benzo(b)fluoranthene	1670		1470	88	67-126
Benzo(a)Anthracene	1670		1510	90	60-133
Benzo(k)fluoranthene	1670		1590	95	75-131
Benzo(g,h,i)perylene	1670		1280	77	53-137
Benzo(a)pyrene	1670		1540	92	68-129
Chrysene	1670		1260	75	67-131
Dibenzo(a,h)anthracene	1670		1230	74	51-138
Fluoranthene	1670		1480	89	71-132
Fluorene	1670		1450	87	65-126
Indeno(1,2,3-cd)pyrene	1670		1260	75	34-170
Naphthalene	1670		1290	77	62-113
Phenanthrene	1670		1390	83	66-128
Pyrene	1670		1480	89	33-155

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 16 outside limits

COMMENTS:

000024

FORM 3
SOIL BNA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

378 987

Lab Name: ETC, INC.

Lab Prep Batch: P04024

SDG No.: 9808-720

Matrix Spike - Sample No.: 9808-720-4

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	M CONCENTRATION (ug/Kg)	M % REC #	QC. LIMITS REC.
Acenaphthene	1630	0.00	1160	71	34-126
Acenaphthylene	1630	0.00	1280	78	62-123
Anthracene	1630	0.00	1220	75	68-124
Benzo(b)fluoranthene	1630	105	1410	80	67-126
Benzo(a)Anthracene	1630	63.5	1550	91	60-133
Benzo(k)fluoranthene	1630	49.2	1540	91	75-131
Benzo(g,h,i)perylene	1630	0.00	1580	97	53-137
Benzo(a)pyrene	1630	64.4	1530	90	68-129
Chrysene	1630	92.5	1420	81	67-131
Dibenzo(a,h)anthracene	1630	0.00	1430	88	51-138
Fluoranthene	1630	133	1380	76	71-132
Fluorene	1630	0.00	1260	77	65-126
Indeno(1,2,3-cd)pyrene	1630	0.00	1470	90	34-170
Naphthalene	1630	0.00	1040	64	62-113
Phenanthrene	1630	86.6	1390	80	66-128
Pyrene	1630	115	1270	71	33-155

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

COMMENTS:

378 988

FORM 3

SOIL BNA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P04024

SDG No.: 9808-720

Matrix Spike - Sample No.: 9808-720-4

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	S CONCENTRATION (ug/Kg)	S % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Acenaphthene	1670	1210	72	1	20	34-126
Acenaphthylene	1670	1320	79	1	20	62-123
Anthracene	1670	1180	71	5	20	68-124
Benzo(b)fluoranthene	1670	1160	63*	24*	20	67-126
Benzo(a)Anthracene	1670	1410	81	12	20	60-133
Benzo(k)fluoranthene	1670	1490	86	6	20	75-131
Benzo(g,h,i)perylene	1670	1390	83	16	20	53-137
Benzo(a)pyrene	1670	1320	75	18	20	68-129
Chrysene	1670	1310	73	10	20	67-131
Dibenzo(a,h)anthracene	1670	1260	75	16	20	51-138
Fluoranthene	1670	1210	64*	17	20	71-132
Fluorene	1670	1260	75	3	20	65-126
Indeno(1,2,3-cd)pyrene	1670	1270	76	17	20	34-170
Naphthalene	1670	1160	69	8	20	62-113
Phenanthrene	1670	1310	73	9	20	66-128
Pyrene	1670	1130	61	15	20	33-155

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

RPD: 1 out of 16 outside limits

Spike Recovery: 2 out of 32 outside limits

COMMENTS:

000026

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - AQUEOUS

378 989

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

ETC Order # : 9808-720
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
P05031 P05031LB

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

Surrogate recoveries for 2-Fluorobiphenyl were flagged for high
recovery in P05031BS/BD.

Laboratory Control Sample FORM 3
P05031BS

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
P05031LB

No Target Analytes detected above Practical Quantitation Limit.

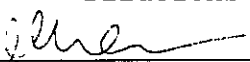
CALIBRATION

DFTPP Daily 12 Hour Tune : All criteria met. FORM 5
Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7

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

000027

FORM 2
WATER BNA-GCMS SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

	CLIENT SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	S7 #	S8 #	TOT OUT
01	P05031LB	0	0	74	78	0	92			0
02	P05031BS	0	0	80	85*	0	89			1
03	P05031BD	0	0	83	93*	0	96			1
04	9808-720-5	0	0	71	72	0	97			0
05										
06										
07										
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QC LIMITS

S1 (2FP) = 2-Fluorophenol (0- 0)
 S2 (PHL) = Phenol-d6 (0- 0)
 S3 (NBZ) = Nitrobenzene-d5 (35- 85)
 S4 (FBP) = 2-Fluorobiphenyl (46- 84)
 S5 (TBP) = 2,4,6-Tribromophenol (0- 0)
 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

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

378 991
CLIENT SAMPLE NO

P05031LB

Lab Name: ETC, INC.

Lab Prep Batch: P05031

Lab File ID: 0301003

Matrix: (soil/water) WATER

Level:(low/med) LOW

SDG No.: 9808-720

Instrument ID: BNA2

Date Analyzed: 08/26/98

Time Analyzed: 1020

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

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P05031BS		0401004	08/26/98
02	P05031BD		0501005	08/26/98
03	9808-720-5		0901009	08/26/98
04				
05				
06				
07				
08				
09				
10				
11				
12				
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29				
30				

COMMENTS:

378 992

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

P05031LB

Lab Name: ETC, INC.

SDG No.: 9808-720

Matrix: (soil/water) WATER

Lab Prep Batch: P05031

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

Lab File ID: 0301003

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 08/26/98

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	2.0	U
208-96-8-----	Acenaphthylene	2.0	U
120-12-7-----	Anthracene	2.0	U
205-99-2-----	Benzo(b)fluoranthene	2.0	U
56-55-3-----	Benzo(a)Anthracene	2.0	U
207-08-9-----	Benzo(k)fluoranthene	2.0	U
191-24-2-----	Benzo(g,h,i)perylene	2.0	U
50-32-8-----	Benzo(a)pyrene	2.0	U
218-01-9-----	Chrysene	2.0	U
53-70-3-----	Dibenzo(a,h)anthracene	2.0	U
206-44-0-----	Fluoranthene	2.0	U
86-73-7-----	Fluorene	2.0	U
193-39-5-----	Indeno(1,2,3-cd)pyrene	2.0	U
91-57-6-----	2-Methylnaphthalene	2.0	U
91-20-3-----	Naphthalene	2.0	U
85-01-8-----	Phenanthrene	2.0	U
129-00-0-----	Pyrene	2.0	U

FORM I BNA-GCMS

000030

FORM 3
WATER BNA-GCMS LABORATORY CONTROL SAMPLE

378 993

Lab Name: ETC, INC.

Lab Prep Batch: P05031

SDG No.: 9808-720

Matrix Spike - Sample No.: P05031BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
Acenaphthene	50.0		40.6	81	37-123
Acenaphthylene	50.0		45.6	91	67-118
Anthracene	50.0		41.1	82	68-124
Benzo(b)fluoranthene	50.0		47.0	94	68-127
Benzo(a)Anthracene	50.0		45.6	91	69-125
Benzo(k)fluoranthene	50.0		45.6	91	73-128
Benzo(g,h,i)perylene	50.0		38.4	77	53-138
Benzo(a)pyrene	50.0		45.8	92	73-125
Chrysene	50.0		38.2	76	70-124
Dibenzo(a,h)anthracene	50.0		38.8	78	57-136
Fluoranthene	50.0		45.4	91	55-135
Fluorene	50.0		44.2	88	66-121
Indeno(1,2,3-cd)pyrene	50.0		37.9	76	57-140
Naphthalene	50.0		33.9	68	55-113
Phenanthrene	50.0		42.4	85	65-126
Pyrene	50.0		45.2	90	40-149

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

COMMENTS: _____

000031

378 994

FORM 3
WATER BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P05031

SDG No.: 9808-720

Matrix Spike - Sample No.: P05031BD

COMPOUND	SPIKE ADDED (ug/L)	BD CONCENTRATION (ug/L)	BD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Acenaphthene	50.0	44.3	89	9	20	37-123
Acenaphthylene	50.0	48.2	96	5	20	67-118
Anthracene	50.0	44.6	89	8	20	68-124
Benzo(b)fluoranthene	50.0	46.2	92	2	20	68-127
Benzo(a)Anthracene	50.0	49.3	99	8	20	69-125
Benzo(k)fluoranthene	50.0	54.0	108	17	20	73-128
Benzo(g,h,i)perylene	50.0	38.9	78	1	20	53-138
Benzo(a)pyrene	50.0	49.8	100	8	20	73-125
Chrysene	50.0	41.7	83	9	20	70-124
Dibenzo(a,h)anthracene	50.0	41.1	82	5	20	57-136
Fluoranthene	50.0	48.4	97	6	20	55-135
Fluorene	50.0	47.4	95	8	20	66-121
Indeno(1,2,3-cd)pyrene	50.0	40.1	80	5	20	57-140
Naphthalene	50.0	37.0	74	8	20	55-113
Phenanthrene	50.0	46.4	93	9	20	65-126
Pyrene	50.0	47.8	96	6	20	40-149

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

RPD: 0 out of 16 outside limits

Spike Recovery: 0 out of 32 outside limits

COMMENTS:

378 995

Environmental Testing & Consulting, Inc.

**Calibration Reports
Initial/Verification
GC/MS Semi-Volatiles**

000033

FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Lab File ID: 0101001

DFTPP Injection Date: 08/26/98

Instrument ID: BNA2

DFTPP Injection Time: 0934

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	42.5
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	62.6
70	Less than 2.0% of mass 69	0.4 (0.7)1
127	40.0 - 60.0% of mass 198	51.2
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.5
275	10.0 - 30.0% of mass 198	18.0
365	Greater than 1.0% of mass 198	1.79
441	Present, but less than mass 443	7.7
442	Greater than 40.0% of mass 198	52.2
443	17.0 - 23.0% of mass 442	10.1 (19.3)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	DCS BNA 50		0201002	08/26/98	0949
02	P05031LB		0301003	08/26/98	1020
03	P05031BS		0401004	08/26/98	1051
04	P05031BD		0501005	08/26/98	1122
05	9808-720-5		0901009	08/26/98	1327
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

378 997

Lab Name: ETC, INC.

Contract: .

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Lab File ID: 0101001

DFTPP Injection Date: 08/26/98

Instrument ID: BNA2

DFTPP Injection Time: 1647

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	47.4
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	65.5
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	53.6
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.1
275	10.0 - 30.0% of mass 198	17.7
365	Greater than 1.0% of mass 198	1.71
441	Present, but less than mass 443	6.1
442	Greater than 40.0% of mass 198	41.4
443	17.0 - 23.0% of mass 442	7.5 (18.1)2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	DCS BNA 50		0201002	08/26/98	1702
02	P04024LB		0301003	08/26/98	1734
03	P04024BS		0401004	08/26/98	1805
04	9808-720-1		0901009	08/26/98	2041
05	9808-720-2		1001010	08/26/98	2112
06	9808-720-3		1101011	08/26/98	2144
07	9808-720-4		1201012	08/26/98	2215
08	9808-720-4M		1301013	08/26/98	2246
09	9808-720-4S		1401014	08/26/98	2317
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Lab File ID: 0101001

DFTPP Injection Date: 08/27/98

Instrument ID: BNA2

DFTPP Injection Time: 0836

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	47.6
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	68.2
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	57.4
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	19.2
365	Greater than 1.0% of mass 198	1.59
441	Present, but less than mass 443	6.9
442	Greater than 40.0% of mass 198	46.5
443	17.0 - 23.0% of mass 442	10.7 (23.0)2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	DCS BNA 50		0201002	08/27/98	0851
02	PO4024LB		0401004	08/27/98	0953
03	9808-720-1		0601006	08/27/98	1055
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
BNA-GCMS INITIAL CALIBRATION DATA

378 999

Lab Name: ETC, INC. Contract:
Lab Code: Case No.: SAS No.: SDG No.: 9808-720
Instrument ID: BNA2 Calibration Date(s): 08/18/98 08/18/98
Column: DB-5MS ID: 0.25 (mm) Calibration Time(s): 0609 1019
LAB FILE ID: RF2: 0301002 RF5: 0401003 RF10: 0501004
RF20: 0601005 RF50: 0201002

COMPOUND	RF2	RF5	RF10	RF20	RF50
Acenaphthene	0.971	0.929	0.888	0.963	0.828
Acenaphthylene	1.776	1.761	1.646	1.734	1.381
Anthracene	0.917	0.956	0.925	0.983	0.820
Benzo(b)fluoranthene	1.122	1.256	1.200	1.424	1.135
Benzo(a)Anthracene	1.237	1.308	1.176	1.274	1.059
Benzo(k)fluoranthene	1.269	1.441	1.219	1.312	1.066
Aniline	2.247	2.249	2.327	2.534	2.142
Benzo(g,h,i)perylene	0.560	0.686	0.581	0.621	0.648
Benzo(a)pyrene	1.014	1.083	1.007	1.081	0.890
Benzoic Acid					0.098
Benzyl Alcohol	0.825	0.838	0.888	0.976	0.835
bis(2-Chloroethyl)ether	1.586	1.547	1.517	1.455	1.303
Bis(2-chloroethoxy)methane	0.465	0.449	0.424	0.400	0.384
N-Nitrosodimethylamine		0.874	1.036	1.098	0.993
bis(2-Chloroisopropyl)ether	2.127	1.924	1.896	1.981	1.750
bis(2-ethylhexyl)Phthalate	1.115	1.208	1.143	1.253	1.147
4-Bromophenyl-phenylether	0.201	0.215	0.199	0.194	0.173
Butylbenzylphthalate	0.851	0.948	0.875	0.957	0.889
4-Chloroaniline	0.432	0.416	0.420	0.464	0.407
4-Chloro-3-Methylphenol	0.294	0.305	0.281	0.316	0.277
2-Chloronaphthalene	1.033	1.044	1.011	1.067	0.814
2-Chlorophenol	1.473	1.459	1.466	1.530	1.299
4-Chlorophenyl-phenylether	0.534	0.575	0.523	0.550	0.474
Chrysene	1.125	1.126	1.025	1.114	0.924
Dibenzo(a,h)anthracene	0.557	0.629	0.535	0.591	0.605
Dibenzofuran	1.481	1.474	1.436	1.532	1.209
Di-n-Butylphthalate	1.293	1.463	1.388	1.490	1.249
1,2-Dichlorobenzene	1.382	1.337	1.363	1.538	1.281
1,3-Dichlorobenzene	1.598	1.463	1.451	1.626	1.302
1,4-Dichlorobenzene	1.477	1.400	1.448	1.594	1.329
3,3'-Dichlorobenzidine	0.271	0.304	0.301	0.337	0.260
2,4-Dichlorophenol	0.268	0.267	0.272	0.288	0.247
2,6-Dichlorophenol	0.896	0.911	0.969	1.026	0.862
Diethylphthalate	1.249	1.344	1.302	1.346	1.109
2,4-Dimethylphenol	0.455	0.419	0.402	0.418	0.356
Dimethylphthalate	1.285	1.314	1.279	1.333	1.076
4,6-Dinitro-2-methylphenol		0.122	0.131	0.156	0.147

FORM VI BNA-GCMS

000037

3781000

FORM 6
BNA-GCMS INITIAL CALIBRATION DATA

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Instrument ID: BNA2

Calibration Date(s): 08/18/98 08/18/98

Column: DB-5MS

ID: 0.25 (mm)

Calibration Time(s): 0609 1019

LAB FILE ID:

RF2: 0301002

RF5: 0401003

RF10: 0501004

RF20: 0601005

RF50: 0201002

COMPOUND	RF2	RF5	RF10	RF20	RF50
2,4-Dinitrophenol		0.083	0.110	0.154	0.155
2,4-Dinitrotoluene	0.270	0.326	0.323	0.372	0.308
2,6-Dinitrotoluene	0.302	0.315	0.294	0.329	0.259
Di-n-octylphthalate	1.302	1.609	1.492	1.584	1.355
Fluoranthene	0.929	1.017	0.951	1.028	0.823
Fluorene	1.113	1.118	1.059	1.142	0.936
Hexachlorobenzene	0.225	0.221	0.215	0.212	0.173
Hexachlorobutadiene	0.206	0.183	0.178	0.198	0.154
Hexachlorocyclopentadiene	0.259	0.309	0.319	0.357	0.289
Hexachloroethane	0.730	0.662	0.683	0.752	0.606
Indeno(1,2,3-cd)pyrene	0.556	0.650	0.583	0.615	0.642
Isophorone	0.831	0.817	0.793	0.847	0.706
2-Methylnaphthalene	0.696	0.652	0.620	0.665	0.566
2-Methylphenol	1.268	1.244	1.280	1.225	1.122
3&4-Methylphenol	0.863	0.739	0.738	0.822	0.733
Naphthalene	0.935	0.940	0.895	0.967	0.888
Nitrobenzene	0.500	0.464	0.435	0.483	0.375
2-Nitroaniline	0.367	0.364	0.365	0.396	0.333
3-Nitroaniline		0.253	0.271	0.309	0.272
4-Nitroaniline	0.116	0.185	0.206	0.250	0.225
2-Nitrophenol	0.216	0.217	0.215	0.226	0.204
4-Nitrophenol	0.560	0.566	0.551	0.578	0.460
Diphenylamine/n-NDPA	1.276	1.157	1.120	1.191	1.038
N-Nitrosodipropylamine	0.328	0.304	0.310	0.307	0.258
Pentachlorophenol		0.106	0.116	0.140	0.120
Phenanthrene	0.899	0.945	0.904	0.975	0.832
Phenol	2.348	2.199	2.035	2.260	2.062
Pyrene	0.949	1.065	0.996	1.039	0.813
1,2,4-Trichlorobenzene	1.112	1.047	1.080	1.179	0.948
2,4,5-Trichlorophenol	0.396	0.394	0.379	0.408	0.339
2,4,6-Trichlorophenol	0.381	0.394	0.365	0.388	0.340
Pyridine		1.358	1.524	1.592	1.421
Carbazole	1.211	1.237	1.321	1.561	1.255
Benzidine				0.378	0.364
Acetophenone	1.922	1.896	1.883	2.038	1.631
1,2-Diphenylhydrazine/Azoben	1.373	1.192	1.129	1.148	0.897

FORM VI BNA-GCMS

000038

FORM 6
BNA-GCMS INITIAL CALIBRATION DATA

3781001

Lab Name: ETC, INC. Contract:
 Lab Code: Case No.: SAS No.: SDG No.: 9808-720
 Instrument ID: BNA2 Calibration Date(s): 08/18/98 08/18/98
 Column: DB-5MS ID: 0.25 (mm) Calibration Time(s): 0609 1019
 LAB FILE ID: RF2: 0301002 RF5: 0401003 RF10: 0501004
 RF20: 0601005 RF50: 0201002

COMPOUND	RF2	RF5	RF10	RF20	RF50
2-Fluorophenol	1.432	1.352	1.547	1.633	1.364
Phenol-d6	2.021	1.874	1.902	2.043	1.709
Nitrobenzene-d5	0.513	0.475	0.480	0.510	0.420
2-Fluorobiphenyl	1.409	1.364	1.296	1.349	1.079
2,4,6-Tribromophenol		0.065	0.067	0.076	0.061
Terphenyl-d14	0.534	0.636	0.613	0.669	0.516

FORM VI BNA-GCMS

000039

3781002

FORM 6
BNA-GCMS INITIAL CALIBRATION DATA

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Instrument ID: BNA2

Calibration Date(s): 08/18/98 08/18/98

Column: DB-5MS

ID: 0.25 (mm)

Calibration Time(s): 0609

1019

LAB FILE ID:
RF160: 1001009

RF80: 0701006

RF100: 0801007

RF120: 0901008

COMPOUND	RF80	RF100	RF120	RF160
Acenaphthene	0.886	0.870	0.942	0.825
Acenaphthylene	1.508	1.504	1.572	1.448
Anthracene	0.931	0.919	0.975	0.758
Benzo(b)fluoranthene	1.259	1.162	1.300	
Benzo(a)Anthracene	1.176	1.120	1.218	1.011
Benzo(k)fluoranthene	1.148	1.075	1.136	0.945
Aniline	2.264	2.159	2.079	
Benzo(g,h,i)perylene	0.649	0.642	0.715	
Benzo(a)pyrene	0.982	0.954	1.043	0.838
Benzoic Acid	0.117	0.128	0.130	0.127
Benzyl Alcohol	0.878	0.848	0.852	
bis(2-Chloroethyl)ether	1.245	1.354	1.300	1.117
Bis(2-chloroethoxy)methane	0.363	0.363		
N-Nitrosodimethylamine	0.814	0.776	0.762	
bis(2-Chloroisopropyl)ether	1.754	1.742	1.602	
bis(2-ethylhexyl)Phthalate	1.237	1.219	1.207	1.060
4-Bromophenyl-phenylether	0.185	0.191	0.189	0.164
Butylbenzylphthalate	0.963	0.945	0.949	0.869
4-Chloroaniline	0.428	0.401	0.390	
4-Chloro-3-Methylphenol	0.279	0.245	0.288	0.248
2-Chloronaphthalene	0.890	0.845	0.840	
2-Chlorophenol	1.350	1.326	1.279	1.225
4-Chlorophenyl-phenylether	0.500	0.501	0.477	0.450
Chrysene	1.046	0.978	1.064	0.856
Dibenzo(a,h)anthracene	0.654	0.658	0.746	0.638
Dibenzofuran	1.358	1.318	1.378	
Di-n-Butylphthalate	1.271	1.289	1.231	1.028
1,2-Dichlorobenzene	1.404	1.319	1.305	
1,3-Dichlorobenzene	1.456	1.360	1.332	
1,4-Dichlorobenzene	1.433	1.344	1.350	1.247
3,3'-Dichlorobenzidine	0.265	0.263	0.276	
2,4-Dichlorophenol	0.248	0.247	0.251	0.232
2,6-Dichlorophenol	0.932	0.908	0.893	0.870
Diethylphthalate	1.167	1.179	1.119	1.041
2,4-Dimethyphenol	0.345	0.331	0.334	0.302
Dimethylphthalate	1.110	1.126	1.083	
4,6-Dinitro-2-methylphenol	0.151	0.152	0.151	

FORM VI BNA-GCMS

000040

FORM 6
BNA-GCMS INITIAL CALIBRATION DATA

Lab Name: ETC, INC. Contract: 3781003

Lab Code: Case No.: SAS No.: SDG No.: 9808-720

Instrument ID: BNA2 Calibration Date(s): 08/18/98 08/18/98

Column: DB-5MS ID: 0.25 (mm) Calibration Time(s): 0609 1019

LAB FILE ID: RF80: 0701006 RF100: 0801007 RF120: 0901008
RF160: 1001009

COMPOUND	RF80	RF100	RF120	RF160
2,4-Dinitrophenol	0.184	0.184	0.183	
2,4-Dinitrotoluene	0.341	0.329	0.332	
2,6-Dinitrotoluene	0.289	0.288	0.290	
Di-n-octylphthalate	1.369	1.400	1.404	
Fluoranthene	0.829	0.789	0.783	
Fluorene	1.026	0.993	1.030	0.945
Hexachlorobenzene	0.188	0.183	0.187	
Hexachlorobutadiene	0.162	0.155	0.154	0.133
Hexachlorocyclopentadiene	0.316	0.299	0.297	
Hexachloroethane	0.621	0.566	0.540	
Indeno(1,2,3-cd)pyrene	0.705	0.708	0.782	
Isophorone	0.719	0.706		
2-Methylnaphthalene	0.610	0.584	0.647	
2-Methylphenol	1.164	1.159	1.014	1.089
3&4-Methylphenol	0.632	0.675	0.665	0.533
Naphthalene	0.927	0.910	0.964	0.797
Nitrobenzene	0.383	0.373	0.363	
2-Nitroaniline	0.352	0.338	0.351	
3-Nitroaniline	0.279	0.264	0.270	
4-Nitroaniline	0.238	0.218	0.249	
2-Nitrophenol	0.189	0.206	0.213	0.195
4-Nitrophenol	0.512	0.488	0.504	
Diphenylamine/n-NDPA	1.150	1.148	1.240	
N-Nitrosodipropylamine	0.250	0.234	0.238	
Pentachlorophenol	0.129	0.127	0.127	0.115
Phenanthrene	0.909	0.878	0.925	0.768
Phenol	2.033	1.965	1.880	1.511
Pyrene	0.810	0.769	0.756	
1,2,4-Trichlorobenzene	1.041	0.971	0.944	
2,4,5-Trichlorophenol	0.351	0.360	0.371	0.309
2,4,6-Trichlorophenol	0.345	0.342	0.341	0.324
Pyridine	1.439	1.299	1.358	1.275
Carbazole	1.331	1.262	1.195	1.030
Benzidine	0.432	0.410	0.388	
Acetophenone	1.786	1.709	1.707	
1,2-Diphenylhydrazine/Azoben	1.145	1.114	1.100	

FORM VI BNA-GCMS

000041

3731004

FORM 6
BNA-GCMS INITIAL CALIBRATION DATA

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Instrument ID: BNA2

Calibration Date(s): 08/18/98 08/18/98

Column: DB-5MS

ID: 0.25 (mm)

Calibration Time(s): 0609 1019

LAB FILE ID:

RF80: 0701006

RF100: 0801007

RF120: 0901008

RF160: 1001009

COMPOUND	RF80	RF100	RF120	RF160
2-Fluorophenol	1.384	1.336	1.296	1.088
Phenol-d6	1.754	1.650	1.579	1.408
Nitrobenzene-d5	0.386	0.425	0.413	
2-Fluorobiphenyl	1.037	1.168	1.113	
2,4,6-Tribromophenol	0.069	0.068	0.067	0.057
Terphenyl-d14	0.472	0.504	0.454	

FORM VI BNA-GCMS

000042

FORM 6
BNA-GCMS INITIAL CALIBRATION DATA

3781005

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Instrument ID: BNA2

Calibration Date(s): 08/18/98 08/18/98

Column: DB-5MS ID: 0.25 (mm)

Calibration Time(s): 0609 1019

COMPOUND	CURVE	COEFFICIENTS		%RSD OR R^2
		A0	A1	
Acenaphthene	AVRG		0.90022407	6.0
Acenaphthylene	AVRG		1.59231943	9.0
Anthracene	AVRG		0.90936396	8.1
Benzo(b)fluoranthene	AVRG		1.23233067	8.1
Benzo(a)Anthracene	AVRG		1.17558992	8.3
Benzo(k)fluoranthene	AVRG		1.17929158	12.6
Aniline	AVRG		2.25010129	6.2
Benzo(g,h,i)perylene	AVRG		0.63794169	8.0
Benzo(a)pyrene	AVRG		0.98811920	8.4
Benzoic Acid	AVRG		0.12038575	11.0
Benzyl Alcohol	AVRG		0.86745420	5.6
bis(2-Chloroethyl)ether	AVRG		1.38046197	11.3
Bis(2-chloroethoxy)methane	AVRG		0.40692804	10.0
N-Nitrosodimethylamine	AVRG		0.90752836	14.8
bis(2-Chloroisopropyl)ether	AVRG		1.84715159	9.0
bis(2-ethylhexyl)Phthalate	AVRG		1.17656245	5.4
4-Bromophenyl-phenylether	AVRG		0.19015001	8.0
Butylbenzylphthalate	AVRG		0.91620420	4.8
4-Chloroaniline	AVRG		0.41979351	5.4
4-Chloro-3-Methylphenol	AVRG		0.28145117	8.3
2-Chloronaphthalene	AVRG		0.94305648	11.2
2-Chlorophenol	AVRG		1.37871990	7.6
4-Chlorophenyl-phenylether	AVRG		0.50946562	7.8
Chrysene	AVRG		1.02863619	9.1
Dibenzo(a,h)anthracene	AVRG		0.62375331	10.0
Dibenzofuran	AVRG		1.39825246	7.5
Di-n-Butylphthalate	AVRG		1.30040563	10.6
1,2-Dichlorobenzene	AVRG		1.36627677	5.9
1,3-Dichlorobenzene	AVRG		1.44847152	8.1
1,4-Dichlorobenzene	AVRG		1.40250300	7.2
3,3'-Dichlorobenzidine	LINR	0.00000000	3.70442611	0.997
2,4-Dichlorophenol	AVRG		0.25779749	6.6
2,6-Dichlorophenol	AVRG		0.91864257	5.6
Diethylphthalate	AVRG		1.20618847	9.1
2,4-Dimethylphenol	AVRG		0.37352010	13.8
Dimethylphthalate	AVRG		1.20077007	9.3
4,6-Dinitro-2-methylphenol	AVRG		0.14435431	8.7

FORM VI BNA-GCMS

000043

3781006

FORM 6
BNA-GCMS INITIAL CALIBRATION DATA

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Instrument ID: BNA2

Calibration Date(s): 08/18/98 08/18/98

Column: DB-5MS

ID: 0.25 (mm)

Calibration Time(s): 0609

1019

COMPOUND	CURVE	COEFFICIENTS		%RSD OR R^2
		A0	A1	
2,4-Dinitrophenol	LINR	0.11190798	5.24754716	0.997
2,4-Dinitrotoluene	AVRG		0.32507514	8.9
2,6-Dinitrotoluene	AVRG		0.29561549	7.0
Di-n-octylphthalate	AVRG		1.43935831	7.7
Fluoranthene	AVRG		0.89382894	11.2
Fluorene	AVRG		1.04024624	7.2
Hexachlorobenzene	AVRG		0.20049714	9.9
Hexachlorobutadiene	AVRG		0.16920383	13.9
Hexachlorocyclopentadiene	AVRG		0.30582339	9.2
Hexachloroethane	AVRG		0.64502213	11.7
Indeno(1,2,3-cd)pyrene	AVRG		0.65506780	11.3
Isophorone	AVRG		0.77420833	8.0
2-Methylnaphthalene	AVRG		0.63023965	6.8
2-Methylphenol	AVRG		1.17383718	7.6
3&4-Methylphenol	AVRG		0.71118570	14.0
Naphthalene	AVRG		0.91377517	5.6
Nitrobenzene	AVRG		0.42208128	13.0
2-Nitroaniline	AVRG		0.35842479	5.5
3-Nitroaniline	AVRG		0.27409623	6.3
4-Nitroaniline	LINR	0.03874910	4.15596919	0.993
2-Nitrophenol	AVRG		0.20903508	5.6
4-Nitrophenol	AVRG		0.52753467	8.0
Diphenylamine/n-NDPA	AVRG		1.16501115	6.2
N-Nitrosodipropylamine	AVRG		0.27881446	13.3
Pentachlorophenol	AVRG		0.12254017	8.6
Phenanthrene	AVRG		0.89290161	6.9
Phenol	AVRG		2.03274683	12.0
Pyrene	AVRG		0.89968533	14.0
1,2,4-Trichlorobenzene	AVRG		1.04027624	8.0
2,4,5-Trichlorophenol	AVRG		0.36742421	8.5
2,4,6-Trichlorophenol	AVRG		0.35790582	6.9
Pyridine	AVRG		1.40825600	7.7
Carbazole	AVRG		1.26692620	11.1
Benzidine	AVRG		0.39447960	6.8
Acetophenone	AVRG		1.82164791	7.5
1,2-Diphenylhydrazine/Azoben	LINR	0.02197152	0.89849146	0.994

FORM VI BNA-GCMS

000044

FORM 6
BNA-GCMS INITIAL CALIBRATION DATA

Lab Name: ETC, INC.

Contract:

3781007

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Instrument ID: BNA2

Calibration Date(s): 08/18/98 08/18/98

Column: DB-5MS

ID: 0.25 (mm)

Calibration Time(s): 0609

1019

COMPOUND	CURVE	COEFFICIENTS		%RSD OR R^2
		A0	A1	
2-Fluorophenol	AVRG		1.38149481	11.2
Phenol-d6	AVRG		1.77105585	11.8
Nitrobenzene-d5	AVRG		0.45277177	10.6
2-Fluorobiphenyl	AVRG		1.22701573	11.8
2,4,6-Tribromophenol	AVRG		0.06612924	8.7
Terphenyl-d14	AVRG		0.54966695	14.5

FORM VI BNA-GCMS

000045

3781008

FORM 7
BNA-GCMS CONTINUING CALIBRATION CHECK

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Instrument ID: BNA2

Calibration Date: 08/26/98 Time: 0949

Lab File ID: 0201002

Init. Calib. Date(s): 08/18/98 08/18/98

Init. Calib. Times: 0609 1019

GC Column: DB-5MS ID: 0.25 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Acenaphthene	0.900	0.818		9.1	20.0
Acenaphthylene	1.592	1.417		11.0	30.0
Anthracene	0.909	0.846		6.9	30.0
Benzo(b)fluoranthene	1.232	1.137		7.7	30.0
Benzo(a)Anthracene	1.175	1.043		11.2	30.0
Benzo(k)fluoranthene	1.179	1.177		0.2	30.0
Benzo(g,h,i)perylene	0.638	0.563		11.8	30.0
Benzo(a)pyrene	0.988	0.905		8.4	20.0
Chrysene	1.029	0.908		11.8	30.0
Dibenzo(a,h)anthracene	0.624	0.568		9.0	30.0
Fluoranthene	0.894	0.772		13.6	20.0
Fluorene	1.040	0.943		9.3	30.0
Indeno(1,2,3-cd)pyrene	0.655	0.712		8.7	30.0
2-Methylnaphthalene	0.630	0.574		8.9	30.0
Naphthalene	0.914	0.889		2.7	30.0
Phenanthrene	0.893	0.816		8.6	30.0
Pyrene	0.900	0.766		14.9	30.0
2-Fluorophenol	1.381	1.374		0.5	20.0
Phenol-d6	1.771	1.692		4.5	20.0
Nitrobenzene-d5	0.453	0.418		7.7	20.0
2-Fluorobiphenyl	1.227	1.090		11.2	20.0
2,4,6-Tribromophenol	0.066	0.061		7.6	20.0
Terphenyl-d14	0.550	0.487		11.4	20.0

FORM VII BNA-GCMS

000046

FORM 7
BNA-GCMS CONTINUING CALIBRATION CHECK

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Instrument ID: BNA2

Calibration Date: 08/26/98

Time: 1702

Lab File ID: 0201002

Init. Calib. Date(s): 08/18/98

08/18/98

Init. Calib. Times: 0609

1019

GC Column: DB-5MS

ID: 0.25 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Acenaphthene	0.900	0.823		8.6	20.0
Acenaphthylene	1.592	1.415		11.1	30.0
Anthracene	0.909	0.862		5.2	30.0
Benzo(b)fluoranthene	1.232	1.115		9.5	30.0
Benzo(a)Anthracene	1.175	1.032		12.2	30.0
Benzo(k)fluoranthene	1.179	1.176		0.2	30.0
Benzo(g,h,i)perylene	0.638	0.554		13.2	30.0
Benzo(a)pyrene	0.988	0.892		9.7	20.0
Chrysene	1.029	0.905		12.0	30.0
Dibenzo(a,h)anthracene	0.624	0.571		8.5	30.0
Fluoranthene	0.894	0.775		13.3	20.0
Fluorene	1.040	0.961		7.6	30.0
Indeno(1,2,3-cd)pyrene	0.655	0.725		10.7	30.0
2-Methylnaphthalene	0.630	0.560		11.1	30.0
Naphthalene	0.914	0.856		6.3	30.0
Phenanthrene	0.893	0.832		6.8	30.0
Pyrene	0.900	0.764		15.1	30.0
2-Fluorophenol	1.381	1.369		0.9	20.0
Phenol-d6	1.771	1.652		6.7	20.0
Nitrobenzene-d5	0.453	0.420		7.3	20.0
2-Fluorobiphenyl	1.227	1.057		13.8	20.0
2,4,6-Tribromophenol	0.066	0.067		1.5	20.0
Terphenyl-d14	0.550	0.488		11.3	20.0

FORM VII BNA-GCMS

000047

3781010

FORM 7

BNA-GCMS CONTINUING CALIBRATION CHECK

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Instrument ID: BNA2

Calibration Date: 08/27/98 Time: 0851

Lab File ID: 0201002

Init. Calib. Date(s): 08/18/98 08/18/98

Init. Calib. Times: 0609 1019

GC Column: DB-5MS ID: 0.25 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Acenaphthene	0.900	0.798		11.3	20.0
Acenaphthylene	1.592	1.433		10.0	30.0
Anthracene	0.909	0.860		5.4	30.0
Benzo(b)fluoranthene	1.232	1.105		10.3	30.0
Benzo(a)Anthracene	1.175	1.000		14.9	30.0
Benzo(k)fluoranthene	1.179	1.224		3.8	30.0
Benzo(g,h,i)perylene	0.638	0.612		4.1	30.0
Benzo(a)pyrene	0.988	0.942		4.6	20.0
Chrysene	1.029	0.913		11.3	30.0
Dibenzo(a,h)anthracene	0.624	0.601		3.7	30.0
Fluoranthene	0.894	0.779		12.9	20.0
Fluorene	1.040	0.966		7.1	30.0
Indeno(1,2,3-cd)pyrene	0.655	0.730		11.4	30.0
2-Methylnaphthalene	0.630	0.542		14.0	30.0
Naphthalene	0.914	0.880		3.7	30.0
Phenanthrene	0.893	0.831		6.9	30.0
Pyrene	0.900	0.766		14.9	30.0
2-Fluorophenol	1.381	1.391		0.7	20.0
Phenol-d6	1.771	1.691		4.5	20.0
Nitrobenzene-d5	0.453	0.426		6.0	20.0
2-Fluorobiphenyl	1.227	1.106		9.9	20.0
2,4,6-Tribromophenol	0.066	0.064		3.0	20.0
Terphenyl-d14	0.550	0.479		12.9	20.0

FORM VII BNA-GCMS

000048

FORM 8
BNA-GCMS INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ETC, INC.

Contract:

3781011

Lab Code:

Case No.:

SAS No.:

SDG.No.: 9808-720

Lab File ID (Standard): 0201002

Date Analyzed: 08/26/98

Instrument ID: BNA2

Time Analyzed: 0949

	IS1(DCB)	RT	IS2(NPT)	RT	IS3(ANT)	RT
	AREA #	#	AREA #	#	AREA #	#
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	423978	4.53	1521265	5.55	823342	7.70
UPPER LIMIT	847956	5.03	3042530	6.05	1646684	8.20
LOWER LIMIT	211989	4.03	760632	5.05	411671	7.20
=====	=====	=====	=====	=====	=====	=====
CLIENT						
SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 P05031LB	433426	4.53	1612169	5.55	798252	7.69
02 P05031BS	419435	4.53	1534122	5.55	735215	7.69
03 P05031BD	418673	4.53	1508620	5.55	744418	7.69
04 9808-720-5	425949	4.53	1579520	5.55	835766	7.69
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IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.

* Values outside of QC limits.

3781012

FORM 8
BNA-GCMS INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Lab File ID (Standard): 0201002

Date Analyzed: 08/26/98

Instrument ID: BNA2

Time Analyzed: 0949

	IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	1126771	10.23	520285	15.33	233581	17.90
UPPER LIMIT	2253542	10.73	1040570	15.83	467162	18.40
LOWER LIMIT	563386	9.73	260142	14.83	116790	17.40
=====	=====	=====	=====	=====	=====	=====
CLIENT SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 P05031LB	1045475	10.22	623676	15.32	495067*	17.91
02 P05031BS	1024140	10.22	557422	15.32	307887	17.91
03 P05031BD	1049682	10.22	565308	15.33	295880	17.91
04 9808-720-5	1141590	10.21	691166	15.32	501852*	17.91
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22						

IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.

* Values outside of QC limits.

FORM 8
BNA-GCMS INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ETC, INC.

Contract:

3781013

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Lab File ID (Standard): 0201002

Date Analyzed: 08/26/98

Instrument ID: BNA2

Time Analyzed: 1702

	IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	404967	4.53	1436932	5.54	791070	7.69
UPPER LIMIT	809934	5.03	2873864	6.04	1582140	8.19
LOWER LIMIT	202484	4.03	718466	5.04	395535	7.19
=====	=====	=====	=====	=====	=====	=====
CLIENT SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 P04024LB	397481	4.52	1472561	5.53	778029	7.68
02 P04024BS	382048	4.52	1355033	5.53	692785	7.68
03 9808-720-1	389026	4.52	1385934	5.53	707696	7.68
04 9808-720-2	423444	4.52	1505300	5.53	761841	7.68
05 9808-720-3	430382	4.52	1551210	5.53	794351	7.68
06 9808-720-4	416967	4.52	1525379	5.54	802364	7.68
07 9808-720-4M	428951	4.52	1565039	5.54	807909	7.68
08 9808-720-4S	412210	4.52	1540457	5.54	785697	7.68
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IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

3781014

FORM 8
BNA-GCMS INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Lab File ID (Standard): 0201002

Date Analyzed: 08/26/98

Instrument ID: BNA2

Time Analyzed: 1702

	IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	1109083	10.22	468247	15.31	187193	17.89
UPPER LIMIT	2218166	10.72	936494	15.81	374386	18.39
LOWER LIMIT	554542	9.72	234124	14.81	93596	17.39
=====	=====	=====	=====	=====	=====	=====
CLIENT SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 P04024LB	1066756	10.20	687944	15.30	456009*	17.89
02 P04024BS	979070	10.21	492338	15.31	234715	17.89
03 9808-720-1	900658	10.20	472892	15.30	251800	17.89
04 9808-720-2	1006785	10.20	442223	15.30	224309	17.89
05 9808-720-3	1032201	10.20	432158	15.30	224103	17.89
06 9808-720-4	1054933	10.20	328897	15.30	162459	17.89
07 9808-720-4M	1100801	10.21	267556	15.30	130702	17.89
08 9808-720-4S	1089773	10.21	263204	15.30	139383	17.89
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22						

IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.

* Values outside of QC limits.

FORM 8
BNA-GCMS INTERNAL STANDARD AREA AND RT SUMMARY

3781015

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Lab File ID (Standard): 0201002

Date Analyzed: 08/27/98

Instrument ID: BNA2

Time Analyzed: 0851

	IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	462077	4.52	1612300	5.54	831630	7.69
UPPER LIMIT	924154	5.02	3224600	6.04	1663260	8.19
LOWER LIMIT	231038	4.02	806150	5.04	415815	7.19
=====	=====	=====	=====	=====	=====	=====
CLIENT						
SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 PO4024LB	413107	4.51	1507516	5.53	803107	7.68
02 9808-720-1	391304	4.52	1415559	5.53	742186	7.68
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22						

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

3781016

FORM 8
BNA-GCMS INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-720

Lab File ID (Standard): 0201002

Date Analyzed: 08/27/98

Instrument ID: BNA2

Time Analyzed: 0851

	IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	1198655	10.21	504016	15.30	208200	17.88
UPPER LIMIT	2397310	10.71	1008032	15.80	416400	18.38
LOWER LIMIT	599328	9.71	252008	14.80	104100	17.38
=====	=====	=====	=====	=====	=====	=====
CLIENT SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 PO4024LB	1157641	10.19	783280	15.29	484938*	17.89
02 9808-720-1	1090258	10.20	582714	15.29	304982	17.88
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IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.

* Values outside of QC limits.

3781017

**COMPOSITE CONFIRMATION SAMPLES COLLECTED
FOLLOWING EXCAVATION OF AREA A & AREA B**

Date Collected 08/31/98

RA-A-009 (Composite of Grids A2, A3, A13 & A14)

RA-A-010 (Composite of Grids A5, A15, A16 & A17)

RA-A-011 (Duplicate of RA-A-009)

RA-B-012 (Composite of Grids B5 & B6)

RA-A-EQ-004-CS (Equip. Blank)



3781018

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

Founded 1972

September 2, 1998

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

Ref: Analytical Testing
ETC Order # 9808978
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 black ink, appearing to read 'Nathan A. Pera, IV'.

Nathan A. Pera, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT

3781019

Chemical Analytical Data Review/Evaluation/Validation

SOUTHERN REGION

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

Project Name: DDMT Analysis/Method: TCL Pest/PCB, PAHS, TAL

Laboratory ETC Lab Project/Case Number: 9808978 ^{metals}

Sample Number(s): RA-A-009, 010, -011, -012 B-012, RA-A-EQ-
004-CS.

Evaluated By: S. Pascunjepe Date Evaluated: 2/1/99

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	☒		☒	
Comment:				
Surrogate Recoveries	☒		☒	
Comment: <u>Below or Above limits for PAHS, Results ND Data OK</u> <u>LOW on pest, sample RA-B-012, Results flagged J. and accepted</u>				
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 (daily, method, instrument)	☒		☒	
Comment:				
Field Blanks (trip, eqpt rinsate, ambient, matrix)	☒		☒	
Comment:				

3781020

Quality Control Deliverables		Required	Received	Passed	Failed
Field Duplicates RPD		X			
Comment:	N/A				
Second Source Check					
Comment:					
Second Column Confirmation		✓		✓	
Comment:					
Percent Moisture/Solids		✓		✓	
Comment:					
Initial / Continuing Calibrations		✓		✓	
Comment:	cont cal. out for BVA non target compounds. Data ok. cont cal. out for run after analysis. Data ok.				
Internal Standard Areas and Retention Times (Organics Only)		✓		✓	
Comment:	Areas low for Perylene-d12, results flagged J!				
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	5	4	20	20	20
General Comments:					

Summary: ☐ See attached pages

Surrogate low, data flagged J for Post-sample RA-B-012.
 Int. std area low for Perylene-d12, results flagged J, RA-A-011
 RA-B-012

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

2/1/99
 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.
NC	Result reported from Primary Column. Result did not confirm.
*	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

3781022

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>
980897801	RA-A-009	SOIL	6010B	Silver
980897801	RA-A-009	SOIL	6010B	Aluminum
980897801	RA-A-009	SOIL	7060A	Arsenic
980897801	RA-A-009	SOIL	8270C	GC/MS PAH
980897801	RA-A-009	SOIL	6010B	Barium
980897801	RA-A-009	SOIL	6010B	Beryllium
980897801	RA-A-009	SOIL	6010B	Calcium
980897801	RA-A-009	SOIL	6010B	Cadmium
980897801	RA-A-009	SOIL	9010A	Cyanide
980897801	RA-A-009	SOIL	6010B	Cobalt
980897801	RA-A-009	SOIL	6010B	Chromium
980897801	RA-A-009	SOIL	6010B	Copper
980897801	RA-A-009	SOIL	6010B	Iron
980897801	RA-A-009	SOIL	7471A	Mercury
980897801	RA-A-009	SOIL	6010B	Potassium
980897801	RA-A-009	SOIL	6010B	Magnesium
980897801	RA-A-009	SOIL	6010B	Manganese
980897801	RA-A-009	SOIL	6010B	Sodium
980897801	RA-A-009	SOIL	6010B	Nickel
980897801	RA-A-009	SOIL	8081A	Organochlorine Pesticides
980897801	RA-A-009	SOIL	7421	Lead
980897801	RA-A-009	SOIL	8082	PCBs
980897801	RA-A-009	SOIL	6010B	Antimony
980897801	RA-A-009	SOIL	7740	Selenium
980897801	RA-A-009	SOIL	7841	Thallium
980897801	RA-A-009	SOIL	6010B	Vanadium
980897801	RA-A-009	SOIL	6010B	Zinc
980897802	RA-A-010	SOIL	6010B	Silver
980897802	RA-A-010	SOIL	6010B	Aluminum
980897802	RA-A-010	SOIL	7060A	Arsenic
980897802	RA-A-010	SOIL	8270C	GC/MS PAH
980897802	RA-A-010	SOIL	6010B	Barium
980897802	RA-A-010	SOIL	6010B	Beryllium
980897802	RA-A-010	SOIL	6010B	Calcium
980897802	RA-A-010	SOIL	6010B	Cadmium
980897802	RA-A-010	SOIL	9010A	Cyanide
980897802	RA-A-010	SOIL	6010B	Cobalt
980897802	RA-A-010	SOIL	6010B	Chromium
980897802	RA-A-010	SOIL	6010B	Copper
980897802	RA-A-010	SOIL	6010B	Iron
980897802	RA-A-010	SOIL	7471A	Mercury
980897802	RA-A-010	SOIL	6010B	Potassium
980897802	RA-A-010	SOIL	6010B	Magnesium
980897802	RA-A-010	SOIL	6010B	Manganese
980897802	RA-A-010	SOIL	6010B	Sodium
980897802	RA-A-010	SOIL	6010B	Nickel
980897802	RA-A-010	SOIL	8081A	Organochlorine Pesticides
980897802	RA-A-010	SOIL	7421	Lead
980897802	RA-A-010	SOIL	8082	PCBs
980897802	RA-A-010	SOIL	6010B	Antimony
980897802	RA-A-010	SOIL	7740	Selenium
980897802	RA-A-010	SOIL	7841	Thallium
980897802	RA-A-010	SOIL	6010B	Vanadium
980897802	RA-A-010	SOIL	6010B	Zinc
980897803	RA-A-011	SOIL	6010B	Silver

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ANALYTICAL SUMMARY TABLE

3781023

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>
980897803	RA-A-011	SOIL	6010B	Aluminum
980897803	RA-A-011	SOIL	7060A	Arsenic
980897803	RA-A-011	SOIL	8270C	GC/MS PAH
980897803	RA-A-011	SOIL	6010B	Barium
980897803	RA-A-011	SOIL	6010B	Beryllium
980897803	RA-A-011	SOIL	6010B	Calcium
980897803	RA-A-011	SOIL	6010B	Cadmium
980897803	RA-A-011	SOIL	9010A	Cyanide
980897803	RA-A-011	SOIL	6010B	Cobalt
980897803	RA-A-011	SOIL	6010B	Chromium
980897803	RA-A-011	SOIL	6010B	Copper
980897803	RA-A-011	SOIL	6010B	Iron
980897803	RA-A-011	SOIL	7471A	Mercury
980897803	RA-A-011	SOIL	6010B	Potassium
980897803	RA-A-011	SOIL	6010B	Magnesium
980897803	RA-A-011	SOIL	6010B	Manganese
980897803	RA-A-011	SOIL	6010B	Sodium
980897803	RA-A-011	SOIL	6010B	Nickel
980897803	RA-A-011	SOIL	8081A	Organochlorine Pesticides
980897803	RA-A-011	SOIL	7421	Lead
980897803	RA-A-011	SOIL	8082	PCBs
980897803	RA-A-011	SOIL	6010B	Antimony
980897803	RA-A-011	SOIL	7740	Selenium
980897803	RA-A-011	SOIL	7841	Thallium
980897803	RA-A-011	SOIL	6010B	Vanadium
980897803	RA-A-011	SOIL	6010B	Zinc
980897804	RA-B-012	SOIL	6010B	Silver
980897804	RA-B-012	SOIL	6010B	Aluminum
980897804	RA-B-012	SOIL	7060A	Arsenic
980897804	RA-B-012	SOIL	8270C	GC/MS PAH
980897804	RA-B-012	SOIL	6010B	Barium
980897804	RA-B-012	SOIL	6010B	Beryllium
980897804	RA-B-012	SOIL	6010B	Calcium
980897804	RA-B-012	SOIL	6010B	Cadmium
980897804	RA-B-012	SOIL	9010A	Cyanide
980897804	RA-B-012	SOIL	6010B	Cobalt
980897804	RA-B-012	SOIL	6010B	Chromium
980897804	RA-B-012	SOIL	6010B	Copper
980897804	RA-B-012	SOIL	6010B	Iron
980897804	RA-B-012	SOIL	7471A	Mercury
980897804	RA-B-012	SOIL	6010B	Potassium
980897804	RA-B-012	SOIL	6010B	Magnesium
980897804	RA-B-012	SOIL	6010B	Manganese
980897804	RA-B-012	SOIL	6010B	Sodium
980897804	RA-B-012	SOIL	6010B	Nickel
980897804	RA-B-012	SOIL	8081A	Organochlorine Pesticides
980897804	RA-B-012	SOIL	7421	Lead
980897804	RA-B-012	SOIL	8082	PCBs
980897804	RA-B-012	SOIL	6010B	Antimony
980897804	RA-B-012	SOIL	7740	Selenium
980897804	RA-B-012	SOIL	7841	Thallium
980897804	RA-B-012	SOIL	6010B	Vanadium
980897804	RA-B-012	SOIL	6010B	Zinc
980897805	RA-A-EQ-004-CS	AQUEOUS	6010B	Silver
980897805	RA-A-EQ-004-CS	AQUEOUS	6010B	Aluminum
980897805	RA-A-EQ-004-CS	AQUEOUS	7060A	Arsenic

3781024

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

<u>Sample ID</u>	<u>Field ID</u>	<u>Matrix</u>	<u>Method</u>	<u>Method Description</u>
980897805	RA-A-EQ-004-CS	AQUEOUS	8270C	GC/MS PAH
980897805	RA-A-EQ-004-CS	AQUEOUS	6010B	Barium
980897805	RA-A-EQ-004-CS	AQUEOUS	6010B	Beryllium
980897805	RA-A-EQ-004-CS	AQUEOUS	6010B	Calcium
980897805	RA-A-EQ-004-CS	AQUEOUS	6010B	Cadmium
980897805	RA-A-EQ-004-CS	AQUEOUS	9010A	Cyanide
980897805	RA-A-EQ-004-CS	AQUEOUS	6010B	Cobalt
980897805	RA-A-EQ-004-CS	AQUEOUS	6010B	Chromium
980897805	RA-A-EQ-004-CS	AQUEOUS	6010B	Copper
980897805	RA-A-EQ-004-CS	AQUEOUS	6010B	Iron
980897805	RA-A-EQ-004-CS	AQUEOUS	7470A	Mercury
980897805	RA-A-EQ-004-CS	AQUEOUS	6010B	Potassium
980897805	RA-A-EQ-004-CS	AQUEOUS	6010B	Magnesium
980897805	RA-A-EQ-004-CS	AQUEOUS	6010B	Manganese
980897805	RA-A-EQ-004-CS	AQUEOUS	6010B	Sodium
980897805	RA-A-EQ-004-CS	AQUEOUS	6010B	Nickel
980897805	RA-A-EQ-004-CS	AQUEOUS	8081A	Organochlorine Pesticides
980897805	RA-A-EQ-004-CS	AQUEOUS	7421	Lead
980897805	RA-A-EQ-004-CS	AQUEOUS	8082	PCBs
980897805	RA-A-EQ-004-CS	AQUEOUS	6010B	Antimony
980897805	RA-A-EQ-004-CS	AQUEOUS	7740	Selenium
980897805	RA-A-EQ-004-CS	AQUEOUS	7841	Thallium
980897805	RA-A-EQ-004-CS	AQUEOUS	6010B	Vanadium
980897805	RA-A-EQ-004-CS	AQUEOUS	6010B	Zinc

Environmental Testing & Consulting, Inc.

3781025

Login
Chain-of-Custody

000005



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

218018

FORM 0019 REV 7

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		CITY STATE AND ZIP CODE	
Steve Offner		901-743-1117		901-743-1048		2924 Walnut Grove Road		5445 Triangle Pkwy, #400		Memphis, TN 38111	
PROJECT ADDRESS		CITY STATE AND ZIP CODE		CLIENT		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		
1	RA-A-009	Soil	8-31-98	0930	NA	4x802	OHM 3rd	3day	✓	✓	✓
2	RA-A-010	Soil	8-31-98	1015	NA	4x802	OHM 3rd	3day	✓	✓	✓
3	RA-A-011	Soil	8-31-98	1130	NA	4x802	OHM 3rd	3day	✓	✓	✓
4	RA-A-012	Soil	8-31-98	1330	NA	4x802	OHM 3rd	3day	✓	✓	✓
5	RA-A-013	Liquid	8-31-98	0930	NA	6x14	OHM 3rd	3day	✓	✓	✓
6											
7											
8											
9											
10											
SAMPLES COLLECTED BY: Steve Offner / 1708 Dunn Ave. / 8-31-98											
RECEIVED BY: K. S. Offner / 8-31-98 / 1435											
COOLER TEMPERATURE UPON RECEIPT: 24°C											
SAMPLE'S CONDITION UPON RECEIPT:											
Distribution: White - Laboratory (To be returned with Analytical Report), Goldenrod - Project File, Yellow - Project Data Manager											

3781026

COOLER RECEIPT FORM

3781027

Cooler Receipt Form
9808978 CRF p 1

LIMS # 9808978 Number of Coolers 1
Date Received 8/31/98
PROJECT DDMT-Memphis, TN VDTSR 8/31/98,1500

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

A PRELIMINARY EXAMINATION PHASE Date cooler was opened 8/31/98
by (print) Rebekah Barger (sign) REBARGER

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 Loose Cubes YES

10 Have designated person initial here to acknowledge receipt of cooler RB date 8/31/98

B LOG-IN PHASE Date samples were logged-in 8/31/98
by (print) Rebekah Barger (sign) REBARGER

11 Describe type of packing in cooler Bubble Wrap, Loose Ice Cubes

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? NA By whom? NA (date) NA

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

000007

3781028

Environmental Testing & Consulting, Inc.

Sample Reports

000008

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

3781029

Client Name :OHM Remediation Services
Project Name :DDMT

Date Sample Received :08/31/98
Contract Laboratory Order Number :9808-978

<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>
9808-978-01	RA-A-009	08/31/98	97	09/01/98	160.3	MC
9808-978-02	RA-A-010	08/31/98	95	09/01/98	160.3	MC
9808-978-03	RA-A-011	08/31/98	97	09/01/98	160.3	MC
9808-978-04	RA-B-012	08/31/98	92	09/01/98	160.3	MC


LABORATORY MANAGER

000009

3781030

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 08/31/98
ETC Order Number 9808978

ETC Lab ID 9808978-01
Sample ID: RA-A-009

Matrix :SOIL
Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	ND	mg/Kg	1 00	09/02/98	9010A	CY090298


LABORATORY MANAGER

000010

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

INORGANIC ANALYSIS DATA SHEET**3781031**

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 08/31/98

ETC Order Number 9808978

ETC Lab ID 9808978-02

Sample ID: RA-A-010

Matrix :SOIL

Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	ND	mg/Kg	1.00	09/02/98	9010A	CY090298


LABORATORY MANAGER

000011

3781032

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 # 20560

Site ID Norcross, GA 30092
DDMT
Memphis, TN

Date Arrived 08/31/98
ETC Order Number 9808978

ETC Lab ID 9808978-03
Sample ID: RA-A-011

Matrix :SOIL
Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	ND	mg/Kg	1.00	09/02/98	9010A	CY090298


LABORATORY MANAGER

000012

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

INORGANIC ANALYSIS DATA SHEET**3781033**

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

Project # **20560****Norcross, GA 30092**

Site ID **DDMT**
Memphis, TN

Date Arrived **08/31/98**ETC Order Number **9808978**ETC Lab ID **9808978-04****Sample ID: RA-B-012**Matrix : **SOIL**Sample Date : **08/31/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	ND	mg/Kg	1.00	09/02/98	9010A	CY090298


LABORATORY MANAGER

000013

3781034

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 08/31/98

ETC Order Number 9808978

ETC Lab ID 9808978-05

Sample ID: RA-A-EQ-004-CS

Matrix :AQUEOUS

Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	ND	mg/L	0.010	09/02/98	9010A	CY090298


LABORATORY MANAGER

000014

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

INORGANIC ANALYSIS DATA SHEET**3781035**

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 08/31/98
ETC Order Number 9808978

ETC Lab ID 9808978-01
Sample ID: RA-A-009

Matrix :SOIL
Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Metals Digestion Batch	V8-SO-06				NR	3051
Mercury Digestion Batch	V4-SO-30				RM	7471A
Silver	ND	mg/Kg	0.700	13.31	09/02/98	NR 6010B
Aluminum	10,100	mg/Kg	4.00	15.05	09/02/98	TD 6010B
Arsenic	9.48	mg/Kg	0.200	17.43	09/01/98	JF 7060A
Barium	130	mg/Kg	0.200	13.31	09/02/98	TD 6010B
Beryllium	0.494	mg/Kg	0.100	13.31	09/02/98	TD 6010B
Calcium	2,860	mg/Kg	1.00	13.31	09/02/98	TD 6010B
Cadmium	ND	mg/Kg	0.400	13.31	09/02/98	TD 6010B
Cobalt	7.76	mg/Kg	0.700	13.31	09/02/98	TD 6010B
Chromium	17.1	mg/Kg	0.700	13.31	09/02/98	TD 6010B
Copper	17.0	mg/Kg	0.600	13.31	09/02/98	TD 6010B
Iron	19,600	mg/Kg	0.700	15.05	09/02/98	TD 6010B
Mercury	0.038	mg/Kg	0.020	13.28	09/02/98	RM 7471A
Potassium	806	mg/Kg	20.0	13.31	09/02/98	TD 6010B
Magnesium	2,300	mg/Kg	3.00	13.31	09/02/98	TD 6010B
Manganese	574	mg/Kg	0.200	13.31	09/02/98	TD 6010B
Sodium	89.1	mg/Kg	20.0	13.31	09/02/98	TD 6010B
Nickel	18.0	mg/Kg	1.50	13.31	09/02/98	TD 6010B
Lead	32.8	mg/Kg	0.100	11.32	09/02/98	JF 7421
Antimony	ND	mg/Kg	3.20	13.31	09/02/98	TD 6010B
Selenium	ND	mg/Kg	0.200	10.58	09/03/98	RM 7740
Thallium	0.187	mg/Kg	0.100	11.39	09/03/98	JF 7841
Vanadium	21.6	mg/Kg	0.800	13.31	09/02/98	TD 6010B
Zinc	64.9	mg/Kg	1.00	13.31	09/02/98	TD 6010B


LABORATORY MANAGER

000015

3781036

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 08/31/98
 ETC Order Number 9808978

ETC Lab ID **9808978-02**
Sample ID: RA-A-010

Matrix :SOIL
 Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Metals Digestion Batch	V8-SO-06					
Mercury Digestion Batch	V4-SO-30					NR 3051
Silver	ND	mg/Kg	0.700	13:38	09/02/98	RM 7471A
Aluminum	9,520	mg/Kg	4.00	13:38	09/02/98	NR 6010B
Arsenic	11.5	mg/Kg	0.200	17:49	09/01/98	TD 6010B
Barium	166	mg/Kg	0.200	13:38	09/02/98	JF 7060A
Beryllium	0.557	mg/Kg	0.100	13:38	09/02/98	TD 6010B
Calcium	1,860	mg/Kg	1.00	13:38	09/02/98	TD 6010B
Cadmium	ND	mg/Kg	0.400	13:38	09/02/98	TD 6010B
Cobalt	10.6	mg/Kg	0.700	13:38	09/02/98	TD 6010B
Chromium	15.7	mg/Kg	0.700	13:38	09/02/98	TD 6010B
Copper	18.1	mg/Kg	0.600	13:38	09/02/98	TD 6010B
Iron	21,200	mg/Kg	0.700	15:11	09/02/98	TD 6010B
Mercury	0.024	mg/Kg	0.020	13:29	09/02/98	RM 7471A
Potassium	787	mg/Kg	20.0	13:38	09/02/98	TD 6010B
Magnesium	2,390	mg/Kg	3.00	13:38	09/02/98	TD 6010B
Manganese	804	mg/Kg	0.200	13:38	09/02/98	TD 6010B
Sodium	96.2	mg/Kg	20.0	13:38	09/02/98	TD 6010B
Nickel	20.1	mg/Kg	1.50	13:38	09/02/98	TD 6010B
Lead	17.7	mg/Kg	0.100	11:34	09/02/98	JF 7421
Antimony	ND	mg/Kg	3.20	13:38	09/02/98	TD 6010B
Selenium	ND	mg/Kg	0.200	11:05	09/03/98	RM 7740
Thallium	0.233	mg/Kg	0.100	11:50	09/03/98	JF 7841
Vanadium	21.6	mg/Kg	0.800	13:38	09/02/98	TD 6010B
Zinc	63.1	mg/Kg	1.00	13:38	09/02/98	TD 6010B


 LABORATORY MANAGER

000016

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

INORGANIC ANALYSIS DATA SHEET

3781037

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

Project # 20560

Norcross, GA 30092

Site ID DDMT
Memphis, TN

Date Arrived 08/31/98

ETC Order Number 9808978

ETC Lab ID 9808978-03

Sample ID: RA-A-011

Matrix :SOIL

Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Metals Digestion Batch	V8-SO-06					NR 3051
Mercury Digestion Batch	V4-SO-30					RM 7471A
Silver	ND	mg/Kg	0.700	13:44	09/02/98	NR 6010B
Aluminum	9,070	mg/Kg	4.00	13:44	09/02/98	TD 6010B
Arsenic	6.73	mg/Kg	0.200	17:52	09/01/98	JF 7060A
Barium	88.1	mg/Kg	0.200	13:44	09/02/98	TD 6010B
Beryllium	0.454	mg/Kg	0.100	13:44	09/02/98	TD 6010B
Calcium	3,010	mg/Kg	1.00	13:44	09/02/98	TD 6010B
Cadmium	ND	mg/Kg	0.400	13:44	09/02/98	TD 6010B
Cobalt	7.62	mg/Kg	0.700	13:44	09/02/98	TD 6010B
Chromium	15.4	mg/Kg	0.700	13:44	09/02/98	TD 6010B
Copper	14.6	mg/Kg	0.600	13:44	09/02/98	TD 6010B
Iron	17,800	mg/Kg	0.700	15:17	09/02/98	TD 6010B
Mercury	0.020	mg/Kg	0.020	13:30	09/02/98	RM 7471A
Potassium	795	mg/Kg	20.0	13:44	09/02/98	TD 6010B
Magnesium	2,260	mg/Kg	3.00	13:44	09/02/98	TD 6010B
Manganese	544	mg/Kg	0.200	13:44	09/02/98	TD 6010B
Sodium	92.8	mg/Kg	20.0	13:44	09/02/98	TD 6010B
Nickel	17.6	mg/Kg	1.50	13:44	09/02/98	TD 6010B
Lead	8.42	mg/Kg	0.100	11:37	09/02/98	JF 7421
Antimony	ND	mg/Kg	3.20	13:44	09/02/98	TD 6010B
Selenium	ND	mg/Kg	0.200	11:12	09/03/98	RM 7740
Thallium	0.152	mg/Kg	0.100	12:01	09/03/98	JF 7841
Vanadium	23.7	mg/Kg	0.800	13:44	09/02/98	TD 6010B
Zinc	48.0	mg/Kg	1.00	13:44	09/02/98	TD 6010B


LABORATORY MANAGER

000017

3781038

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 08/31/98
 ETC Order Number 9808978

ETC Lab ID **9808978-04**
Sample ID: RA-B-012

Matrix :SOIL
 Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Metals Digestion Batch	V8-SO-06					NR 3051
Mercury Digestion Batch	V4-SO-30					RM 7471A
Silver	ND	mg/Kg	0.700	14:18	09/02/98	NR 6010B
Aluminum	13,100	mg/Kg	4.00	14:38	09/02/98	TD 6010B
Arsenic	10.3	mg/Kg	0.200	17:21	09/01/98	JF 7060A
Barium	125	mg/Kg	0.200	14:18	09/02/98	TD 6010B
Beryllium	0.545	mg/Kg	0.100	14:18	09/02/98	TD 6010B
Calcium	1,740	mg/Kg	1.00	14:18	09/02/98	TD 6010B
Cadmium	ND	mg/Kg	0.400	14:18	09/02/98	TD 6010B
Cobalt	9.55	mg/Kg	0.700	14:18	09/02/98	TD 6010B
Chromium	14.8	mg/Kg	0.700	14:18	09/02/98	TD 6010B
Copper	17.8	mg/Kg	0.600	14:18	09/02/98	TD 6010B
Iron	21,700	mg/Kg	0.700	14:38	09/02/98	TD 6010B
Mercury	0.044	mg/Kg	0.020	13:32	09/02/98	RM 7471A
Potassium	975	mg/Kg	20.0	14:18	09/02/98	TD 6010B
Magnesium	2,430	mg/Kg	3.00	14:18	09/02/98	TD 6010B
Manganese	784	mg/Kg	0.200	14:18	09/02/98	TD 6010B
Sodium	65.5	mg/Kg	20.0	14:18	09/02/98	TD 6010B
Nickel	17.7	mg/Kg	1.50	14:18	09/02/98	TD 6010B
Lead	12.6	mg/Kg	0.100	11:18	09/02/98	JF 7421
Antimony	ND	mg/Kg	3.20	14:18	09/02/98	TD 6010B
Selenium	ND	mg/Kg	0.200	11:19	09/03/98	RM 7740
Thallium	0.269	mg/Kg	0.100	11:29	09/03/98	JF 7841
Vanadium	22.8	mg/Kg	0.800	14:18	09/02/98	TD 6010B
Zinc	67.9	mg/Kg	1.00	14:18	09/02/98	TD 6010B


 LABORATORY MANAGER

000018

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

INORGANIC ANALYSIS DATA SHEET

3781039

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 08/31/98
ETC Order Number 9808978

ETC Lab ID 9808978-05
Sample ID: RA-A-EQ-004-CS

Matrix :AQUEOUS
Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Metals Digestion Batch	V11-AQ-54					JB 3015
Mercury Digestion Batch	V4-AQ-35					RM 7470A
Silver	ND	mg/L	0.009	13:11	09/02/98	TD 6010B
Aluminum	ND	mg/L	0.060	13:11	09/02/98	TD 6010B
Arsenic	ND	mg/L	0.003	17:07	09/01/98	JF 7060A
Barium	ND	mg/L	0.003	13:11	09/02/98	TD 6010B
Beryllium	ND	mg/L	0.002	13:11	09/02/98	TD 6010B
Calcium	0.066	mg/L	0.015	13:11	09/02/98	TD 6010B
Cadmium	ND	mg/L	0.005	13:11	09/02/98	TD 6010B
Cobalt	ND	mg/L	0.009	13:11	09/02/98	TD 6010B
Chromium	ND	mg/L	0.009	13:11	09/02/98	TD 6010B
Copper	ND	mg/L	0.008	13:11	09/02/98	TD 6010B
Iron	0.018	mg/L	0.009	13:11	09/02/98	TD 6010B
Mercury	ND	mg/L	0.0002	15:58	09/01/98	RM 7470A
Potassium	ND	mg/L	0.250	13:11	09/02/98	TD 6010B
Magnesium	ND	mg/L	0.040	13:11	09/02/98	TD 6010B
Manganese	ND	mg/L	0.003	13:11	09/02/98	TD 6010B
Sodium	0.152	mg/L	0.050	13:11	09/02/98	TD 6010B
Nickel	ND	mg/L	0.020	13:11	09/02/98	TD 6010B
Lead	ND	mg/L	0.002	11:09	09/02/98	JF 7421
Antimony	ND	mg/L	0.040	13:11	09/02/98	TD 6010B
Selenium	ND	mg/L	0.003	17:07	09/01/98	JF 7740
Thallium	ND	mg/L	0.002	10:28	09/03/98	JF 7841
Vanadium	ND	mg/L	0.010	13:11	09/02/98	TD 6010B
Zinc	ND	mg/L	0.010	13:11	09/02/98	TD 6010B


LABORATORY MANAGER

000019

3781040

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 20560

Date Arrived 08/31/98
ETC Order Number 9808978

ETC Lab ID 9808978-01

Sample ID: RA-A-009**QC Batch : P04028**

Matrix :SOIL

Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				09/01/98	09/01/98	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	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	83 Q	39 80
S2 - 2-Fluorobiphenyl	80	43 84
S3 - 4-Terphenyl-d14	77	40 121

ND - Not Detected


LABORATORY MANAGER

000020

3781041

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9808-978-1

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-978

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: 1201013

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 09/01/98

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. 57-10-3	HEXADECANOIC ACID	11.49	366	NJ
2. 72-55-9	P,P-DDE	13.19	214	NJ
3. 50-29-3	CHLOROPHENOTHANE	13.86	350	NJ
4. 50-29-3	P,P'-DDT	14.42	1100	NJ
5. 27554-26-3	1,2-BENZENEDICARBOXYLIC ACID	15.60	177	NJ
6.				
7.				
8.				
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FORM I BNA-GCMS-TIC

000021

3781042

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 08/31/98
ETC Order Number 9808978

ETC Lab ID 9808978-02
Sample ID: RA-A-010
QC Batch : P04028

Matrix :SOIL
Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				09/01/98	09/01/98	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	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	76	39 80
S2 - 2-Fluorobiphenyl	84	43 84
S3 - 4-Terphenyl-d14	84	40 121

ND - Not Detected


LABORATORY MANAGER

000022

3781043

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9808-978-2

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-978

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.4 (g/mL) G

Lab File ID: 1301014

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1(mL)

Date Analyzed: 09/01/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 72-55-9	P,P'-DDE	13.19	164	NJ
2. 50-29-3	P,P'-DDT	14.42	826	NJ
3.				
4.				
5.				
6.				
7.				
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29.				
30.				

FORM I BNA-GCMS-TIC

000023

3781044

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 08/31/98
 ETC Order Number 9808978

ETC Lab ID **9808978-03**
Sample ID: RA-A-011
QC Batch : P04028

Matrix :SOIL
 Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				09/01/98	09/01/98	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	ND	ug/Kg	67 J				
Benzo(k)fluoranthene	ND	ug/Kg	67 J				
Benzo(g,h,i)perylene	ND	ug/Kg	67 J				
Benzo(a)pyrene	ND	ug/Kg	67 J				
Chrysene	ND	ug/Kg	67				
Dibenzo(a,h)anthracene	ND	ug/Kg	67 J				
Fluoranthene	ND	ug/Kg	67				
Fluorene	ND	ug/Kg	67				
Indeno(1,2,3-cd)pyrene	ND	ug/Kg	67 J				
Naphthalene	ND	ug/Kg	67				
Phenanthrene	ND	ug/Kg	67				
Pyrene	ND	ug/Kg	67				

Surrogate Standard	% Recovery	QC Limits
S1 - Nitrobenzene-d5	70	39 80
S2 - 2-Fluorobiphenyl	65	43 84
S3 - 4-Terphenyl-d14	61	40 121

ND - Not Detected


 LABORATORY MANAGER

000024

3781045

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9808-978-3

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-978

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.6 (g/mL) G

Lab File ID: 1401015

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1(mL)

Date Analyzed: 09/01/98

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.				
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FORM I BNA-GCMS-TIC

000025

3781046

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 **08/31/98**
 ETC Order Number **9808978**

ETC Lab ID **9808978-04**
Sample ID: RA-B-012
QC Batch : P04028

Matrix : **SOIL**
 Sample Date : **08/31/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				09/01/98	09/01/98	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	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	90	ug/Kg	67				
Dibenzo(a,h)anthracene	ND	ug/Kg	67				
Fluoranthene	135	ug/Kg	67				
Fluorene	ND	ug/Kg	67				
Indeno(1,2,3-cd)pyrene	ND	ug/Kg	67				
Naphthalene	ND	ug/Kg	67				
Phenanthrene	55J	ug/Kg	67				
Pyrene	111	ug/Kg	67				

Surrogate Standard	% Recovery	QC Limits
S1 - Nitrobenzene-d5	77	39 80
S2 - 2-Fluorobiphenyl	72	43 84
S3 - 4-Terphenyl-d14	71	40 121

ND - Not Detected


 LABORATORY MANAGER

000026

FORM 1 3781047
 BNA-GCMS ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9808-978-4

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-978

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: 1501016

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1(mL)

Date Analyzed: 09/01/98

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.				
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FORM I BNA-GCMS-TIC

000027

3781048

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 08/31/98
 ETC Order Number 9808978

ETC Lab ID 9808978-05
Sample ID: RA-A-EQ-004-CS
QC Batch : P05034

Matrix :AQUEOUS
 Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				09/01/98	09/02/98	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	84		35	85			
S2 - 2-Fluorobiphenyl	82		46	84			
S3 - 4-Terphenyl-d14	87		33	113			

ND - Not Detected


 LABORATORY MANAGER

000028

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

3781049

CLIENT SAMPLE NO.

9808-978-5

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-978

Matrix: (soil/water) WATER

Lab Sample ID:

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

Lab File ID: 0801008

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1(mL)

Date Analyzed: 09/02/98

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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
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FORM I BNA-GCMS-TIC

000029

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

3781050

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

Site ID **DDMT**
Memphis, TN

Project # 20560
FID # DACA45-96-D-0014

Date Arrived 08/31/98
ETC Order Number 9808978

ETC Lab ID 9808978-01
Sample ID: RA-A-009

Matrix :SOIL
Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				09/01/98	09/04/98	RG	8081A
QC Batch	P06014	ug/Kg					
Aldrin	ND	ug/Kg	20.0				
Alpha-BHC	ND	ug/Kg	20.0				
Beta-BHC	ND	ug/Kg	20.0				
Delta-BHC	ND	ug/Kg	20.0				
Gamma-BHC (Lindane)	ND	ug/Kg	20.0				
Alpha-Chlordane	68.5	ug/Kg	20.0				
Gamma-Chlordane	53.5	ug/Kg	20.0				
Chlordane	469	ug/Kg	200				
4,4'-DDD	54.3	ug/Kg	20.0				
4,4'-DDE	268	ug/Kg	20.0				
4,4'-DDT	1,220	ug/Kg	20.0				
Dieldrin	414	ug/Kg	20.0				
Endosulfan I	ND	ug/Kg	20.0				
Endosulfan II	ND	ug/Kg	20.0				
Endosulfan Sulfate	ND	ug/Kg	20.0				
Endrin	ND	ug/Kg	20.0				
Endrin Aldehyde	ND	ug/Kg	20.0				
Endrin Ketone	ND	ug/Kg	20.0				
Heptachlor	ND	ug/Kg	20.0				
Heptachlor Epoxide	ND	ug/Kg	20.0				
Methoxychlor	ND	ug/Kg	20.0				
Toxaphene	ND	ug/Kg	2000				

Surrogate Standard	% Recovery	QC Limits	
S1 - Decachlorobiphenyl	110	64	154
S2 - Tetrachloro-m-xylene	78	39	130


LABORATORY MANAGER

ND - Not Detected

J00030

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET**3781051**

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

Project # 20560
FID # DACA45-96-D-0014

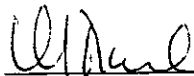
Site ID DDMT
Memphis, TN

Date Arrived 08/31/98
ETC Order Number 9808978

ETC Lab ID 9808978-02
Sample ID: RA-A-010

Matrix :SOIL
Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides							8081A
QC Batch	P06014	ug/Kg		09/01/98	09/04/98	RG	
Aldrin	ND	ug/Kg	20.0				
Alpha-BHC	ND	ug/Kg	20.0				
Beta-BHC	ND	ug/Kg	20.0				
Delta-BHC	ND	ug/Kg	20.0				
Gamma-BHC (Lindane)	ND	ug/Kg	20.0				
Alpha-Chlordane	84.0	ug/Kg	20.0				
Gamma-Chlordane	63.7	ug/Kg	20.0				
Chlordane	142J	ug/Kg	200				
4,4'-DDD	51.0	ug/Kg	20.0				
4,4'-DDE	176J	ug/Kg	200				
4,4'-DDT	1,040	ug/Kg	20.0				
Dieldrin	299	ug/Kg	20.0				
Endosulfan I	ND	ug/Kg	20.0				
Endosulfan II	ND	ug/Kg	20.0				
Endosulfan Sulfate	ND	ug/Kg	20.0				
Endrin	ND	ug/Kg	20.0				
Endrin Aldehyde	ND	ug/Kg	20.0				
Endrin Ketone	ND	ug/Kg	20.0				
Heptachlor	ND	ug/Kg	20.0				
Heptachlor Epoxide	ND	ug/Kg	20.0				
Methoxychlor	ND	ug/Kg	20.0				
Toxaphene	ND	ug/Kg	2000				
Surrogate Standard		% Recovery	QC Limits				
S1 - Decachlorobiphenyl		124	64	154			
S2 - Tetrachloro-m-xylene		78	39	130			


LABORATORY MANAGER

ND - Not Detected

000031

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

3781052

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

Site ID **DDMT**
Memphis, TN

Project # 20560
FID # DACA45-96-D-0014

Date Arrived 08/31/98
ETC Order Number 9808978

ETC Lab ID 9808978-03
Sample ID: RA-A-011

Matrix :SOIL
Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				09/01/98	09/04/98	RG	8081A
QC Batch	P06014	ug/Kg					
Aldrin	ND	ug/Kg	20.0				
Alpha-BHC	ND	ug/Kg	20.0				
Beta-BHC	ND	ug/Kg	20.0				
Delta-BHC	ND	ug/Kg	20.0				
Gamma-BHC (Lindane)	ND	ug/Kg	20.0				
Alpha-Chlordane	ND	ug/Kg	20.0				
Gamma-Chlordane	ND	ug/Kg	20.0				
Chlordane	ND	ug/Kg	200				
4,4'-DDD	14	2J ug/Kg	20.0				
4,4'-DDE	29.0	ug/Kg	20.0				
4,4'-DDT	141J	ug/Kg	200				
Dieldrin	ND	ug/Kg	20.0				
Endosulfan I	ND	ug/Kg	20.0				
Endosulfan II	ND	ug/Kg	20.0				
Endosulfan Sulfate	ND	ug/Kg	20.0				
Endrin	ND	ug/Kg	20.0				
Endrin Aldehyde	ND	ug/Kg	20.0				
Endrin Ketone	ND	ug/Kg	20.0				
Heptachlor	ND	ug/Kg	20.0				
Heptachlor Epoxide	ND	ug/Kg	20.0				
Methoxychlor	ND	ug/Kg	20.0				
Toxaphene	ND	ug/Kg	2000				
Surrogate Standard		% Recovery	QC Limits				
S1 - Decachlorobiphenyl	100		64	154			
S2 - Tetrachloro-m-xylene	71		39	130			


LABORATORY MANAGER

ND - Not Detected

000032

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

3781053

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

Project # 20560
FID # DACA45-96-D-0014

Site ID DDMT
Memphis, TN

Date Arrived 08/31/98
ETC Order Number 9808978

ETC Lab ID 9808978-04
Sample ID: RA-B-012

Matrix :SOIL
Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides							8081A
				09/01/98	09/04/98	RG	
QC Batch	P06014	ug/Kg					
Aldrin	ND	ug/Kg	2.00				
Alpha-BHC	ND	ug/Kg	2.00				
Beta-BHC	2 68	ug/Kg	2 00				
Delta-BHC	ND	ug/Kg	2.00				
Gamma-BHC (Lindane)	ND	ug/Kg	2.00				
Alpha-Chlordane	ND	ug/Kg	2.00				
Gamma-Chlordane	ND	ug/Kg	2.00				
Chlordane	ND	ug/Kg	20.0				
4,4'-DDD	ND	ug/Kg	2.00				
4,4'-DDE	ND	ug/Kg	2 00				
4,4'-DDT	ND	ug/Kg	2 00				
Dieldrin	ND	ug/Kg	2 00				
Endosulfan I	ND	ug/Kg	2 00				
Endosulfan II	ND	ug/Kg	2 00				
Endosulfan Sulfate	ND	ug/Kg	2 00				
Endrin	ND	ug/Kg	2 00				
Endrin Aldehyde	ND	ug/Kg	2 00				
Endrin Ketone	ND	ug/Kg	2.00				
Heptachlor	ND	ug/Kg	2.00				
Heptachlor Epoxide	ND	ug/Kg	2.00				
Methoxychlor	ND	ug/Kg	2.00				
Toxaphene	ND	ug/Kg	200				
Surrogate Standard							QC Limits
S1 - Decachlorobiphenyl	59 Q		64				154
S2 - Tetrachloro-m-xylene	60		39				130


LABORATORY MANAGER

ND - Not Detected

000033

3781054

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
 FID # DACA45-96-D-0014

Site ID DDMT
 Memphis, TN

Date Arrived 08/31/98
 ETC Order Number 9808978

ETC Lab ID 9808978-05
Sample ID: RA-A-EQ-004-CS

Matrix :AQUEOUS
 Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides				09/01/98	09/04/98	RG	8081A
QC Batch	P07014	ug/L					
Aldrin	ND	ug/L	0.040				
Alpha-BHC	ND	ug/L	0.040				
Beta-BHC	ND	ug/L	0.040				
Delta-BHC	ND	ug/L	0.040				
Gamma-BHC (Lindane)	ND	ug/L	0.040				
Alpha-Chlordane	ND	ug/L	0.040				
Gamma-Chlordane	0.071	ug/L	0.040				
Chlordane	ND	ug/L	0.250				
4,4'-DDD	ND	ug/L	0.040				
4,4'-DDE	ND	ug/L	0.040				
4,4'-DDT	ND	ug/L	0.040				
Dieldrin	ND	ug/L	0.040				
Endosulfan I	ND	ug/L	0.040				
Endosulfan II	ND	ug/L	0.040				
Endosulfan Sulfate	ND	ug/L	0.040				
Endrin	ND	ug/L	0.040				
Endrin Aldehyde	ND	ug/L	0.040				
Endrin Ketone	ND	ug/L	0.040				
Heptachlor	ND	ug/L	0.040				
Heptachlor Epoxide	ND	ug/L	0.040				
Methoxychlor	ND	ug/L	0.040				
Toxaphene	ND	ug/L	3.00				
Surrogate Standard				% Recovery			
S1 - Decachlorobiphenyl	35		34	115			
S2 - Tetrachloro-m-xylene	81		31	96			


 LABORATORY MANAGER

ND - Not Detected

000034

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

3781055

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

Project 20560

Site ID DDMT
 Memphis, TN

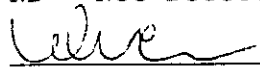
Date Arrived 08/31/98
ETC Order Number 9808978

ETC Lab ID 9808978-01
Sample ID: RA-A-009
QC Batch : P06014

Matrix :SOIL
Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				09/01/98	09/03/98	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 - Tetrachloro-m-xylene	65		39	130			
S2 - Decachlorobiphenyl	98		64	154			

ND - Not Detected


LABORATORY MANAGER

000035

3781056

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 08/31/98
ETC Order Number 9808978

ETC Lab ID 9808978-02
Sample ID: RA-A-010
QC Batch : P06014

Matrix :SOIL
Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				09/01/98	09/03/98	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 - Tetrachloro-m-xylene	59		39	130			
S2 - Decachlorobiphenyl	106		64	154			

ND - Not Detected


LABORATORY MANAGER

000036

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

3781057

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

Site ID **DDMT**
Memphis, TN

Project **20560**

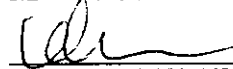
Date Arrived **08/31/98**
ETC Order Number **9808978**

ETC Lab ID **9808978-03**
Sample ID: RA-A-011
QC Batch : P06014

Matrix : **SOIL**
Sample Date : **08/31/98**

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				09/01/98	09/03/98	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 - Tetrachloro-m-xylene		56	39	130			
S2 - Decachlorobiphenyl		98	64	154			

ND - Not Detected


LABORATORY MANAGER

000037

3781058

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 **20560**

Date Arrived 08/31/98
ETC Order Number 9808978

ETC Lab ID **9808978-04**
Sample ID: RA-B-012
QC Batch : P06014

Matrix :SOIL
Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				09/01/98	09/03/98	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 - Tetrachloro-m-xylene		75	39	130			
S2 - Decachlorobiphenyl		103	64	154			

ND - Not Detected


LABORATORY MANAGER

000038

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

3781059

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 08/31/98

ETC Order Number 9808978

ETC Lab ID 9808978-05

Sample ID: RA-A-EQ-004-CS**QC Batch : P09008**

Matrix :AQUEOUS

Sample Date :08/31/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				09/01/98	09/02/98	RG	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 - Tetrachloro-m-xylene	72	31 96
S2 - Decachlorobiphenyl	51	34 115

ND - Not Detected


LABORATORY MANAGER

000039

3781060

Environmental Testing & Consulting, Inc.

**Quality Control Reports
Inorganics**

000040

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
INORGANICS

3781061

Client Name : _OHM Remediation Services Corp.
Project Name : _Defense Depot Memphis TN
ETC Order # : _9808-978

HOLDING TIMES

Sample Analysis : All samples analyzed within Method Specified
Holding Times.

CALIBRATION

Laboratory Control Sample : All criteria met.

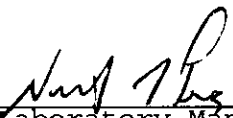
QUALITY CONTROL

Matrix Spike

Spike Recovery : All analytes within QC limits

Method Blank

No Target Analytes detected above Detection Limit.


Laboratory Manager

000041

3781062

Environmental Testing & Consulting, Inc.
Inorganic QC Data Summary

Client Name OHM Remediation Services
Project Defense Depot-Memphis, TN

ETC Order Number 9808-978
File Name 9808-978 QC1

Method Blank

Analyte	Date Analyzed	Blank Concentration mg/Kg	QC Batch
Cyanide	09/02/98	<1 00	CY090298

Calibration Verification (CV)

Analyte	Date Analyzed	CV Conc mg/Kg	CV Conc Found	% Difference
Cyanide	09/02/98	0 200	0 208	4

Laboratory Control Sample (LCS)

Analyte	Date Analyzed	LCS Conc mg/Kg	LCS Conc Found	% Recovery
Cyanide	09/02/98	20 0	19 6	98

Matrix Spike/Matrix Spike Duplicate

Sample ID	Analyte	Spike mg/Kg	Sample mg/Kg	MS Conc Found	MS % Recovery	QC Limits	RPD
9808-978-04MS	Cyanide	19.6	<1 00	17 4	89	70-130	2
9808-978-04MSD	Cyanide	18 2	<1 00	16 6	91	70-130	

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Environmental Testing & Consulting, Inc.

3781063

Quality Control Reports

Metals (ICP/GFAA/CV)

000043

3781064

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

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-978

HOLDING TIMES

QC Batch(s) for this order : ICP/GFAA V8-SO-06
Mercury V4-SO-30

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. Refer to Table 1.

Due to low recoveries and failing Post Digestion Spike, all Selenium
and Thallium data was reported based on the Method of Standard
Additions.

QUALITY CONTROL

9808-978.MQCBLANK

Method Blank

V8-SO-06BLK - ICP/GFAA Metals
V4-SO-30BLK - Mercury

Calcium identified in V8-SO-06BLK at 2.10 mg/Kg.
Iron identified in V8-SO-06BLK at 2.10 mg/Kg.
Lead identified in V8-SO-06BLK at 0.104 mg/Kg.

9808-978.MQCLCS

Laboratory Control Sample(s)

V8-SO-06LCS - ICP/GFAA Metals
V4-SO-30LCS - Mercury

All criteria met.

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

3781065

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN

ETC Order # : 9808-978

QUALITY CONTROL

9808-978.MQCMSMSD

Matrix Spike / Matrix Spike Dup - ICP Metals

9808-978-04 RPD : All analytes within QC limits.
RA-B-012 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 :

Analyte	mg/L Expected	mg/L Found	% Recovery	QA Evaluation
Antimony	0.500	0.473	95	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 were performed for verification :

Analyte	No Dilution	1:5 Dilution	1:25 Dilution	% Difference	QA Evaluation
Aluminum	-----	13100 mg/Kg	13200 mg/Kg	1	Pass
Calcium	1740	1770	-----	2	Pass
Iron	-----	21700	21700	0	Pass
Manganese	784	787	-----	0	Pass
Potassium	975	959	-----	2	Pass
Magnesium	2430	2420	-----	0	Pass
Zinc	67.9	67.0	-----	1	Pass

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

Matrix Spike / Matrix Spike Dup - Graphite Metals

9808-978-04 RPD : All analytes within QC limits.
RA-B-012 Spike Recovery : All analytes within QC limits.*
*

Recovery for Lead was flagged as outside QC Limits due to the level of this analyte present relative to the spike amount. In addition due to the Arsenic present relative to the spike amount, Dilution Tests were performed for both analytes for verification :

Analyte	1:2 Dilution	1:10 Dilution	% Difference	QA Evaluation
Arsenic	10.3 mg/Kg	11.1 mg/Kg	8	Pass

Analyte	1:3 Dilution	1:15 Dilution	% Difference	QA Evaluation
Lead	12.6 mg/Kg	13.3 mg/Kg	6	Pass

000045

3781066

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

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-978

QUALITY CONTROL

Recoveries for Selenium and Thallium 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

9808-978-04 RPD : All analytes within QC limits.
RA-B-012 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

000046

Environmental Testing & Consulting, Inc.
Metals Dilution Factor Summary Table

3781067

Table 1

Sample ID	Analyte	Dilution	Code
		Factor	
9808-978-01	Aluminum	1 5	C
9808-978-01	Iron	1 5	C
9808-978-01	Lead	1 10	C
9808-978-02	Iron	1 5	C
9808-978-02	Arsenic	1 2	C
9808-978-02	Lead	1 4	C
9808-978-03	Iron	1 5	C
9808-978-03	Lead	1 2	C
9808-978-04	Aluminum	1:5	C
9808-978-04	Iron	1:5	C
9808-978-04	Arsenic	1 2	C
9808-978-04	Lead	1:3	C

C - Dilution to bring analyte within calibration range.

I - Dilution to due to spectral interference from the metal indicated.

000047

9808-978.t1

Page 1

3781068

SOLID METHOD BLANK
METALS

Lab Name

Environmental Testing and Consulting, Inc

Laboratory ID ICP/GFAA Metals

V8-SO-06 BLK

QC Batch

V8-SO-06

Laboratory ID Mercury

V4-SO-30 BLK

V4-SO-30

Date Sample Prepared

09/01/98

ICP/GFAA Metals

09/02/98

Mercury

Metals	Concentration mg/Kg	Detection Limit mg/Kg	Date Analyzed	Method
Silver	<0.700	0.700	09/02/98	6010B
Aluminum	<4.00	4.00	09/02/98	6010B
Arsenic	<0.200	0.200	09/01/98	7060A
Barium	<0.200	0.200	09/02/98	6010B
Beryllium	<0.100	0.100	09/02/98	6010B
Calcium	2.10	1.00	09/02/98	6010B
Cadmium	<0.400	0.400	09/02/98	6010B
Cobalt	<0.700	0.700	09/02/98	6010B
Chromium	<0.700	0.700	09/02/98	6010B
Copper	<0.600	0.600	09/02/98	6010B
Iron	2.10	0.700	09/02/98	6010B
Potassium	<20.0	20.0	09/02/98	6010B
Magnesium	<3.00	3.00	09/02/98	6010B
Manganese	<0.200	0.200	09/02/98	6010B
Sodium	<20.0	20.0	09/02/98	6010B
Nickel	<1.50	1.50	09/02/98	6010B
Lead	0.104	0.100	09/02/98	7421
Antimony	<3.20	3.20	09/02/98	6010B
Selenium	<0.200	0.200	09/01/98	7740
Thallium	<0.100	0.100	09/03/98	7841
Vanadium	<0.800	0.800	09/02/98	6010B
Zinc	<1.00	1.00	09/02/98	6010B
Mercury	<0.020	0.020	09/02/98	7471A

Metals Blank

9808-978.MQCBLANK

000048

3781069

SOLID LABORATORY CONTROL SAMPLE
METALS

Lab Name

Environmental Testing and Consulting, Inc

Laboratory Control ID

ICP/GFAA Metals V8-SO-06 LCS
Mercury V4-SO-30 LCS

QC Batch

V8-SO-06V4-SO-30

Date Prepared

ICP/GFAA Metals 09/01/98
Mercury 09/02/98

Metals	Spike Added mg/Kg	Found mg/Kg	% R	#	QC Limits
Silver	20.0	20.2	101	80	120
Aluminum	200	203	102	80	120
Arsenic	5.00	4.54	91	85	115
Barium	200	199	100	80	120
Beryllium	20.0	20.2	101	80	120
Calcium	400	439	110	80	120
Cadmium	20.0	21.0	105	80	120
Cobalt	100	105	105	80	120
Chromium	40.0	41.9	105	80	120
Copper	40.0	43.0	108	80	120
Iron	200	219	110	80	120
Potassium	400	392	98	80	120
Magnesium	400	416	104	80	120
Manganese	20.0	21.2	106	80	120
Sodium	400	409	102	80	120
Nickel	100	107	107	80	120
Lead	2.00	2.06	103	85	115
Antimony	200	214	107	80	120
Selenium	5.00	4.54	91	85	115
Thallium	2.00	1.83	92	85	115
Vanadium	100	105	105	80	120
Zinc	20.0	22.7	114	80	120
Mercury	0.167	0.161	96	80	120

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits

Metals Laboratory Control Sample

9808-978.MQCLCS

000049

3781070

SOLID MATRIX SPIKE
METALS

Lab Name Environmental Testing and Consulting, Inc

	QC Batch	
Laboratory ID MS ICP/GFAA Metals	9808-978-04	V8-SO-06
Laboratory ID MS Mercury	9808-978-04	V4-SO-30

Date Sample Prepared	09/01/98	ICP/GFAA Metals
	09/02/98	Mercury

Metals	SPIKE Added mg/Kg	SAMPLE Conc mg/Kg	MS Conc mg/Kg	RPD < 20% #	MS % Rec #	QC Limits	
Silver	20.1	ND	20.0	6	100	75	125
Aluminum	201	13100	16400	9	1642 *	75	125
Arsenic	5.03	10.3	15.5	0	103	70	130
Barium	201	125	329	8	102	75	125
Beryllium	20.1	0.545	20.9	9	101	75	125
Calcium	403	1740	2200	0	114	75	125
Cadmium	20.1	ND	20.3	7	101	75	125
Cobalt	101	9.55	111	6	100	75	125
Chromium	40.3	14.8	57.4	3	106	75	125
Copper	40.3	17.8	58.9	11	102	75	125
Iron	201	21700	23500	3	896 *	75	125
Potassium	403	975	1600	4	155 *	75	125
Magnesium	403	2430	3060	3	156 *	75	125
Manganese	20.1	784	733	4	-254 *	75	125
Sodium	403	65.5	466	12	99	75	125
Nickel	101	17.7	121	6	102	75	125
Lead	2.01	12.6	14.8	14	110	70	130
Antimony	201	ND	ND	0	*	75	125
Selenium	5.03	ND	2.69	15	54 *	70	130
Thallium	2.01	0.177	1.43	8	62 *	70	130
Vanadium	101	22.8	120	5	96	75	125
Zinc	20.1	67.9	88.0	3	100	75	125
Mercury	0.175	0.044	0.211	0	95	75	125

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits ND - Not Detected

Metals Matrix Spike

9808-978.MQCMSMSD

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3781071

SOLID MATRIX SPIKE DUPLICATE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP/GFAA Metals	9808-978-04	QC Batch V8-SO-06
Laboratory ID MS Mercury	9808-978-04	V4-SO-30

Date Sample Prepared	09/01/98	ICP/GFAA Metals
	09/02/98	Mercury

Metals	SPIKE Added mg/Kg	SAMPLE Conc mg/Kg	MSD Conc mg/Kg		MSD % Rec	#	QC Limits	
Silver	21.7	ND	21.2		98		75	125
Aluminum	217	13100	15000		876	*	75	125
Arsenic	5.23	10.3	15.5		99		70	130
Barium	217	125	355		106		75	125
Beryllium	21.7	0.545	22.9		103		75	125
Calcium	435	1740	2210		108		75	125
Cadmium	21.7	ND	21.7		100		75	125
Cobalt	109	9.55	118		100		75	125
Chromium	43.5	14.8	58.9		101		75	125
Copper	43.5	17.3	65.7		111		75	125
Iron	217	21900	22800		415	*	75	125
Potassium	435	975	1530		128	*	75	125
Magnesium	435	2430	2960		122		75	125
Manganese	21.7	784	707		-355	*	75	125
Sodium	435	65.5	527		106		75	125
Nickel	109	17.7	129		102		75	125
Lead	2.09	12.6	17.1		215	*	70	130
Antimony	217	ND	ND			*	75	125
Selenium	5.23	ND	3.14		60	*	70	130
Thallium	2.09	0.177	1.32		55	*	70	130
Vanadium	109	22.8	126		95		75	125
Zinc	21.7	67.9	85.8		83		75	125
Mercury	0.169	0.044	0.202		94		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

9808-978.MQCMSMSD

000051

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

3781072

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-978

HOLDING TIMES

QC Batch(s) for this order : ICP/GFAA V11-AQ-54
Mercury V4-AQ-35

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

9808-978.MQCBLANK

Method Blank

V11-AQ-54BLK - ICP/GFAA Metals
V4-AQ-35BLK - Mercury

No analytes detected in the method Blank.

9808-978.MQCLCS

Laboratory Control Sample(s)

V11-AQ-54LCS - ICP/GFAA Metals
V4-AQ-35LCS - Mercury

All criteria met.

9808-978.MQCMSMSD

Matrix Spike / Matrix Spike Dup - ICP Metals

9808-978-05 RPD : All analytes within QC limits.
RA-A-EQ-004-CS Spike Recovery : All analytes within QC limits.

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

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3781073

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 # : 9808-978

QUALITY CONTROL

Matrix Spike / Matrix Spike Dup - Graphite Metals

9808-978-05 RPD : All analytes within QC limits.
RA-A-EQ-004-CS Spike Recovery : All analytes within QC limits.

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

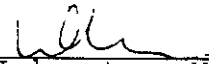
Matrix Spike / Matrix Spike Dup - Hg

9808-953-01 RPD : All analytes within QC limits.
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

000053

3781074

AQUEOUS METHOD BLANK
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID ICP/GFAA Metals V11-AQ-54 BLK QC Batch V11-AQ-54
Laboratory ID Mercury V4-AQ-35 BLK V4-AQ-35

Date Sample Prepared 09/01/98 ICP/GFAA Metals
09/01/98 Mercury

Metals	Concentration mg/L	Detection Limit mg/L	Date Analyzed	Method
Silver	<0.009	0.009	09/02/98	6010B
Aluminum	<0.060	0.060	09/02/98	6010B
Arsenic	<0.003	0.003	09/01/98	7060A
Barium	<0.003	0.003	09/02/98	6010B
Beryllium	<0.002	0.002	09/02/98	6010B
Calcium	<0.015	0.015	09/02/98	6010B
Cadmium	<0.005	0.005	09/02/98	6010B
Cobalt	<0.009	0.009	09/02/98	6010B
Chromium	<0.009	0.009	09/02/98	6010B
Copper	<0.008	0.008	09/02/98	6010B
Iron	<0.009	0.009	09/02/98	6010B
Potassium	<0.250	0.250	09/02/98	6010B
Magnesium	<0.040	0.040	09/02/98	6010B
Manganese	<0.003	0.003	09/02/98	6010B
Sodium	<0.050	0.050	09/02/98	6010B
Nickel	<0.020	0.020	09/02/98	6010B
Lead	<0.002	0.002	09/02/98	7421
Antimony	<0.040	0.040	09/02/98	6010B
Selenium	<0.003	0.003	09/01/98	7740
Thallium	<0.002	0.002	09/03/98	7841
Vanadium	<0.010	0.010	09/02/98	6010B
Zinc	<0.010	0.010	09/02/98	6010B
Mercury	<0.0002	0.0002	09/01/98	7470A

Metals Blank

9808-978 mqcBLANK

000054

3781075

AQUEOUS LABORATORY CONTROL SAMPLE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory Control ID ICP/GFAA Metals V11-AQ-54 LCS QC Batch
Mercury V4-AQ-35 LCS V11-AQ-54
V4-AQ-35

Date Prepared ICP/GFAA Metals 09/01/98
Mercury 09/01/98

Metals	Spike Added mg/L	Found mg/L	% R	#	QC Limits
Silver	0.250	0.247	99	80	120
Aluminum	2.50	2.47	99	80	120
Arsenic	0.063	0.056	89	85	115
Barium	2.50	2.44	98	80	120
Beryllium	0.250	0.249	100	80	120
Calcium	5.00	5.25	105	80	120
Cadmium	0.250	0.260	104	80	120
Cobalt	1.25	1.28	102	80	120
Chromium	0.500	0.511	102	80	120
Copper	0.500	0.500	100	80	120
Iron	2.50	2.60	104	80	120
Potassium	5.00	4.68	94	80	120
Magnesium	5.00	5.03	101	80	120
Manganese	0.250	0.259	104	80	120
Sodium	5.00	4.99	100	80	120
Nickel	1.25	1.30	104	80	120
Lead	0.025	0.025	100	85	115
Antimony	2.50	2.59	104	80	120
Selenium	0.063	0.058	92	85	115
Thallium	0.025	0.023	92	85	115
Vanadium	1.25	1.28	102	80	120
Zinc	0.250	0.254	102	80	120
Mercury	0.0050	0.0053	106	80	120

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

Metals Laboratory Control Sample

9808-978 mqcLCS

000055

AQUEOUS MATRIX SPIKE
METALS

3781076

Lab Name Environmental Testing and Consulting, Inc

		QC Batch
Laboratory ID MS ICP/GFAA Metals	9808-978-05	V11-AQ-54
Laboratory ID MS Mercury	9808-953-01	V4-AQ-35

Date Sample Prepared	09/01/98	ICP/GFAA Metals
	09/01/98	Mercury

Metals	SPIKE Added mg/L	SAMPLE Conc mg/L	MS Conc mg/L	RPD <20% #	MS % Rec #	QC Limits	
Silver	0.250	ND	0.257	2	103	75	125
Aluminum	2.50	ND	2.58	0	103	75	125
Arsenic	0.063	ND	0.056	4	89	85	115
Barium	2.50	ND	2.58	2	103	75	125
Beryllium	0.250	ND	0.259	1	104	75	125
Calcium	5.00	0.066	5.49	1	109	75	125
Cadmium	0.250	ND	0.265	1	106	75	125
Cobalt	1.25	ND	1.33	2	106	75	125
Chromium	0.500	ND	0.527	2	105	75	125
Copper	0.500	ND	0.529	2	106	75	125
Iron	2.50	0.018	2.71	1	108	75	125
Potassium	5.00	ND	5.19	6	104	75	125
Magnesium	5.00	ND	5.25	2	105	75	125
Manganese	0.250	ND	0.268	1	107	75	125
Sodium	5.00	0.152	5.32	0	103	75	125
Nickel	1.25	ND	1.34	1	107	75	125
Lead	0.025	ND	0.025	4	100	85	115
Antimony	2.50	ND	2.73	4	109	75	125
Selenium	0.063	ND	0.058	2	92	85	115
Thallium	0.025	ND	0.024	0	96	85	115
Vanadium	1.25	ND	1.33	2	106	75	125
Zinc	0.250	ND	0.269	3	108	75	125
Mercury	0.0050	ND	0.0054	0	108	75	125

Column to be used to flag recovery values with an asterisk
 * Values outside of QC limits ND - Not Detected

Metals Matrix Spike

9808-978 mqcMSMSD

000056

3781077

AQUEOUS MATRIX SPIKE DUPLICATE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP/GFAA Metals	9808-978-05	QC Batch V11-AQ-54
Laboratory ID MS Mercury	9808-953-01	V4-AQ-35

Date Sample Prepared	09/01/98	ICP/GFAA Metals
	09/01/98	Mercury

Metals	SPIKE Added mg/L	SAMPLE Conc mg/L	MSD Conc mg/L	MSD % Rec	#	QC Limits	
Silver	0.250	ND	0.252	101		75	125
Aluminum	2.50	ND	2.58	103		75	125
Arsenic	0.063	ND	0.054	86		85	115
Barium	2.50	ND	2.52	101		75	125
Beryllium	0.250	ND	0.257	103		75	125
Calcium	5.00	0.066	5.43	107		75	125
Cadmium	0.250	ND	0.263	105		75	125
Cobalt	1.25	ND	1.31	105		75	125
Chromium	0.500	ND	0.516	103		75	125
Copper	0.500	ND	0.517	103		75	125
Iron	2.50	0.018	2.68	107		75	125
Potassium	5.00	ND	4.87	97		75	125
Magnesium	5.00	ND	5.17	103		75	125
Manganese	0.250	ND	0.265	106		75	125
Sodium	5.00	0.152	5.34	104		75	125
Nickel	1.25	ND	1.33	106		75	125
Lead	0.025	ND	0.024	96		85	115
Antimony	2.50	ND	2.63	105		75	125
Selenium	0.063	ND	0.057	91		85	115
Thallium	0.025	ND	0.024	96		85	115
Vanadium	1.25	ND	1.31	105		75	125
Zinc	0.250	ND	0.262	105		75	125
Mercury	0.0050	ND	0.0054	108		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

9808-978 mqcMSMSD

000057

3781078

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC/MS Semi-Volatiles

000058

3781079

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - SOIL

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN

ETC Order # : 9808-978
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
P04028 P04028LB

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

Surrogate recovery for Nitrobenzene-d5 was flagged for high recovery in sample 9808-978-01(RA-A-009). Review of extraction information and the raw data showed no obvious matrix interference. This sample was re-analyzed for verification with similar recoveries.

Surrogate recoveries for Nitrobenzene-d5 and 2-Fluorobiphenyl were flagged for high recovery in P04028BS associated with this project. P04028BS was re-analyzed for verification with similar recoveries.

Laboratory Control Sample FORM 3
P04028BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9808-978-04 RPD : All analytes within QC limits.
RA-B-012 Spike Recovery : All analytes within QC limits.

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

Method Blank FORM 4
P04028LB

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
Calibration Verification : All criteria met. FORM 7*
*

Benzidine for Calibration Verification 09/02/98 was flagged with a percent difference >30.0%. This analyte was not a Target Analyte associated with this project. The data was not affected.

Terphenyl-d14 (Surrogate) was flagged with a low response indicating that the reported recovery for this analyte may be slightly biased low.

000059

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - SOIL

3781080

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN

ETC Order # : 9808-978
Method (SW-846) : 8270C/3550B

CALIBRATION

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

000060

3781081

FORM 2
SOIL BNA-GCMS SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-978

Level: (low/med) LOW

	CLIENT SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	S7 #	S8 #	TOT OUT
01	P04028LB	0	0	69	80	0	82			0
02	P04028BS	0	0	85*	102*	0	104			2
03	9808-978-1	0	0	83*	80	0	77			1
04	9808-978-2	0	0	76	84	0	84			0
05	9808-978-3	0	0	70	65	0	61			0
06	9808-978-4	0	0	77	72	0	71			0
07	9808-978-4M	0	0	74	83	0	78			0
08	P04028BS	0	0	86*	103*	0	99			2
09	9808-978-1	0	0	83*	81	0	76			1
10	9808-978-4S	0	0	71	82	0	81			0
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S1 (2FP) = 2-Fluorophenol
 S2 (PHL) = Phenol-d6
 S3 (NBZ) = Nitrobenzene-d5
 S4 (FBP) = 2-Fluorobiphenyl
 S5 (TBP) = 2,4,6-Tribromophenol
 S6 (TPH) = Terphenyl-d14

QC LIMITS

(0- 0)
 (0- 0)
 (39- 80)
 (43- 84)
 (0- 0)
 (40-121)

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

000061

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

3781082

CLIENT SAMPLE NO

P04028LB

Lab Name: ETC, INC.

Lab Prep Batch: P04028

Lab File ID: 1001011

Matrix: (soil/water) SOIL

Level:(low/med) LOW

SDG No.: 9808-978

Instrument ID: BNA2

Date Analyzed: 09/01/98

Time Analyzed: 1740

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

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P04028BS		1101012	09/01/98
02	9808-978-1		1201013	09/01/98
03	9808-978-2		1301014	09/01/98
04	9808-978-3		1401015	09/01/98
05	9808-978-4		1501016	09/01/98
06	9808-978-4M		1601018	09/01/98
07	P04028BS		1101019	09/01/98
08	9808-978-1		1201020	09/01/98
09	9808-978-4S		0301003	09/02/98
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COMMENTS:

3781083

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

P04028LB

Lab Name: ETC, INC.

SDG No.: 9808-978

Matrix: (soil/water) SOIL

Lab Prep Batch: P04028

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

Lab File ID: 1001011

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 09/01/98

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	66.7	U	
208-96-8-----	Acenaphthylene	66.7	U	
120-12-7-----	Anthracene	66.7	U	
56-55-3-----	Benzo(a) Anthracene	66.7	U	
205-99-2-----	Benzo(b) fluoranthene	66.7	U	
207-08-9-----	Benzo(k) fluoranthene	66.7	U	
191-24-2-----	Benzo(g,h,i) perylene	66.7	U	
50-32-8-----	Benzo(a) pyrene	66.7	U	
218-01-9-----	Chrysene	66.7	U	
53-70-3-----	Dibenzo(a,h) anthracene	66.7	U	
206-44-0-----	Fluoranthene	66.7	U	
86-73-7-----	Fluorene	66.7	U	
193-39-5-----	Indeno(1,2,3-cd) pyrene	66.7	U	
91-57-6-----	2-Methylnaphthalene	66.7	U	
91-20-3-----	Naphthalene	66.7	U	
85-01-8-----	Phenanthrene	66.7	U	
129-00-0-----	Pyrene	66.7	U	

FORM I BNA-GCMS

000063

FORM 3
SOIL BNA-GCMS LABORATORY CONTROL SAMPLE

3781084

Lab Name: ETC, INC.

Lab Prep Batch: P04028

SDG No.: 9808-978

Matrix Spike - Sample No.: P04028BS

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
Acenaphthene	1670		1520	91	34-126
Acenaphthylene	1670		1720	103	62-123
Anthracene	1670		1520	91	68-124
Benzo(a)Anthracene	1670		1690	101	60-133
Benzo(b)fluoranthene	1670		1790	107	67-126
Benzo(k)fluoranthene	1670		2110	126	75-131
Benzo(g,h,i)perylene	1670		1550	93	53-137
Benzo(a)pyrene	1670		1820	109	68-129
Chrysene	1670		1440	86	67-131
Dibenzo(a,h)anthracene	1670		1500	90	51-138
Fluoranthene	1670		1670	100	71-132
Fluorene	1670		1630	98	65-126
Indeno(1,2,3-cd)pyrene	1670		1230	74	34-170
Naphthalene	1670		1400	84	62-113
Phenanthrene	1670		1600	96	66-128
Pyrene	1670		1660	99	33-155

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 16 outside limits

COMMENTS:

3781085

FORM 3
SOIL BNA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P04028

SDG No.: 9808-978

Matrix Spike - Sample No.: 9808-978-4

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Acenaphthene	1660	0.00	1250	75	34-126
Acenaphthylene	1660	0.00	1390	84	62-123
Anthracene	1660	0.00	1240	75	68-124
Benzo(a)Anthracene	1660	61.2	1410	81	60-133
Benzo(b)fluoranthene	1660	0.00	1450	87	67-126
Benzo(k)fluoranthene	1660	0.00	1710	103	75-131
Benzo(g,h,i)perylene	1660	0.00	1140	69	53-137
Benzo(a)pyrene	1660	0.00	1440	87	68-129
Chrysene	1660	82.4	1280	72	67-131
Dibenzo(a,h)anthracene	1660	0.00	1120	67	51-138
Fluoranthene	1660	124	1440	79	71-132
Fluorene	1660	0.00	1300	78	65-126
Indeno(1,2,3-cd)pyrene	1660	0.00	959	58	34-170
Naphthalene	1660	0.00	1120	67	62-113
Phenanthrene	1660	51.0	1340	78	66-128
Pyrene	1660	102	1400	78	33-155

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

COMMENTS:

FORM 3
SOIL BNA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

3781086

Lab Name: ETC, INC.

Lab Prep Batch: P04028

SDG No.: 9808-978

Matrix Spike - Sample No.: 9808-978-4

Level:(low/méd) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Acenaphthene	1630	1210	74	1	20	34-126
Acenaphthylene	1630	1360	83	1	20	62-123
Anthracene	1630	1200	74	1	20	68-124
Benzo(a)Anthracene	1630	1420	83	2	20	60-133
Benzo(b)fluoranthene	1630	1490	91	4	20	67-126
Benzo(k)fluoranthene	1630	1850	113	9	20	75-131
Benzo(g,h,i)perylene	1630	1240	76	10	20	53-137
Benzo(a)pyrene	1630	1520	93	7	20	68-129
Chrysene	1630	1220	70	3	20	67-131
Dibenzo(a,h)anthracene	1630	996	61	9	20	51-138
Fluoranthene	1630	1560	88	11	20	71-132
Fluorene	1630	1320	81	4	20	65-126
Indeno(1,2,3-cd)pyrene	1630	919	56	4	20	34-170
Naphthalene	1630	1130	69	3	20	62-113
Phenanthrene	1630	1350	80	2	20	66-128
Pyrene	1630	1470	84	7	20	33-155

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

RPD: 0 out of 16 outside limits

Spike Recovery: 0 out of 32 outside limits

COMMENTS:

3781087

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - AQUEOUS

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN

ETC Order # : 9808-978
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
P05034 P05034LB

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

*
Surrogate recoveries for Nitrobenzene-d5 were flagged for high recovery in P05034LB and P05034BD associated with this project.

Surrogate recoveries for 2-Fluorobiphenyl were flagged for high recovery in P05034BS and P05034BD associated with this project.

Laboratory Control Sample FORM 3
P05034BS/BD

All criteria met.*

*
RPD for Indeno(1,2,3-cd)pyrene was flagged as outside QC Limits due to higher recovery in the Blank Spike Duplicate. BS/BD recoveries were within QC Limits.

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
P05034LB

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
Calibration Verification : All criteria met. FORM 7*

*
Benzidine for Calibration Verification 09/02/98 was flagged with a percent difference >30.0%. This analyte was not a Target Analyte associated with this project. The data was not affected.

000067

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - AQUEOUS

3781088

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN

ETC Order # : 9808-978
Method (SW-846) : 8270C/3510C

CALIBRATION

Terphenyl-d14 (Surrogate) was flagged with a low response indicating that the reported recovery for this analyte may be slightly biased low.

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

000068

3781089

FORM 2
WATER BNA-GCMS SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-978

	CLIENT SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	S7 #	S8 #	TOT OUT
01	P05034LB	0	0	91*	77	0	71			1
02	P05034BS	0	0	84	90*	0	85			1
03	P05034BD	0	0	91*	97*	0	97			2
04	9808-978-5	0	0	84	82	0	87			0
05										
06										
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QC LIMITS

S1 (2FP) = 2-Fluorophenol (0- 0)
 S2 (PHL) = Phenol-d6 (0- 0)
 S3 (NBZ) = Nitrobenzene-d5 (35- 85)
 S4 (FBP) = 2-Fluorobiphenyl (46- 84)
 S5 (TBP) = 2,4,6-Tribromophenol (0- 0)
 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

000069

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

CLIENT SAMPLE NO

3781090

P05034LB

Lab Name: ETC, INC.

Lab Prep Batch: P05034

Lab File ID: 0701008

Matrix: (soil/water) WATER

Level:(low/med) LOW

SDG NO.: 9808-978

Instrument ID: BNA2

Date Analyzed: 09/01/98

Time Analyzed: 1607

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

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P05034BS		0801009	09/01/98
02	P05034BD		0901010	09/01/98
03	9808-978-5		0801008	09/02/98
04				
05				
06				
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COMMENTS:

3781091

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: ETC, INC.

P05034LB

SDG No.: 9808-978

Matrix: (soil/water) WATER

Lab Prep Batch: P05034

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

Lab File ID: 0701008

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 09/01/98

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	2.0	U
208-96-8-----	Acenaphthylene	2.0	U
120-12-7-----	Anthracene	2.0	U
56-55-3-----	Benzo(a) Anthracene	2.0	U
205-99-2-----	Benzo(b) fluoranthene	2.0	U
207-08-9-----	Benzo(k) fluoranthene	2.0	U
191-24-2-----	Benzo(g,h,i) perylene	2.0	U
50-32-8-----	Benzo(a) pyrene	2.0	U
218-01-9-----	Chrysene	2.0	U
53-70-3-----	Dibenzo(a,h) anthracene	2.0	U
206-44-0-----	Fluoranthene	2.0	U
86-73-7-----	Fluorene	2.0	U
193-39-5-----	Indeno(1,2,3-cd) pyrene	2.0	U
91-57-6-----	2-Methylnaphthalene	2.0	U
91-20-3-----	Naphthalene	2.0	U
85-01-8-----	Phenanthrene	2.0	U
129-00-0-----	Pyrene	2.0	U

FORM 1 BNA-GCMS

000071

FORM 3
WATER BNA-GCMS LABORATORY CONTROL SAMPLE

3781092

Lab Name: ETC, INC.

Lab Prep Batch: P05034

SDG No.: 9808-978

Matrix Spike - Sample No.: P05034BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
Acenaphthene	50.0		39.2	78	37-123
Acenaphthylene	50.0		44.4	89	67-118
Anthracene	50.0		38.7	77	68-124
Benzo(a)Anthracene	50.0		43.2	86	69-125
Benzo(b)fluoranthene	50.0		45.3	91	68-127
Benzo(k)fluoranthene	50.0		52.8	106	73-128
Benzo(g,h,i)perylene	50.0		39.8	80	53-138
Benzo(a)pyrene	50.0		45.4	91	73-125
Chrysene	50.0		35.9	72	70-124
Dibenzo(a,h)anthracene	50.0		38.6	77	57-136
Fluoranthene	50.0		42.8	86	55-135
Fluorene	50.0		43.1	86	66-121
Indeno(1,2,3-cd)pyrene	50.0		31.9	64	57-140
Naphthalene	50.0		34.3	69	55-113
Phenanthrene	50.0		41.1	82	65-126
Pyrene	50.0		42.1	84	40-149

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

COMMENTS: _____

3781093

FORM 3
WATER BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P05034

SDG No.: 9808-978

Matrix Spike - Sample No.: P05034BD

COMPOUND	SPIKE ADDED (ug/L)	BD CONCENTRATION (ug/L)	BD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Acenaphthene	50.0	44.0	88	12	20	37-123
Acenaphthylene	50.0	50.3	101	13	20	67-118
Anthracene	50.0	44.5	89	14	20	68-124
Benzo(a)Anthracene	50.0	50.3	101	16	20	69-125
Benzo(b)fluoranthene	50.0	51.3	103	12	20	68-127
Benzo(k)fluoranthene	50.0	61.2	122	14	20	73-128
Benzo(g,h,i)perylene	50.0	47.4	95	17	20	53-138
Benzo(a)pyrene	50.0	54.1	108	17	20	73-125
Chrysene	50.0	40.5	81	12	20	70-124
Dibenzo(a,h)anthracene	50.0	46.6	93	19	20	57-136
Fluoranthene	50.0	47.8	96	11	20	55-135
Fluorene	50.0	47.6	95	10	20	66-121
Indeno(1,2,3-cd)pyrene	50.0	39.3	79	21*	20	57-140
Naphthalene	50.0	38.6	77	11	20	55-113
Phenanthrene	50.0	46.8	94	14	20	65-126
Pyrene	50.0	47.2	94	11	20	40-149

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

RPD: 1 out of 16 outside limits
 Spike Recovery: 0 out of 32 outside limits

COMMENTS:

000073

3781094

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC Pesticides

000074

3781095

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

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-978
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
P06014 P06014LB

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

Surrogate recovery for Decachlorobiphenyl was flagged as outside
QC Limits in sample 9808-978-04(RA-B-012). Surrogate recovery for
Tetrachloro-m-xylene was within QC Limits.

Laboratory Control Sample FORM 3
P06014BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9808-978-04 RPD : All analytes within QC limits.
RA-B-012 Spike Recovery : All analytes within QC limits.

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

Method Blank FORM 4
P06014LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

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

Calibration Verification(CV) : P309041B.19R (Primary)

Analyte	%Diff(15% Max)	Response
Tetrachloro-m-xylene	16.5	Low

Low response indicates that reported levels for this analyte may be
biased low. Surrogate recoveries for Tetrachloro-m-xylene were within
QC Limits for all samples associated with this project. The data was
not affected.

000075

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

3781096

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-978
Method (SW-846) : 8081A/3550B

CALIBRATION

Calibration Verification(CV) : P309041B.20R (Primary)

Analyte	%Diff(15% Max)	Response
Tetrachloro-m-xylene	17.5	Low

Low response indicates that reported levels for this analyte may be biased low. Surrogate recoveries for Tetrachloro-m-xylene were within QC Limits for all samples associated with this project. The data was not affected.

Calibration Verification(CV) : P309041B.21R (Primary - Chlordane)

Analyte	%Diff(15% Max)	Response
Tetrachloro-m-xylene	16.4	High

High response indicates that reported levels for this analyte may be biased high. Surrogate recoveries for Tetrachloro-m-xylene were within QC Limits for all samples associated with this project. The data was not affected.

Calibration Verification(CV) : P309041B.28R (Primary)

Analyte	%Diff(15% Max)	Response
Decachlorobiphenyl	17.0	Low

Low response indicates that reported levels for this analyte may be biased low. Surrogate recoveries for Tetrachloro-m-xylene were within QC Limits for all samples associated with this project. The data was not affected.

Calibration Verification(CV) : P309041B.29R (Primary)

Analyte	%Diff(15% Max)	Response
Tetrachloro-m-xylene	18.0	Low
Decachlorobiphenyl	18.0	Low

Low responses indicate that reported levels for these analytes may be biased low. Surrogate recoveries for Tetrachloro-m-xylene were within QC Limits for all samples associated with this project. The data was not affected.

Calibration Verification(CV) : P109071B.20R (Primary)

Analyte	%Diff(15% Max)	Response
4,4'-DDT	29.5	High
Endosulfan I	19.0	High
Endosulfan II	24.0	High
Endosulfan sulfate	22.0	High
Endrin aldehyde	50.5	High
Endrin ketone	27.5	High
Heptachlor	25.0	High
Methoxychlor	40.5	High

000076

3781097

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

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN

ETC Order # : 9808-978
Method (SW-846) : 8081A/3550B

CALIBRATION

High recoveries for these analytes indicate that reported levels may be biased high. P06014LB and P06014BS were the only samples associated with this CV. Recoveries in P06014BS were within QC Limits. The data was not affected.

Calibration Verification(CV) : P109071B.21R (Primary)

Analyte	%Diff(15% Max)	Response
delta-BHC	17.0	High
alpha-chlordane	17.0	High
gamma-chlordane	18.0	High
4,4'-DDD	21.5	High
4,4'-DDE	16.0	High
4,4'-DDT	42.0	High
Dieldrin	18.0	High
Endosulfan I	24.5	High
Endosulfan II	33.0	High
Endosulfan sulfate	34.0	High
Endrin	16.0	High
Endrin aldehyde	70.0	High
Endrin ketone	38.5	High
Heptachlor	29.0	High
Heptachlor epoxide	15.5	High
Methoxychlor	56.0	High

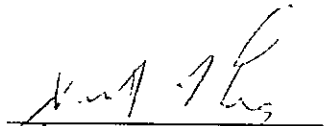
High recoveries for these analytes indicate that reported levels may be biased high. P06014LB and P06014BS were the only samples associated with this CV. Recoveries in P06014BS were within QC Limits. The data was not affected.

SAMPLE ANALYSIS

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

*
Dilutions were performed on samples associated with this order to bring the Target Analyte(s) within calibration range.

<u>Sample ID</u>	<u>Dilutions Performed</u>
9808-978-01	1:10,100
9808-978-02	1:10,100
9808-978-03	1:10,100


Laboratory Manager

J000077

FORM 2
SOIL PESTICIDE SURROGATE RECOVERY

3781098

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-978

Level: (low/med) LOW

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	9808-978-4	60	59*							1
02	9808-978-4M	31	41							0
03	9808-978-4S	36	44							0
04	9808-978-1	78	110							0
05	9808-978-2	78	124							0
06	9808-978-3	71	100							0
07	P06014LB	68	89							0
08	P06014BS	80	98							0
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

000078

3781099

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

P06014LB

Lab Prep Batch: P06014

SDG No.: 9808-978

Lab File ID: P309041B-23R

Instrument ID: PEST3B

Matrix: (soil/water) SOIL

Date Analyzed: 09/04/98

Level:(low/med) LOW

Time Analyzed: 1956

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	9808-978-4		P309041B-12R	09/04/98
02	9808-978-4M		P309041B-14R	09/04/98
03	9808-978-4S		P309041B-15R	09/04/98
04	9808-978-1		P309041B-16R	09/04/98
05	9808-978-2		P309041B-17R	09/04/98
06	9808-978-3		P309041B-18R	09/04/98
07	P06014BS		P109071A-10R	09/07/98
08				
09				
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COMMENTS:

J00079

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

3781100

EPA GC SAMPLE NO.

P06014LB

Lab Name: ETC, INC.

SDG No.: 9808-978

Matrix: (soil/water) SOIL

Lab Prep Batch: P06014

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

Lab File ID: P309041B-23R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10 (mL)

Date Analyzed: 09/04/98

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	1.33	U
319-84-6-----	alpha-BHC	1.33	U
319-85-7-----	beta-BHC	1.33	U
319-86-8-----	delta-BHC	1.33	U
58-89-9-----	gamma-BHC	1.33	U
5103-71-9-----	alpha-chlordane	1.33	U
5103-74-2-----	gamma-chlordane	1.33	U
72-54-8-----	4,4'-DDD	1.33	U
72-55-9-----	4,4'-DDE	1.33	U
50-29-3-----	4,4'-DDT	1.33	U
60-57-1-----	Dieldrin	1.33	U
959-98-8-----	Endosulfan I	1.33	U
33213-65-9-----	Endosulfan II	1.33	U
1031-07-8-----	Endosulfan sulfate	1.33	U
72-20-8-----	Endrin	1.33	U
7421-93-4-----	Endrin aldehyde	1.33	U
53494-70-5-----	Endrin ketone	1.33	U
76-44-8-----	Heptachlor	1.33	U
1024-57-3-----	Heptachlor epoxide	1.33	U
72-43-5-----	Methoxychlor	1.33	U
57-74-9-----	Chlordane, Total	8.33	U
8001-35-2-----	Toxaphene	83.33	U

FORM I PESTICIDE

000080

3781101

FORM 3
SOIL PESTICIDE LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P06014

SDG No.: 9808-978

Matrix Spike - Sample No.: P06014BS

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
Aldrin	33.33		29.17	88	31-111
alpha-BHC	33.33		31.13	93	22-112
beta-BHC	33.33		32.06	96	54-120
delta-BHC	33.33		29.42	88	10- 96
gamma-BHC	33.33		29.49	88	26-113
alpha-chlordane	33.33		32.86	98	49-103
gamma-chlordane	33.33		33.15	99	50-106
4,4'-DDD	33.33		33.16	99	47-112
4,4'-DDE	33.33		31.58	95	36-117
4,4'-DDT	33.33		39.52	118	49-124
Dieldrin	33.33		32.28	97	44-108
Endosulfan I	33.33		32.88	99	49-103
Endosulfan II	33.33		35.29	106	53-115
Endosulfan sulfate	33.33		34.20	103	51-110
Endrin	33.33		34.45	103	44-118
Endrin aldehyde	33.33		34.91	105	48-128
Endrin ketone	33.33		37.93	114	38-130
Heptachlor	33.33		34.32	103	47-113
Heptachlor epoxide	33.33		31.93	96	47-112
Methoxychlor	33.33		40.92	123	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 20 outside limits

COMMENTS:

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P06014

3781102

SDG No.: 9808-978

Matrix Spike - Sample No.: 9808-978-4

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	M CONCENTRATION (ug/Kg)	M % REC #	QC. LIMITS REC.
Aldrin	32.57		26.84	82	31-111
alpha-BHC	32.57		24.44	75	22-112
beta-BHC	32.57		33.58	103	54-120
delta-BHC	32.57		23.67	73	10- 96
gamma-BHC	32.57		26.40	81	26-113
alpha-chlordane	32.57		30.36	93	49-103
gamma-chlordane	32.57		30.08	92	50-106
4,4'-DDD	32.57		32.69	100	47-112
4,4'-DDE	32.57		31.20	96	36-117
4,4'-DDT	32.57		36.93	113	49-124
Dieldrin	32.57		31.34	96	44-108
Endosulfan I	32.57		30.64	94	49-103
Endosulfan II	32.57		31.74	97	53-115
Endosulfan sulfate	32.57		30.66	94	51-110
Endrin	32.57		35.65	109	44-118
Endrin aldehyde	32.57		36.34	112	48-128
Endrin ketone	32.57		32.92	101	38-130
Heptachlor	32.57		27.70	85	47-113
Heptachlor epoxide	32.57		29.37	90	47-112
Methoxychlor	32.57		36.92	113	39-147

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

COMMENTS: _____

3781103

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P06014

SDG No.: 9808-978

Matrix Spike - Sample No.: 9808-978-4

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	S CONCENTRATION (ug/Kg)	S % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Aldrin	32.47	28.74	88	7	20	31-111
alpha-BHC	32.47	26.04	80	6	20	22-112
beta-BHC	32.47	33.83	104	1	20	54-120
delta-BHC	32.47	23.62	73	0	20	10- 96
gamma-BHC	32.47	27.80	86	6	20	26-113
alpha-chlordane	32.47	30.49	94	1	20	49-103
gamma-chlordane	32.47	30.64	94	2	20	50-106
4,4'-DDD	32.47	31.44	97	3	20	47-112
4,4'-DDE	32.47	31.36	96	0	20	36-117
4,4'-DDT	32.47	36.23	112	1	20	49-124
Dieldrin	32.47	31.56	97	1	20	44-108
Endosulfan I	32.47	31.05	96	2	20	49-103
Endosulfan II	32.47	30.44	94	3	20	53-115
Endosulfan sulfate	32.47	29.54	91	3	20	51-110
Endrin	32.47	35.44	109	0	20	44-118
Endrin aldehyde	32.47	34.35	106	6	20	48-128
Endrin ketone	32.47	31.83	98	3	20	38-130
Heptachlor	32.47	28.83	89	4	20	47-113
Heptachlor epoxide	32.47	29.58	91	1	20	47-112
Methoxychlor	32.47	35.58	110	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 20 outside limits
 Spike Recovery: 0 out of 40 outside limits

COMMENTS:

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

3781104

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN
ETC Order # : 9808-978
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
P07014 P07014LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P07014BS/BD

All criteria met.*

*

Recoveries for Endrin ketone were flagged for high recovery in P07014BS/BD. High recovery indicates that detection levels were not affected. This analyte was not identified in the sample associated with this project. The data was not affected.

Recovery for delta-BHC was flagged for high recovery in P07014BD. High recovery indicates that detection levels were not affected. Recovery for delta-BHC was within QC Limits for P07014BS. 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
P07014LB

Endrin aldehyde identified in P07014LB at 0.0711 ug/L.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7
Endrin/Breakdown : All criteria met. FORM 7*

000084

3781105

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

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN

ETC Order # : 9808-978
Method (SW-846) : 8081A/3510C

CALIBRATION

*
Calibration Verification(CV) : P309041B.28R (Primary)

Analyte	%Diff(15% Max)	Response
Decachlorobiphenyl	17.0	Low

Low response indicates that reported levels for this analyte may be biased low. Surrogate recoveries for Tetrachloro-m-xylene were within QC Limits for all samples associated with this project. The data was not affected.

Calibration Verification(CV) : P309041B.29R (Primary)

Analyte	%Diff(15% Max)	Response
Tetrachloro-m-xylene	18.0	Low
Decachlorobiphenyl	18.0	Low

Low responses indicate that reported levels for these analytes may be biased low. Surrogate recoveries for Tetrachloro-m-xylene were within QC Limits for all samples associated with this project. The data was not affected.

SAMPLE ANALYSIS

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


Laboratory Manager

000085

FORM 2
WATER PESTICIDE SURROGATE RECOVERY

3781106

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-978

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P07014LB	60	52							0
02	9808-978-5	81	35							0
03	P07014BS	66	37							0
04	P07014BD	64	71							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

000086

3781107

FORM 4
PESTICIDE METHOD BLANK SUMMARY

EPA GC SAMPLE NO

Lab Name: ETC, INC.

P07014LB

Lab Prep Batch: P07014

SDG No.: 9808-978

Lab File ID: P309041A-22R

Instrument ID: PEST3A

Matrix: (soil/water) WATER

Date Analyzed: 09/04/98

Level: (low/med) LOW

Time Analyzed: 1925

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	9808-978-5		P309041A-27R	09/04/98
02	P07014BS		P109071A-11R	09/07/98
03	P07014BD		P109071A-12R	09/07/98
04				
05				
06				
07				
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COMMENTS:

000087

FORM 1 **3781108**
 PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

P07014LB

Lab Name: ETC, INC.

SDG No.: 9808-978

Matrix: (soil/water) WATER

Lab Prep Batch: P07014

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

Lab File ID: P309041B-22R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10 (mL)

Date Analyzed: 09/04/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

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

309-00-2-----	Aldrin	0.0400	U
319-84-6-----	alpha-BHC	0.0400	U
319-85-7-----	beta-BHC	0.0400	U
319-86-8-----	delta-BHC	0.0400	U
58-89-9-----	gamma-BHC	0.0400	U
5103-71-9-----	alpha-chlordane	0.0400	U
5103-74-2-----	gamma-chlordane	0.0400	U
72-54-8-----	4,4'-DDD	0.0400	U
72-55-9-----	4,4'-DDE	0.0400	U
50-29-3-----	4,4'-DDT	0.0400	U
60-57-1-----	Dieldrin	0.0400	U
959-98-8-----	Endosulfan I	0.0400	U
33213-65-9-----	Endosulfan II	0.0400	U
1031-07-8-----	Endosulfan sulfate	0.0400	U
72-20-8-----	Endrin	0.0400	U
7421-93-4-----	Endrin aldehyde	0.0711	U
53494-70-5-----	Endrin ketone	0.0400	U
76-44-8-----	Heptachlor	0.0400	U
1024-57-3-----	Heptachlor epoxide	0.0400	U
72-43-5-----	Methoxychlor	0.0400	U
57-74-9-----	Chlordane, Total	0.250	U
8001-35-2-----	Toxaphene	2.50	U

FORM I PESTICIDE

000088

3781109

FORM 3
WATER PESTICIDE LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P07014

SDG No.: 9808-978

Matrix Spike - Sample No.: P07014BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
Aldrin	1.00		0.852	85	34-105
alpha-BHC	1.00		0.948	95	41-102
beta-BHC	1.00		1.02	102	26-151
delta-BHC	1.00		0.912	91	21- 92
gamma-BHC	1.00		0.907	91	41-102
alpha-chlordane	1.00		1.02	102	48-117
gamma-chlordane	1.00		1.03	103	50-108
4,4'-DDD	1.00		1.02	102	39-124
4,4'-DDE	1.00		0.972	97	41-111
4,4'-DDT	1.00		1.23	123	39-123
Dieldrin	1.00		1.01	101	42-111
Endosulfan I	1.00		1.04	104	48-117
Endosulfan II	1.00		1.11	111	52-114
Endosulfan sulfate	1.00		1.08	108	46-111
Endrin	1.00		1.07	107	45-117
Endrin aldehyde	1.00		1.18	118	48-125
Endrin ketone	1.00		1.18	118*	51-112
Heptachlor	1.00		0.992	99	43-114
Heptachlor epoxide	1.00		0.994	99	42-115
Methoxychlor	1.00		1.27	127	39-140

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

COMMENTS:

000089

FORM 3
WATER PESTICIDE LABORATORY CONTROL SAMPLE

3781110

Lab Name: ETC, INC.

Lab Prep Batch: P07014

SDG No.: 9808-978

Matrix Spike - Sample No.: P07014BD

COMPOUND	SPIKE ADDED (ug/L)	BD CONCENTRATION (ug/L)	BD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Aldrin	1.00	0.879	88	3	20	34-105
alpha-BHC	1.00	0.996	100	5	20	41-102
beta-BHC	1.00	1.07	107	5	20	26-151
delta-BHC	1.00	0.929	93*	2	20	21- 92
gamma-BHC	1.00	0.960	96	5	20	41-102
alpha-chlordane	1.00	1.05	105	3	20	48-117
gamma-chlordane	1.00	1.06	106	3	20	50-108
4,4'-DDD	1.00	1.02	102	0	20	39-124
4,4'-DDE	1.00	0.991	99	2	20	41-111
4,4'-DDT	1.00	1.22	122	1	20	39-123
Dieldrin	1.00	1.04	104	3	20	42-111
Endosulfan I	1.00	1.08	108	4	20	48-117
Endosulfan II	1.00	1.12	112	1	20	52-114
Endosulfan sulfate	1.00	1.08	108	0	20	46-111
Endrin	1.00	1.11	111	4	20	45-117
Endrin aldehyde	1.00	1.16	116	2	20	48-125
Endrin ketone	1.00	1.19	119*	1	20	51-112
Heptachlor	1.00	1.04	104	5	20	43-114
Heptachlor epoxide	1.00	1.03	103	4	20	42-115
Methoxychlor	1.00	1.26	126	1	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 20 outside limits
Spike Recovery: 3 out of 40 outside limits

COMMENTS:

3781111

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC PCBs

000091

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

3781112

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN

ETC Order # : 9808-978
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
P06014 P06014LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P06014BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9808-978-04 RPD : All analytes within QC limits.
RA-B-012 Spike Recovery : All analytes within QC limits.

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

Method Blank FORM 4
P06014LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7

SAMPLE ANALYSIS

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


Laboratory Manager

000092

3781113

FORM 2
SOIL PCB SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-978

Level: (low/med) LOW

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P06014LB	72	97							
02	P06014BS	73	100							0
03	9808-978-1	65	98							0
04	9808-978-2	59	106							0
05	9808-978-3	56	98							0
09	9808-978-4	75	103							0
06	9808-978-4M	60	98							0
07	9808-978-4S	69	95							0
08										0
09										
10										
11										
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26										

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

000093

FORM 4
PCB METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

3781114

P06014LB

Lab Name: ETC, INC.

Lab Prep Batch: P06014

Lab File ID: C209021A-11R

Matrix: (soil/water) SOIL

Level: (low/med) LOW

SDG No.: 9808-978

Instrument ID: PE8T2A

Date Analyzed: 09/02/98

Time Analyzed: 1858

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	=====	=====	=====	=====
01	P06014BS		C209021A-14R	09/02/98
02	9808-978-1		C209021A-30R	09/03/98
03	9808-978-2		C209021A-31R	09/03/98
04	9808-978-3		C209021A-34R	09/03/98
05	9808-978-4		C209021A-35R	09/03/98
06	9808-978-4M		C209021A-36R	09/03/98
07	9808-978-4S		C209021A-35R	09/03/98
08				
09				
10				
11				
12				
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COMMENTS:

3781115

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

P06014LB

Lab Name: ETC, INC.

SDG No.: 9808-978

Matrix: (soil/water) SOIL

Lab Prep Batch: P06014

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

Lab File ID: C209021A-11R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 09/02/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

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

000095

FORM 3
SOIL PCB LABORATORY CONTROL SAMPLE

3781116

Lab Name: ETC, INC.

Lab Prep Batch: P06014

SDG No.: 9808-978

Matrix Spike - Sample No.: P06014BS

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		291.6	87	25-125
Aroclor 1260	333.3		303.6	91	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

000096

3781117

FORM 3
SOIL PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P06014

SDG No.: C209021A

Matrix Spike - Sample No.: 9808-978-4

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Aroclor 1242	331.1	0.000	285.3	86	25-125
Aroclor 1260	331.1	0.000	286.8	87	25-125

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD REC.
Aroclor 1242	331.1	283.3	86	0	20 25-125
Aroclor 1260	331.1	283.8	86	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

000097

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

3781118

Client Name : OHM Remediation Services
Project Name : Defense Depot Memphis TN

ETC Order # : 9808-978
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
P09008 P09008LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P09008BS/BD

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
P09008LB

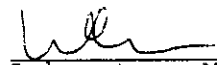
No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7

SAMPLE ANALYSIS

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


Laboratory Manager

000098

3781119

FORM 2
WATER PCB SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9808-978

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P09008LB	72	100							0
02	P09008BS	67	85							0
03	P09008LCSD	79	100							0
04	9808-978-5	72	51							0
05										
06										
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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

000099

FORM 4
PCB METHOD BLANK SUMMARY

3781120

EPA GC SAMPLE NO.

P09008LB

Lab Name: ETC, INC.

Lab Prep Batch: P09008

Lab File ID: C209021A-10R

Matrix: (soil/water) WATER

Level:(low/med) LOW

SDG No.: 9808-978

Instrument ID: PEST2A

Date Analyzed: 09/02/98

Time Analyzed: 1818

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P09008BS		C209021A-12R	09/02/98
02	P09008BD		C209021A-13R	09/02/98
03	9808-978-5		C209021A-15R	09/02/98
04				
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COMMENTS:

3781121

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

P09008LB

Lab Name: ETC, INC.

SDG No.: 9808-978

Matrix: (soil/water) WATER

Lab Prep Batch: P09008

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

Lab File ID: C209021A-10R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10 (mL)

Date Analyzed: 09/02/98

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

000101

FORM 3
WATER PCB LABORATORY CONTROL SAMPLE

3781122

Lab Name: ETC, INC.

Lab Prep Batch: P09008

SDG No.: 9808-978

Matrix Spike - Sample No.: P09008BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
Aroclor 1242	10.00		8.45	84	25-125
Aroclor 1260	10.00		9.29	93	25-125

COMPOUND	SPIKE ADDED (ug/L)	BD CONCENTRATION (ug/L)	BD % REC #	% RPD #	QC LIMITS RPD	REC.
Aroclor 1242	10.00	9.39	94	11	20	25-125
Aroclor 1260	10.00	9.51	95	2	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

000102

3781123

DISPOSAL CHARACTERIZATION SAMPLES

Date Collected 09/03/98

RA-A-035-DS

RA-A-036-DS

RA-A-037-DS



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

Founded 1972

3781124

September 11, 1998

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

Ref: Analytical Testing
ETC Order # 9809154
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 'Nathan A. Pera, IV', is written over a horizontal line.

Nathan A. Pera, IV
Chief Executive Officer

rt
Attachment

OHM_DDMT

3781125

Chemical Analytical Data
Review/Evaluation/Validation

SOUTHERN REGION

Report Type: ☐ Preliminary ☒ Final Date Received: 9/24/98 Project Number: 920500
 Project Name: DDMT Analysis/Method: TCLP/metals, VOA,
 Laboratory: ETC Lab Project/Case Number: BINA, PEST, Herb 9809, 54
 Sample Number(s): RA-A-035 DS, 236-DS, 037DS
TP-9-03-98
 Evaluated By: S. Paramey Date Evaluated: 9/25/98
 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:				

APR 24 1999
 (SP)

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:	N/A				
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	3	5	15	15	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. Pasayape
 Evaluator's Signature

9/25/98
 Date

3781127

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.
NC	Result reported from Primary Column. Result did not confirm.
*	QC Data (percent recovery/RPD for a particular analyte was outside QC Limits)

3781128

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>
980915401	RA-A-035-DS	SOIL	6010B	Silver - TCLP
980915401	RA-A-035-DS	SOIL	6010B	Arsenic - TCLP
980915401	RA-A-035-DS	SOIL	8270C	TCLP Semivolatiles
980915401	RA-A-035-DS	SOIL	6010B	Barium - TCLP
980915401	RA-A-035-DS	SOIL	6010B	Cadmium - TCLP
980915401	RA-A-035-DS	SOIL	6010B	Chromium - TCLP
980915401	RA-A-035-DS	SOIL	8151A	TCLP Herbicides
980915401	RA-A-035-DS	SOIL	7470A	Mercury - TCLP
980915401	RA-A-035-DS	SOIL	8081A	TCLP Pesticides
980915401	RA-A-035-DS	SOIL	6010B	Lead - TCLP
980915401	RA-A-035-DS	SOIL	6010B	Selenium - TCLP
980915401	RA-A-035-DS	SOIL	8260B	TCLP Volatile Organics
980915402	RA-A-036-DS	SOIL	6010B	Silver - TCLP
980915402	RA-A-036-DS	SOIL	6010B	Arsenic - TCLP
980915402	RA-A-036-DS	SOIL	8270C	TCLP Semivolatiles
980915402	RA-A-036-DS	SOIL	6010B	Barium - TCLP
980915402	RA-A-036-DS	SOIL	6010B	Cadmium - TCLP
980915402	RA-A-036-DS	SOIL	6010B	Chromium - TCLP
980915402	RA-A-036-DS	SOIL	8151A	TCLP Herbicides
980915402	RA-A-036-DS	SOIL	7470A	Mercury - TCLP
980915402	RA-A-036-DS	SOIL	8081A	TCLP Pesticides
980915402	RA-A-036-DS	SOIL	6010B	Lead - TCLP
980915402	RA-A-036-DS	SOIL	6010B	Selenium - TCLP
980915402	RA-A-036-DS	SOIL	8260B	TCLP Volatile Organics
980915403	RA-A-037-DS	SOIL	6010B	Silver - TCLP
980915403	RA-A-037-DS	SOIL	6010B	Arsenic - TCLP
980915403	RA-A-037-DS	SOIL	8270C	TCLP Semivolatiles
980915403	RA-A-037-DS	SOIL	6010B	Barium - TCLP
980915403	RA-A-037-DS	SOIL	6010B	Cadmium - TCLP
980915403	RA-A-037-DS	SOIL	6010B	Chromium - TCLP
980915403	RA-A-037-DS	SOIL	8151A	TCLP Herbicides
980915403	RA-A-037-DS	SOIL	7470A	Mercury - TCLP
980915403	RA-A-037-DS	SOIL	8081A	TCLP Pesticides
980915403	RA-A-037-DS	SOIL	6010B	Lead - TCLP
980915403	RA-A-037-DS	SOIL	6010B	Selenium - TCLP
980915403	RA-A-037-DS	SOIL	8260B	TCLP Volatile Organics
980915404	TB-9-03-98	AQUEOUS	8260B	GC/MS Volatile Organics

3781129

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody

000003



CHAIN-OF-CUSTODY RECORD

LABORATORY COPY
2180198
FORM 0019 REV 9

FORM 0019 REV. 2-97

Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont.	QC Level	TAT	Analyses	Comments
1	PA-A-035-D3	Soil	9-3-98	1330	4x802	OHM	7day	1	1	1
2	PA-A-036-D3	Soil	9-3-98	1345	4x802	OHM	7day	1	1	1
3	PA-A-038-D5	Soil	9-3-98	1400	4x802	OHM	7day	1	1	1
4	TA-9-03-98	1/9quid	9-3-98		4x802	OHM	7day	1	1	1
5										
6										
7										
8										
9										
10										

COOLING TEMPERATURE UPON RECEIPT

SAMPLE'S CONDITION UPON RECEIPT

SAFETY COLLECTED BY: Steve Gendron / Wilson

RECEIVED BY: [Signature]

DATE: 9/3/98

TIME: 11:00

24°C

LABORATORY SERVICE ID: ETC

LABORATORY PHONE: 901-327-2750

LABORATORY FAX: 901-327-6334

RECIPIENT NAME: Elena Rodriguez

ADDRESS: 5445 Triangle Pkwy, #400 Norcross, GA 30092

MAIL REPORT (COMPANY NAME): OHM Remediation Services Corp

3781131

COOLER RECEIPT FORM

Cooler Receipt Form
9809154 CRF p 1

LIMS # 9809154 Number of Coolers 1
Date Received 9/3/98
VDTSR 9/3/98, 1640
PROJECT DDMT

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

A PRELIMINARY EXAMINATION PHASE Date cooler was opened 9/3/98
by (print) Rebekah Barger (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 Loose Cubes YES

10 Have designated person initial here to acknowledge receipt of cooler RB date 9/3/98

B LOG-IN PHASE Date samples were logged-in 9/3/98
by (print) Rebekah Barger (sign) [Signature]

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

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# _____ YES

20 Was the project manager called and status discussed? If YES, give details on the back of this form YES

21 Who was called? Steve Grant By whom? Sally Herrmann (date) 9/4/98

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

000005

3781132

COOLER RECEIPT FORM

Cooler Receipt Form
9809154 CRF p 2

Called to confirm that sample TB-9-03-98 was a Trip Blank and he needed to run only VOC's

000006

3781133

Environmental Testing & Consulting, Inc.

Sample Reports

000007

3781134

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 09/03/98
ETC Order Number 9809154

ETC Lab ID **9809154-01**
Sample ID: RA-A-035-DS

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Metals Digestion Batch	V6-TC-08				NR	3015A
Mercury Digestion Batch	V3-TC-32				RM	7470
TCLP Extraction	Leachate	mg/L			TL	1311
Silver - TCLP	ND	mg/L	0.500	13:16	09/10/98	TD 6010B
Arsenic - TCLP	ND	mg/L	0.500	13:16	09/10/98	TD 6010B
Barium - TCLP	ND	mg/L	5.00	13:16	09/10/98	TD 6010B
Cadmium - TCLP	ND	mg/L	0.100	13:16	09/10/98	TD 6010B
Chromium - TCLP	ND	mg/L	0.500	13:16	09/10/98	TD 6010B
Mercury - TCLP	ND	mg/L	0.020	08:57	09/10/98	RM 7470A
Lead - TCLP	ND	mg/L	0.500	13:16	09/10/98	TD 6010B
Selenium - TCLP	ND	mg/L	0.500	13:16	09/10/98	TD 6010B


LABORATORY MANAGER

000008

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

INORGANIC ANALYSIS DATA SHEET

3781135

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 09/03/98
ETC Order Number 9809154

ETC Lab ID 9809154-02
Sample ID: RA-A-036-DS

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Metals Digestion Batch	V6-TC-08				NR	3015A
Mercury Digestion Batch	V3-TC-32				RM	7470
TCLP Extraction	Leachate	mg/L			TL	1311
Silver - TCLP	ND	mg/L	0.500	13:22	09/10/98 TD	6010B
Arsenic - TCLP	ND	mg/L	0.500	13:22	09/10/98 TD	6010B
Barium - TCLP	ND	mg/L	5.00	13.22	09/10/98 TD	6010B
Cadmium - TCLP	ND	mg/L	0.100	13:22	09/10/98 TD	6010B
Chromium - TCLP	ND	mg/L	0.500	13.22	09/10/98 TD	6010B
Mercury - TCLP	ND	mg/L	0.020	08.59	09/10/98 RM	7470A
Lead - TCLP	ND	mg/L	0.500	13.22	09/10/98 TD	6010B
Selenium - TCLP	ND	mg/L	0.500	13 22	09/10/98 TD	6010B


LABORATORY MANAGER

000009

3781136

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 09/03/98
ETC Order Number 9809154

ETC Lab ID **9809154-03**
Sample ID: RA-A-037-DS

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Metals Digestion Batch	V6-TC-08				NR	3015A
Mercury Digestion Batch	V3-TC-32				RM	7470
TCLP Extraction	Leachate	mg/L			TL	1311
Silver - TCLP	ND	mg/L	0.500	13:28	09/10/98	TD 6010B
Arsenic - TCLP	ND	mg/L	0.500	13:28	09/10/98	TD 6010B
Barium - TCLP	ND	mg/L	5.00	13:28	09/10/98	TD 6010B
Cadmium - TCLP	ND	mg/L	0.100	13:28	09/10/98	TD 6010B
Chromium - TCLP	ND	mg/L	0.500	13:28	09/10/98	TD 6010B
Mercury - TCLP	ND	mg/L	0.020	09:00	09/10/98	RM 7470A
Lead - TCLP	ND	mg/L	0.500	13:28	09/10/98	TD 6010B
Selenium - TCLP	ND	mg/L	0.500	13:28	09/10/98	TD 6010B


LABORATORY MANAGER

000010

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

3781137

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

Project # 20560
FID # DACA45-96-D-0014

Site ID DDMT
Memphis, TN

Date Arrived 09/03/98
ETC Order Number 9809154

ETC Lab ID 9809154-01
Sample ID: RA-A-035-DS

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT UNITS: (mg/L)	DL	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Extraction ZHE	Leachate		09/08/98		TL	1311
TCLP Volatile Organics				09/10/98	LS	8260B
QC Batch	V2091001					
Benzene	ND	0.010				
Carbon Tetrachloride	ND	0.010				
Chlorobenzene	ND	0.010				
Chloroform	ND	0.010				
1,4-Dichlorobenzene	ND	0.010				
1,2-Dichloroethane	ND	0.010				
1,1-Dichloroethene	ND	0.010				
Methyl Ethyl Ketone	ND	1.00				
Tetrachloroethene	ND	0.010				
Trichloroethene	ND	0.010				
Vinyl Chloride	ND	0.010				
Surrogate Standard	% Recovery	QC Limits				
S1 - Dibromofluoromethane	107	87	107			
S2 - Toluene-d8	96	91	108			
S3 - 4-Bromofluorobenzene	100	88	107			

ND - Not Detected

DL - Detection Limit


LABORATORY MANAGER

000011

3781138

FORM 1
VOA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9809-154-1T

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9809-154

Matrix: (soil/water) WATER

Lab Sample ID:

Sample wt/vol: 10.00 (g/mL) ML

Lab File ID: 0501005

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 09/10/98

GC Column: ID: 2.00 (mm)

Dilution Factor: 10.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 637-78-5	PROPANOIC ACID, 1-METHYLETHY	17.04	58.9	NJ
2. 638-11-9	BUTANOIC ACID, 1-METHYLETHYL	20.48	128	NJ
3. 106-42-3	P-XYLENE	22.32	52.7	NJ
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FORM I VOA-GCMS-TIC

000012

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

3781139

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

Project # 20560
FID # DACA45-96-D-0014

Site ID **DDMT**
Memphis, TN

Date Arrived 09/03/98
ETC Order Number 9809154

ETC Lab ID **9809154-02**
Sample ID: RA-A-036-DS

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT UNITS: (mg/L)	DL	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Extraction ZHE	Leachate		09/08/98		TL	1311
TCLP Volatile Organics				09/10/98	LS	8260B
QC Batch	V2091001					
Benzene	ND	0.010				
Carbon Tetrachloride	ND	0.010				
Chlorobenzene	ND	0.010				
Chloroform	ND	0.010				
1,4-Dichlorobenzene	ND	0.010				
1,2-Dichloroethane	ND	0.010				
1,1-Dichloroethene	ND	0.010				
Methyl Ethyl Ketone	ND	1.00				
Tetrachloroethene	ND	0.010				
Trichloroethene	ND	0.010				
Vinyl Chloride	ND	0.010				
Surrogate Standard	% Recovery	QC Limits				
S1 - Dibromofluoromethane	108 Q	87	107			
S2 - Toluene-d8	94	91	108			
S3 - 4-Bromofluorobenzene	99	88	107			

ND - Not Detected

DL - Detection Limit



LABORATORY MANAGER

000013

3781140

FORM 1
VOA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9809-154-2T

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9809-154

Matrix: (soil/water) WATER

Lab Sample ID:

Sample wt/vol: 10.00 (g/mL) ML

Lab File ID: 0701007

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 09/10/98

GC Column: ID: 2.00 (mm)

Dilution Factor: 10.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 637-78-5	PROPANOIC ACID, 1-METHYLETHY	17.04	54.9	NJ
2. 638-11-9	BUTANOIC ACID, 1-METHYLETHYL	20.49	129	NJ
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FORM I VOA-GCMS-TIC

000014

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

3781141

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

Project # 20560
FID # DACA45-96-D-0014

Site ID DDMT
Memphis, TN

Date Arrived 09/03/98
ETC Order Number 9809154

ETC Lab ID 9809154-03
Sample ID: RA-A-037-DS

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT UNITS: (mg/L)	DL	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Extraction ZHE	Leachate		09/08/98		TL	1311
TCLP Volatile Organics				09/10/98	LS	8260B
QC Batch	V2091001					
Benzene	ND	0.010				
Carbon Tetrachloride	ND	0.010				
Chlorobenzene	ND	0.010				
Chloroform	ND	0.010				
1,4-Dichlorobenzene	ND	0.010				
1,2-Dichloroethane	ND	0.010				
1,1-Dichloroethene	ND	0.010				
Methyl Ethyl Ketone	ND	1.00				
Tetrachloroethene	ND	0.010				
Trichloroethene	ND	0.010				
Vinyl Chloride	ND	0.010				
Surrogate Standard	% Recovery	QC Limits				
S1 - Dibromofluoromethane	105	87	107			
S2 - Toluene-d8	96	91	108			
S3 - 4-Bromofluorobenzene	100	88	107			

ND - Not Detected

DL - Detection Limit


LABORATORY MANAGER

000015

3781142

FORM 1
VOA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9809-154-3T

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9809-154

Matrix: (soil/water) WATER

Lab Sample ID:

Sample wt/vol: 10.00 (g/mL) ML

Lab File ID: 0901009

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 09/10/98

GC Column: ID: 2.00 (mm)

Dilution Factor: 10.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 637-78-5	PROPANOIC ACID, 1-METHYLETHY	17.04	55.5	NJ
2. 638-11-9	BUTANOIC ACID, 1-METHYLETHYL	20.49	126	NJ
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FORM I VOA-GCMS-TIC

000016

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

3781143

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

Site ID **DDMT**
Memphis, TN

Project # 20560
FID # DACA45-96-D-0014

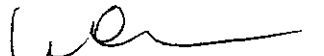
Date Arrived 09/03/98
ETC Order Number 9809154

ETC Lab ID **9809154-04**
Sample ID: TB-9-03-98

Matrix :AQUEOUS
Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS Volatile Organics							8260B
QC Batch	V2091001	ug/L		09/10/98	09/10/98	LS	
Acetone	ND	ug/L	50.0				
Benzene	ND	ug/L	1.00				
Bromodichloromethane	ND	ug/L	1.00				
Bromoform	ND	ug/L	1.00				
Bromomethane	ND	ug/L	1.00				
Carbon Disulfide	ND	ug/L	1.00				
Carbon Tetrachloride	ND	ug/L	1.00				
Chlorobenzene	ND	ug/L	1.00				
Chlorodibromomethane	ND	ug/L	1.00				
Chloroethane	ND	ug/L	1.00				
Chloroform	ND	ug/L	1.00				
Chloromethane	ND	ug/L	1.00				
1,1-Dichloroethane	ND	ug/L	1.00				
1,2-Dichloroethane	ND	ug/L	1.00				
1,1-Dichloroethene	ND	ug/L	1.00				
trans-1,2-Dichloroethene	ND	ug/L	1.00				
1,2-Dichloropropane	ND	ug/L	1.00				
cis-1,3-Dichloropropene	ND	ug/L	1.00				
trans-1,3-Dichloropropene	ND	ug/L	1.00				
Ethylbenzene	ND	ug/L	1.00				
2-Hexanone (MBK)	ND	ug/L	5.00				
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.00				
2-Butanone (MEK)	ND	ug/L	20.0				
Methylene Chloride	ND	ug/L	20.0				
Styrene	ND	ug/L	1.00				
1,1,2,2-Tetrachloroethane	ND	ug/L	1.00				
Tetrachloroethene	ND	ug/L	1.00				
Toluene	ND	ug/L	1.00				
1,1,1-Trichloroethane	ND	ug/L	1.00				
1,1,2-Trichloroethane	ND	ug/L	1.00				
Trichloroethene	ND	ug/L	1.00				
Vinyl Acetate	ND	ug/L	20.0				
Vinyl Chloride	ND	ug/L	1.00				
o-Xylenes	ND	ug/L	1.00				
m-Xylenes	ND	ug/L	1.00				
p-Xylenes	ND	ug/L	1.00				
cis-1,2-Dichloroethene	ND	ug/L	1.00				

Surrogate Standard	% Recovery	QC Limits
S1 - Dibromofluoromethane	106	87 107
S2 - Toluene-d8	92	91 108
S3 - 4-Bromofluorobenzene	98	88 107


LABORATORY MANAGER

ND - Not Detected

000017

3781144

FORM 1
VOA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9809-154-4

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9809-154

Matrix: (soil/water) WATER

Lab Sample ID:

Sample wt/vol: 10.00 (g/mL) ML

Lab File ID: 1101011

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 09/10/98

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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-GCMS-TIC

000018

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

3781145

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

Project # 20560
FID # DACA45-96-D-0014

Site ID **DDMT**
Memphis, TN

Date Arrived 09/03/98
ETC Order Number 9809154

ETC Lab ID **9809154-01**
Sample ID: RA-A-035-DS

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT UNITS: (mg/L)	DL	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Extraction Organics	Leachate		09/08/98		TL	1311
TCLP Semivolatiles			09/09/98	09/10/98	RR	8270C
QC Batch	P05039					
1,4-Dichlorobenzene	ND	0.008				
2,4-Dinitrotoluene	ND	0.008				
Hexachlorobenzene	ND	0.008				
Hexachlorobutadiene	ND	0.008				
Hexachloroethane	ND	0.008				
2-Methylphenol	ND	0.008				
3-Methylphenol	ND	0.008				
4-Methylphenol	ND	0.008				
Nitrobenzene	ND	0.008				
Pentachlorophenol	ND	0.020				
Pyridine	ND	0.008				
2,4,5-Trichlorophenol	ND	0.008				
2,4,6-Trichlorophenol	ND	0.008				

Surrogate Standard	% Recovery	QC Limits
S1 - Nitrobenzene-d5	72	35 85
S2 - 2-Fluorobiphenyl	80	46 84
S3 - 4-Terphenyl-d14	84	33 113
S4 - Phenol-d6	34	12 48
S5 - 2,4,6-Tribromophenol	90	10 100
S6 - 2-Fluorophenol	47	21 73

ND - Not Detected DL - Detection Limit


LABORATORY MANAGER

000019

3781146

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
 FID # DACA45-96-D-0014

Site ID **DDMT**
Memphis, TN

Date Arrived 09/03/98
 ETC Order Number 9809154

ETC Lab ID **9809154-02**
Sample ID: RA-A-036-DS

Matrix :SOIL
 Sample Date :09/03/98

TEST	RESULT UNITS: (mg/L)	DL	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Extraction Organics	Leachate		09/08/98		TL	1311
TCLP Semivolatiles			09/09/98	09/10/98	RR	8270C
QC Batch	P05039					
1,4-Dichlorobenzene	ND	0.008				
2,4-Dinitrotoluene	ND	0.008				
Hexachlorobenzene	ND	0.008				
Hexachlorobutadiene	ND	0.008				
Hexachloroethane	ND	0.008				
2-Methylphenol	ND	0.008				
3-Methylphenol	ND	0.008				
4-Methylphenol	ND	0.008				
Nitrobenzene	ND	0.008				
Pentachlorophenol	ND	0.020				
Pyridine	ND	0.008				
2,4,5-Trichlorophenol	ND	0.008				
2,4,6-Trichlorophenol	ND	0.008				

Surrogate Standard	% Recovery	QC Limits
S1 - Nitrobenzene-d5	71	35 85
S2 - 2-Fluorobiphenyl	84	46 84
S3 - 4-Terphenyl-d14	96	33 113
S4 - Phenol-d6	36	12 48
S5 - 2,4,6-Tribromophenol	97	10 100
S6 - 2-Fluorophenol	48	21 73

ND - Not Detected DL - Detection Limit


 LABORATORY MANAGER

000020

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

3781147

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

Project # 20560
FID # DACA45-96-D-0014

Site ID DDMT
Memphis, TN

Date Arrived 09/03/98
ETC Order Number 9809154

ETC Lab ID 9809154-03
Sample ID: RA-A-037-DS

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT UNITS: (mg/L)	DL	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Extraction Organics	Leachate		09/08/98		TL	1311
TCLP Semivolatiles			09/09/98	09/10/98	RR	8270C
QC Batch	P05039					
1,4-Dichlorobenzene	ND	0.008				
2,4-Dinitrotoluene	ND	0.008				
Hexachlorobenzene	ND	0.008				
Hexachlorobutadiene	ND	0.008				
Hexachloroethane	ND	0.008				
2-Methylphenol	ND	0.008				
3-Methylphenol	ND	0.008				
4-Methylphenol	ND	0.008				
Nitrobenzene	ND	0.008				
Pentachlorophenol	ND	0.020				
Pyridine	ND	0.008				
2,4,5-Trichlorophenol	ND	0.008				
2,4,6-Trichlorophenol	ND	0.008				

Surrogate Standard	% Recovery	QC Limits
S1 - Nitrobenzene-d5	65	35 85
S2 - 2-Fluorobiphenyl	74	46 84
S3 - 4-Terphenyl-d14	83	33 113
S4 - Phenol-d6	33	12 48
S5 - 2,4,6-Tribromophenol	84	10 100
S6 - 2-Fluorophenol	42	21 73

ND - Not Detected DL - Detection Limit


LABORATORY MANAGER

000021

3781148

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 # 20560
FID # DACA45-96-D-0014

Date Arrived 09/03/98
ETC Order Number 9809154

ETC Lab ID 9809154-01
Sample ID: RA-A-035-DS

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT UNITS: (mg/L)	DL	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Extraction Organics	Leachate		09/08/98		TL	1311
TCLP Pesticides			09/09/98	09/11/98	RG	8081A
QC Batch	P07016					
Gamma-BHC (Lindane)	ND	0.001				
Chlordane	ND	0.010				
Endrin	ND	0.001				
Heptachlor	ND	0.001				
Methoxychlor	ND	0.040				
Toxaphene	ND	0.100				
<u>Surrogate Standard</u>	<u>% Recovery</u>					<u>QC Limits</u>
S1 - Decachlorobiphenyl	51		34	115		
S2 - Tetrachloro-m-xylene	51		31	96		

ND - Not Detected

DL - Detection Limit


LABORATORY MANAGER

000022

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

3781149

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

Project # 20560
FID # DACA45-96-D-0014

Site ID DDMT
Memphis, TN

Date Arrived 09/03/98
ETC Order Number 9809154

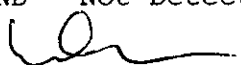
ETC Lab ID 9809154-02
Sample ID: RA-A-036-DS

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT UNITS: (mg/L)	DL	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Extraction Organics	Leachate		09/08/98		TL	1311
TCLP Pesticides			09/09/98	09/11/98	RG	8081A
QC Batch	P07016					
Gamma-BHC (Lindane)	ND	0.001				
Chlordane	ND	0.010				
Endrin	ND	0.001				
Heptachlor	ND	0.001				
Methoxychlor	ND	0.040				
Toxaphene	ND	0.100				
Surrogate Standard	% Recovery	QC Limits				
S1 - Decachlorobiphenyl	40	34	115			
S2 - Tetrachloro-m-xylene	54	31	96			

ND - Not Detected

DL - Detection Limit


LABORATORY MANAGER

000023

3781150

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 # 20560
FID # DACA45-96-D-0014

Date Arrived 09/03/98
ETC Order Number 9809154

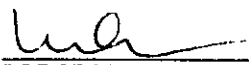
ETC Lab ID 9809154-03
Sample ID: RA-A-037-DS

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT UNITS: (mg/L)	DL	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
TCLP Extraction Organics	Leachate		09/08/98		TL	1311
TCLP Pesticides			09/09/98	09/11/98	RG	8081A
QC Batch	P07016					
Gamma-BHC (Lindane)	ND	0.001				
Chlordane	ND	0.010				
Endrin	ND	0.001				
Heptachlor	ND	0.001				
Methoxychlor	ND	0.040				
Toxaphene	ND	0.100				
<u>Surrogate Standard</u>	<u>% Recovery</u>					<u>QC Limits</u>
S1 - Decachlorobiphenyl	48		34	115		
S2 - Tetrachloro-m-xylene	55		31	96		

ND - Not Detected

DL - Detection Limit


LABORATORY MANAGER

000024

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

3781151

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

Project # 20560
FID # DACA45-96-D-0014

Site ID DDMT
Memphis, TN

Date Arrived 09/03/98
ETC Order Number 9809154

ETC Lab ID 9809154-01
Sample ID: RA-A-035-DS

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT	DL	DATE	DATE	BY	METHOD
	UNITS: (mg/L)		EXTRACTED	ANALYZED		
TCLP Extraction Organics	Leachate		09/08/98		TL	1311
TCLP Herbicides			09/09/98	09/10/98	RG	8151A
2,4-D	ND	0.010				
Silvex	ND	0.010				
<u>Surrogate Standard</u>		<u>% Recovery</u>	<u>QC Limits</u>			
S1 - 2,4,5-T		78	25 125			

ND - Not Detected

DL - Detection Limit


LABORATORY MANAGER

000025

3781152

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
FID # DACA45-96-D-0014

Site ID DDMT
Memphis, TN

Date Arrived 09/03/98
ETC Order Number 9809154

ETC Lab ID 9809154-02
Sample ID: RA-A-036-DS

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT UNITS: (mg/L)	DL	DATE	DATE	BY	METHOD
			EXTRACTED	ANALYZED		
TCLP Extraction Organics	Leachate		09/08/98		TL	1311
TCLP Herbicides			09/09/98	09/10/98	RG	8151A
2,4-D	ND	0.010				
Silvex	ND	0.010				
<u>Surrogate Standard</u>	<u>% Recovery</u>	<u>QC Limits</u>				
S1 - 2,4,5-T	68	25 125				

ND - Not Detected

DL - Detection Limit


LABORATORY MANAGER

000026

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET**3781153**

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

Project # 20560
FID # DACA45-96-D-0014

Site ID DDMT
Memphis, TN

Date Arrived 09/03/98
ETC Order Number 9809154

ETC Lab ID 9809154-03
Sample ID: RA-A-037-DS

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT	DL	DATE	DATE	BY	METHOD
	UNITS: (mg/L)		EXTRACTED	ANALYZED		
TCLP Extraction Organics	Leachate		09/08/98		TL	1311
TCLP Herbicides			09/09/98	09/12/98	RG	8151A
2,4-D	ND	0.010				
Silvex	ND	0.010				
<u>Surrogate Standard</u>	<u>% Recovery</u>		<u>QC Limits</u>			
S1 - 2,4,5-T	72		25	125		

ND - Not Detected

DL - Detection Limit


LABORATORY MANAGER

000027

3781154

Environmental Testing & Consulting, Inc.

**Quality Control Reports
TCLP**

000028

Quality Control Reports

Metals (ICP/GFAA/CV)

3781156.

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
METALS - TCLP

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9809-154

HOLDING TIMES

QC Batch(s) for this order : ICP/GFAA V6-TC-08
Mercury V3-TC-32

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
CETAC M-6000A Mercury Analyzer

Dilutions Required : No dilutions required.

QUALITY CONTROL

9809-154.MQCBLANK

Method Blank

V6-TC-08BLK - ICP Metals
V3-TC-32BLK - Mercury

No analytes detected in the Method Blank.

9809-154.MQCLCS

Laboratory Control Sample(s)

V6-TC-08LCS - ICP Metals
V3-TC-32LCS - Mercury

All criteria met.

9809-154.MQCMSMSD

Matrix Spike / Matrix Spike Dup - ICP Metals

9809-154-03 RPD : All analytes within QC limits.
RA-A-037-DS Spike Recovery : All analytes within QC limits.

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

Matrix Spike / Matrix Spike Dup - Hg

9809-154-03 RPD : All analytes within QC limits.
RA-A-037-DS Spike Recovery : All analytes within QC limits.

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

000030

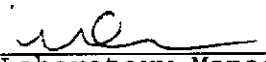
ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
METALS - TCLP

3781157

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9809-154

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

000031

3781158

TCLP METHOD BLANK
METALS

Lab Name

Environmental Testing and Consulting, Inc

Laboratory ID ICP/GFAA Metals

V6-TC-08 BLK

QC Batch

V6-TC-08

Laboratory ID Mercury

V3-TC-32 BLKV3-TC-32

Date Sample Prepared

09/09/98

ICP/GFAA Metals

09/09/98

Mercury

Metals	Concentration mg/L	Detection Limit mg/L	Date Analyzed	Method
Silver	<0 500	0 500	09/10/98	6010B
Aluminum				6010B
Arsenic	<0 500	0 500	09/10/98	6010B
Barium	<5 00	5 00	09/10/98	6010B
Beryllium				6010B
Calcium				6010B
Cadmium	<0 100	0 100	09/10/98	6010B
Cobalt				6010B
Chromium	<0 500	0 500	09/10/98	6010B
Copper				6010B
Iron				6010B
Potassium				6010B
Magnesium				6010B
Manganese				6010B
Sodium				6010B
Nickel				6010B
Lead	<0 500	0 500	09/10/98	6010B
Antimony				6010B
Selenium	<0 500	0 500	09/10/98	6010B
Thallium				6010B
Vanadium				6010B
Zinc				6010B
Mercury	<0 020	0 020	09/10/98	7470A

000032

Metals Blank

9809-154 mqcBLANK

3781159

TCLP LABORATORY CONTROL SAMPLE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory Control ID	ICP/GFAA Metals	V6-TC-08	LCS	QC Batch
	Mercury	V3-TC-32	LCS	V6-TC-08
				V3-TC-32

Date Prepared	ICP/GFAA Metals	09/09/98	
	Mercury	09/09/98	

Metals	Spike Added mg/L	Found mg/L	% R	#	QC Limits
Silver	0.250	0.256	102		80 120
Aluminum					80 120
Arsenic	1.25	1.29	103		80 120
Barium	2.50	2.50	100		80 120
Beryllium					80 120
Calcium					80 120
Cadmium	0.250	0.261	104		80 120
Cobalt					80 120
Chromium	0.500	0.516	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	1.31	105		80 120
Antimony					80 120
Selenium	1.25	1.30	104		80 120
Thallium					80 120
Vanadium					80 120
Zinc					80 120
Mercury	0.0050	0.0052	104		80 120

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

Metals Laboratory Control Sample

000033

9809-154 mqcLCS

3781160

TCLP MATRIX SPIKE
METALS

Lab Name Environmental Testing and Consulting, Inc

	QC Batch
Laboratory ID MS ICP/GFAA Metals	9809-154-03 V6-TC-08
Laboratory ID MS Mercury	9809-154-03 V3-TC-32

Date Sample Prepared	09/09/98	ICP/GFAA Metals
	09/09/98	Mercury

Metals	SPIKE Added mg/L	SAMPLE Conc mg/L	MS Conc mg/L	RPD <20% #	MS % Rec #	QC Limits	
Silver	0.250	ND	0.264	2	106	50	150
Aluminum						50	150
Arsenic	1.25	ND	1.41	1	113	50	150
Barium	2.50	1.56	4.08	1	101	50	150
Beryllium						50	150
Calcium						50	150
Cadmium	0.250	ND	0.266	3	106	50	150
Cobalt						50	150
Chromium	0.500	ND	0.526	3	105	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	1.33	6	106	50	150
Antimony						50	150
Selenium	1.25	ND	1.49	1	119	50	150
Thallium						50	150
Vanadium						50	150
Zinc						50	150
Mercury	0.0050	ND	0.0055	10	110	50	150

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits ND - Not Detected

Metals Matrix Spike

000034
9809-154 mqcMSMSD

TCLP MATRIX SPIKE DUPLICATE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP/GFAA Metals	9809-154-03	QC Batch
Laboratory ID MS Mercury	9809-154-03	V6-TC-08
		V3-TC-32

Date Sample Prepared	09/09/98	ICP/GFAA Metals
	09/09/98	Mercury

Metals	SPIKE Added mg/L	SAMPLE Conc mg/L	MSD Conc mg/L		MSD % Rec #	QC Limits	
Silver	0.250	ND	0.259		104	50	150
Aluminum						50	150
Arsenic	1.25	ND	1.40		112	50	150
Barium	2.50	1.56	4.05		100	50	150
Beryllium						50	150
Calcium						50	150
Cadmium	0.250	ND	0.259		104	50	150
Cobalt						50	150
Chromium	0.500	ND	0.511		102	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	1.25		100	50	150
Antimony						50	150
Selenium	1.25	ND	1.48		118	50	150
Thallium						50	150
Vanadium						50	150
Zinc						50	150
Mercury	0.0050	ND	0.0050		100	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

000035
9809-154 mqcMSMSD

3781162

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC/MS Volatiles

000036

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS VOLATILE COMPOUNDS - TCLP

3781163

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9809-154
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
V2091001 V209101LB

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

*
Surrogate recovery for Dibromofluoromethane was flagged for high recovery in sample 9809-154-02T(RA-A-036-DS).

Laboratory Control Sample FORM 3
V209101BS/BD

All criteria met.*

*
Recovery for cis-1,2-Dichloroethene was flagged for high recovery in the V209101BS. BD recovery was within QC Limits.

Recoveries for 2-Chloroethyl vinyl ether and Tetrachloroethene were flagged for high recovery in the V209101BD. BS recoveries were within QC Limits.

Matrix Spike / Matrix Spike Dup FORM 3

9809-154-03 RPD : All analytes within QC limits.
RA-A-037-DS Spike Recovery : All analytes within QC limits.*

*
Recoveries for Chloroform and Trichloroethene were flagged for high recovery in the Matrix Spike. MSD recoveries were within QC Limits.

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

Method Blank FORM 4
V209101LB

No Target Analytes detected above Practical Quantitation Limit.
Trace level is considered to be less than 2 times the detection limit.

000037

3781164

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS VOLATILE COMPOUNDS - TCLP

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9809-154
Method (SW-846) : 1311/8260B

CALIBRATION

BFB Daily 12 Hour Tune : All criteria met. FORM 5
Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7*

*
The following analytes were flagged with a percent difference
>30.0% :

Carbon Disulfide 2-Chloroethyl vinyl Ether
Vinyl Acetate

High response indicates that reported levels for these analytes
may be biased high. These compounds were not identified in samples
associated with this project. The data was not affected.

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

000038

FORM 2
WATER VOA-GCMS SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ETC, INC.

Contract:

3781165

Lab Code:

Case No.:

SAS No.:

SDG No.: 9809-154

	CLIENT SAMPLE NO.	SMC1 (DBF) #	SMC2 (TOL) #	SMC3 (BFB) #	OTHER	TOT OUT
01	V209101LB	107	95	100		0
02	9809-154-1T	107	96	100		0
03	9809-154-2T	108*	94	99		1
04	9809-154-3T	105	96	100		0
05	9809-154-4	106	92	98		0
06	V209101BS	106	95	99		0
07	V209101BD	103	97	103		0
08	9809-154-3TM	105	96	99		0
09	9809-154-3TS	104	97	103		0
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
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

3781166

FORM 4
VOA-GCMS METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

V209101LB

Lab Name: ETC, INC.

Lab Prep Batch: V2091001

SDG No.: 9809-154

Lab File ID: 0302003

Lab Prep Batch: V2091001

Date Analyzed: 09/10/98

Time Analyzed: 1445

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	9809-154-1T		0501005	1613
02	9809-154-2T		0701007	1742
03	9809-154-3T		0901009	1910
04	9809-154-4		1101011	2038
05	V209101BS		1301013LCS	2207
06	V209101BD		1401014LCS	2251
07	9809-154-3TM		1501015	2334
08	9809-154-3TS		1601016	0018
09				
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COMMENTS:

FORM 1
VOA-GCMS ORGANICS ANALYSIS DATA SHEET

3781167

CLIENT SAMPLE NO.

V209101LB

Lab Name: ETC, INC.

SDG No.: 9809-154

Matrix: (soil/water) WATER

Lab Prep Batch: V2091001

Sample wt/vol: 10.00 (g/mL) ML

Lab File ID: 0302003

Level: (low/med) LOW

Date Analyzed: 09/10/98

Dilution Factor: 1.0

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

71-43-2-----	Benzene	1.00	U
78-93-3-----	Methyl-Ethyl Ketone	100	U
56-23-5-----	Carbon Tetrachloride	1.00	U
108-90-7-----	Chlorobenzene	1.00	U
67-66-3-----	Chloroform	1.00	U
106-46-7-----	1,4-Dichlorobenzene	1.00	U
107-06-2-----	1,2-Dichloroethane	1.00	U
75-35-4-----	1,1-Dichloroethene	1.00	U
127-18-4-----	Tetrachloroethene	1.00	U
108-88-3-----	Toluene	1.00	U
79-01-6-----	Trichloroethene	1.00	U
75-01-4-----	Vinyl Chloride	1.00	U

FORM I VOA-GCMS

000041

3781168

FORM 1
VOA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: ETC, INC.

V209101LB

SDG No.: 9809-154

Matrix: (soil/water) WATER

Lab Prep Batch: V2091001

Sample wt/vol: 10.00 (g/mL) ML

Lab File ID: 0302003

Level: (low/med) LOW

Date Analyzed: 09/10/98

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
67-64-1	Acetone	50.0	U
71-43-2	Benzene	1.00	U
75-27-4	Bromodichloromethane	1.00	U
75-25-2	Bromoform	1.00	U
74-83-9	Bromomethane	1.00	U
78-93-3	Methyl-Ethyl Ketone	20.0	U
75-15-0	Carbon Disulfide	1.00	U
56-23-5	Carbon Tetrachloride	1.00	U
108-90-7	Chlorobenzene	1.00	U
124-48-1	Chlorodibromomethane	1.00	U
75-00-3	Chloroethane	1.00	U
67-66-3	Chloroform	1.00	U
74-87-3	Chloromethane	1.00	U
75-34-3	1,1-Dichloroethane	1.00	U
107-06-2	1,2-Dichloroethane	1.00	U
75-35-4	1,1-Dichloroethene	1.00	U
156-59-4	cis-1,2-Dichloroethene	1.00	U
156-60-5	trans-1,2-Dichloroethene	1.00	U
78-87-5	1,2-Dichloropropane	1.00	U
10061-01-5	cis-1,3-Dichloropropene	1.00	U
10061-02-6	trans-1,3-Dichloropropene	1.00	U
100-41-4	Ethylbenzene	1.00	U
591-78-6	2-Hexanone	5.00	U
75-09-2	Methylene Chloride	20.0	U
108-10-1	4-Methyl-2-Pentanone	5.00	U
100-42-5	Styrene	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane	1.00	U
127-18-4	Tetrachloroethene	1.00	U
108-88-3	Toluene	1.00	U
71-55-6	1,1,1-Trichloroethane	1.00	U
79-00-5	1,1,2-Trichloroethane	1.00	U
79-01-6	Trichloroethene	1.00	U
108-05-4	Vinyl Acetate	20.0	U

FORM I VOA-GCMS

000042

FORM 1
VOA-GCMS ORGANICS ANALYSIS DATA SHEET

3781169

CLIENT SAMPLE NO.

V209101LB

Lab Name: ETC, INC.

SDG No.: 9809-154

Matrix: (soil/water) WATER

Lab Prep Batch: V2091001

Sample wt/vol: 10.00 (g/mL) ML

Lab File ID: 0302003

Level: (low/med) LOW

Date Analyzed: 09/10/98

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
1330-20-7-----	Xylene-mp	1.00	U
95-47-6-----	Xylene-o	1.00	U

FORM I VOA-GCMS

000043

3781170

FORM 3
WATER VOA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V2091001

SDG No.: 9809-154

Matrix Spike - Sample No.: V209101BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Acetone	100		99.2	99	59-151
Acetonitrile	1000		1050	105	57-143
Benzene	100		104	104	72-124
Bromobenzene	100		105	105	77-120
Bromochloromethane	100		110	110	74-120
Bromodichloromethane	100		108	108	68-119
Bromoform	100		80.8	81	66-136
Bromomethane	100		97.1	97	40-134
Methyl-Ethyl Ketone	100		93.3	93	55-151
n-Butylbenzene	100		97.5	98	69-129
sec-Butylbenzene	100		111	111	72-127
tert-Butylbenzene	100		109	109	73-126
Carbon Disulfide	100		114	114	60-133
Carbon Tetrachloride	100		115	115	64-123
Chlorobenzene	100		99.0	99	77-112
Chlorodibromomethane	100		107	107	72-118
Chloroethane	100		106	106	64-142
2-Chloroethyl vinyl Eth	100		165	165	22-165
Chloroform	100		111	111	70-115
Chloromethane	100		93.4	93	58-139
2-Chlorotoluene	100		101	101	65-132
4-Chlorotoluene	100		101	101	67-127
1,2-Dibromo-3-chloropro	100		94.0	94	56-134
1,2-Dibromoethane	100		101	101	74-118
Dibromomethane	100		104	104	75-114
1,2-Dichlorobenzene	100		94.5	94	80-113
1,3-Dichlorobenzene	100		97.3	97	77-119
1,4-Dichlorobenzene	100		93.7	94	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

3781171

Lab Name: ETC, INC.

Lab Prep Batch: V2091001

SDG No.: 9809-154

Matrix Spike - Sample No.: V209101BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Dichlorodifluoromethane	100		104	104	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		116	116*	76-114
trans-1,2-Dichloroethen	100		111	111	72-121
1,2-Dichloropropane	100		95.8	96	64-133
1,3-Dichloropropane	100		98.4	98	68-128
2,2-Dichloropropane	100		111	111	67-132
1,1-Dichloropropene	100		113	113	76-117
cis-1,3-Dichloropropene	100		104	104	77-120
trans-1,3-Dichloropropene	100		102	102	73-124
Ethylbenzene	100		98.6	99	77-111
Hexachlorobutadiene	100		99.0	99	69-137
2-Hexanone	100		89.6	90	53-144
Isopropylbenzene	100		104	104	74-125
4-Isopropyltoluene	100		107	107	72-127
Methylene Chloride	100		98.7	99	67-115
4-Methyl-2-Pentanone	100		90.6	91	42-144
Naphthalene	100		89.0	89	53-124
n-Propylbenzene	100		101	101	75-125
Styrene	100		101	101	77-117
1,1,1,2-Tetrachloroetha	100		108	108	79-113
1,1,2,2-Tetrachloroetha	100		80.2	80	67-126
Tetrachloroethene	100		110	110	77-115
Toluene	100		92.6	93	77-115
1,2,3-Trichlorobenzene	100		94.8	95	62-132
1,2,4-Trichlorobenzene	100		94.0	94	68-132

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

* Values outside of QC limits

COMMENTS:

3781172

FORM 3
WATER VOA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V2091001

SDG No.: 9809-154

Matrix Spike - Sample No.: V209101BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
1,1,1-Trichloroethane	100		118	118	63-122
1,1,2-Trichloroethane	100		99.5	100	69-117
Trichloroethene	100		107	107	75-113
Trichlorofluoromethane	100		106	106	55-130
1,2,3-Trichloropropane	100		93.5	94	62-130
1,2,4-Trimethylbenzene	100		109	109	69-126
1,3,5-Trimethylbenzene	100		104	104	69-128
Vinyl Acetate	100		125	125	28-146
Vinyl Chloride	100		99.6	100	65-134
Xylene-mp	200		201	100	77-115
Xylene-o	100		100	100	77-115

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

3781173

Lab Name: ETC, INC.

Lab Prep Batch: V2091001

SDG No.: 9809-154

Matrix Spike - Sample No.: V209101BD

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Acetone	100	96.8	97	2	20	59-151
Acetonitrile	1000	1090	109	4	20	57-143
Benzene	100	110	110	6	20	72-124
Bromobenzene	100	109	109	4	20	77-120
Bromochloromethane	100	106	106	4	20	74-120
Bromodichloromethane	100	111	111	3	20	68-119
Bromoform	100	89.0	89	9	20	66-136
Bromomethane	100	105	105	8	20	40-134
Methyl-Ethyl Ketone	100	96.5	96	3	20	55-151
n-Butylbenzene	100	102	102	4	20	69-129
sec-Butylbenzene	100	110	110	1	20	72-127
tert-Butylbenzene	100	110	110	1	20	73-126
Carbon Disulfide	100	117	117	2	20	60-133
Carbon Tetrachloride	100	114	114	1	20	64-123
Chlorobenzene	100	101	101	2	20	77-112
Chlorodibromomethane	100	111	111	4	20	72-118
Chloroethane	100	111	111	5	20	64-142
2-Chloroethyl vinyl Eth	100	171	171*	4	20	22-165
Chloroform	100	111	111	0	20	70-115
Chloromethane	100	99.9	100	7	20	58-139
2-Chlorotoluene	100	106	106	5	20	65-132
4-Chlorotoluene	100	106	106	5	20	67-127
1,2-Dibromo-3-chloropro	100	98.9	99	5	20	56-134
1,2-Dibromoethane	100	110	110	8	20	74-118
Dibromomethane	100	106	106	2	20	75-114
1,2-Dichlorobenzene	100	100	100	6	20	80-113
1,3-Dichlorobenzene	100	103	103	6	20	77-119
1,4-Dichlorobenzene	100	99.6	100	6	20	78-116

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

* Values outside of QC limits

COMMENTS:

3781174

FORM 3
WATER VOA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: V2091001

SDG No.: 9809-154

Matrix Spike - Sample No.: V209101BD

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Dichlorodifluoromethane	100	105	105	1	20	48-145
1,1-Dichloroethane	100	107	107	2	20	76-118
1,2-Dichloroethane	100	114	114	1	20	62-124
1,1-Dichloroethene	100	107	107	1	20	69-121
cis-1,2-Dichloroethene	100	113	113	3	20	76-114
trans-1,2-Dichloroethen	100	112	112	1	20	72-121
1,2-Dichloropropane	100	104	104	8	20	64-133
1,3-Dichloropropane	100	107	107	9	20	68-128
2,2-Dichloropropane	100	109	109	2	20	67-132
1,1-Dichloropropene	100	113	113	0	20	76-117
cis-1,3-Dichloropropene	100	108	108	4	20	77-120
trans-1,3-Dichloroprope	100	108	108	6	20	73-124
Ethylbenzene	100	104	104	5	20	77-111
Hexachlorobutadiene	100	108	108	9	20	69-137
2-Hexanone	100	101	101	12	20	53-144
Isopropylbenzene	100	112	112	7	20	74-125
4-Isopropyltoluene	100	105	105	2	20	72-127
Methylene Chloride	100	98.5	98	1	20	67-115
4-Methyl-2-Pentanone	100	99.0	99	8	20	42-144
Naphthalene	100	96.9	97	9	20	53-124
n-Propylbenzene	100	106	106	5	20	75-125
Styrene	100	107	107	6	20	77-117
1,1,1,2-Tetrachloroetha	100	112	112	4	20	79-113
1,1,2,2-Tetrachloroetha	100	94.8	95	17	20	67-126
Tetrachloroethene	100	120	120*	9	20	77-115
Toluene	100	101	101	8	20	77-115
1,2,3-Trichlorobenzene	100	103	103	8	20	62-132
1,2,4-Trichlorobenzene	100	101	101	7	20	68-132

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

* Values outside of QC limits

COMMENTS:

000048

FORM 3
WATER VOA-GCMS LABORATORY CONTROL SAMPLE

3781175

Lab Name: ETC, INC.

Lab Prep Batch: V2091001

SDG No.: 9809-154

Matrix Spike - Sample No.: V209101BD

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
1,1,1-Trichloroethane	100	119	119	1	20	63-122
1,1,2-Trichloroethane	100	105	105	5	20	69-117
Trichloroethene	100	110	110	3	20	75-113
Trichlorofluoromethane	100	102	102	4	20	55-130
1,2,3-Trichloropropane	100	99.3	99	5	20	62-130
1,2,4-Trimethylbenzene	100	106	106	3	20	69-126
1,3,5-Trimethylbenzene	100	109	109	5	20	69-128
Vinyl Acetate	100	122	122	2	20	28-146
Vinyl Chloride	100	105	105	5	20	65-134
Xylene-mp	200	210	105	5	20	77-115
Xylene-o	100	108	108	8	20	77-115

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

* Values outside of QC limits

RPD: 0 out of 67 outside limits

Spike Recovery: 3 out of 134 outside limits

COMMENTS:

3781176

FORM 3

WATER VOA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: V2091001

SDG No.: 9809-154

Matrix Spike - Sample No.: 9809-154-3T

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Benzene	100	0.000	119	119	72-124
Methyl-Ethyl Ketone	100	0.000	112	112	55-151
Carbon Tetrachloride	100	0.000	120	120	64-123
Chlorobenzene	100	0.000	108	108	77-112
Chloroform	100	0.000	118	118*	70-115
1,4-Dichlorobenzene	100	0.000	104	104	78-116
1,2-Dichloroethane	100	0.000	121	121	62-124
1,1-Dichloroethene	100	0.000	114	114	69-121
Tetrachloroethene	100	0.000	104	104	77-115
Trichloroethene	100	0.000	115	115*	75-113
Vinyl Chloride	100	0.000	112	112	65-134

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD REC.
Benzene	100	120	120	1	20 72-124
Methyl-Ethyl Ketone	100	103	103	8	20 55-151
Carbon Tetrachloride	100	112	112	7	20 64-123
Chlorobenzene	100	106	106	2	20 77-112
Chloroform	100	112	112	5	20 70-115
1,4-Dichlorobenzene	100	98.2	98	6	20 78-116
1,2-Dichloroethane	100	114	114	6	20 62-124
1,1-Dichloroethene	100	109	109	4	20 69-121
Tetrachloroethene	100	95.8	96	8	20 77-115
Trichloroethene	100	110	110	4	20 75-113
Vinyl Chloride	100	102	102	9	20 65-134

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: 2 out of 22 outside limits

COMMENTS:

FORM III VOA-GCMS

000050

3781177

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC/MS Semi-Volatiles

000051

3781178

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 Memphis TN
ETC Order # : 9809-154
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
P05039 P05039LB

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

Surrogate recovery for 2-Fluorobiphenyl was flagged for high recovery in sample 9809-154-03MS(RA-A-037-DS). Review of the raw data showed no obvious matrix interference.

Laboratory Control Sample FORM 3
P05039TBS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3

9809-154-03 RPD : All analytes within QC limits.*
RA-A-037-DS Spike Recovery : All analytes within QC limits.
*

RPDs for multiple analytes were flagged outside QC Limits due to lower recovery in the Matrix Spike Duplicate. MS/MSD recoveries were within QC Limits.

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

Method Blank FORM 4
P05039LB

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
Calibration Verification : 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.

000052

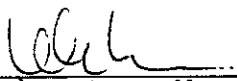
ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - TCLP

3781179

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9809-154
Method (SW-846) : 1311/8270C

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC, 5971MSD
Dilutions Required : No dilutions required.


Laboratory Manager

000053

3781180

FORM 2
WATER BNA-GCMS SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9809-154

	CLIENT SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	S7 #	S8 #	TOT OUT
01	P05039LB	43	32	60	72	81	82			0
02	P05039TBS	50	36	65	73	88	84			0
03	9809-154-1T	47	34	72	80	90	84			0
04	9809-154-2T	48	36	71	84	97	96			0
05	9809-154-3T	42	33	65	74	84	83			0
06	9809-154-3TM	56	43	72	86*	100	98			1
07	9809-154-3TS	50	38	61	68	85	75			0
08										
09										
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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

000054

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

3781181
CLIENT SAMPLE NO

P05039LB

Lab Name: ETC, INC.

Lab Prep Batch: P05039

Lab File ID: 1101009

Matrix: (soil/water) WATER

Level:(low/med) LOW

SDG No.: 9809-154

Instrument ID: BNA2

Date Analyzed: 09/10/98

Time Analyzed: 2021

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

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P05039TBS		1201010	09/10/98
02	9809-154-1T		1501013	09/10/98
03	9809-154-2T		1601014	09/10/98
04	9809-154-3T		1701015	09/10/98
05	9809-154-3TM		1801016	09/10/98
06	9809-154-3TS		1901017	09/11/98
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COMMENTS:

3781182

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: ETC, INC.

P05039LB

SDG No.: 9809-154

Matrix: (soil/water) WATER

Lab Prep Batch: P05039

Sample wt/vol: 250.0 (g/mL) ML

Lab File ID: 1101009

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 09/10/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7-----	1,4-Dichlorobenzene	8.0	U
121-14-2-----	2,4-Dinitrotoluene	8.0	U
118-74-1-----	Hexachlorobenzene	8.0	U
87-68-3-----	Hexachlorobutadiene	8.0	U
67-72-1-----	Hexachloroethane	8.0	U
95-48-7-----	2-Methylphenol	8.0	U
106-44-5-----	3&4-Methylphenol	8.0	U
98-95-3-----	Nitrobenzene	8.0	U
87-86-5-----	Pentachlorophenol	20.0	U
110-86-1-----	Pyridine	8.0	U
95-95-4-----	2,4,5-Trichlorophenol	8.0	U
88-06-2-----	2,4,6-Trichlorophenol	8.0	U

FORM I BNA-GCMS

000056

FORM 3
WATER BNA-GCMS LABORATORY CONTROL SAMPLE

3781183

Lab Name: ETC, INC.

Lab Prep Batch: P05039

SDG No.: 9809-154

Matrix Spike - Sample No.: P05039TBS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
1,4-Dichlorobenzene	400		266	66	31- 97
2,4-Dinitrotoluene	400		289	72	34-130
Hexachlorobenzene	400		374	94	65-133
Hexachlorobutadiene	400		292	73	50-112
Hexachloroethane	400		254	64	37-100
2-Methylphenol	640		414	65	40-117
3&4-Methylphenol	640		382	60	46- 99
Nitrobenzene	400		298	74	57-120
Pentachlorophenol	640		497	78	22-171
Pyridine	400		186	46	10- 82
2,4,5-Trichlorophenol	640		463	72	31-147
2,4,6-Trichlorophenol	640		512	80	30-163

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 12 outside limits

COMMENTS:

FORM III BNA-GCMS

000057

3781184

FORM 3

WATER BNA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P05039

SDG No.: 9809-154

Matrix Spike - Sample No.: 9809-154-3TM

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
1,4-Dichlorobenzene	400	0.00	313	78	31- 97
2,4-Dinitrotoluene	400	0.00	345	86	34-130
Hexachlorobenzene	400	0.00	450	112	65-133
Hexachlorobutadiene	400	0.00	332	83	50-112
Hexachloroethane	400	0.00	306	76	37-100
2-Methylphenol	640	0.00	504	79	40-117
3&4-Methylphenol	640	0.00	398	62	46- 99
Nitrobenzene	400	0.00	341	85	57-120
Pentachlorophenol	640	0.00	616	96	22-171
Pyridine	400	0.00	240	60	10- 82
2,4,5-Trichlorophenol	640	0.00	554	86	31-147
2,4,6-Trichlorophenol	640	0.00	611	95	30-163

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD REC.
1,4-Dichlorobenzene	400	250	62	23*	20 31- 97
2,4-Dinitrotoluene	400	272	68	23*	20 34-130
Hexachlorobenzene	400	326	82	31*	20 65-133
Hexachlorobutadiene	400	269	67	21*	20 50-112
Hexachloroethane	400	248	62	20	20 37-100
2-Methylphenol	640	433	68	15	20 40-117
3&4-Methylphenol	640	344	54	14	20 46- 99
Nitrobenzene	400	284	71	18	20 57-120
Pentachlorophenol	640	470	73	27*	20 22-171
Pyridine	400	185	46	26*	20 10- 82
2,4,5-Trichlorophenol	640	436	68	23*	20 31-147
2,4,6-Trichlorophenol	640	481	75	24*	20 30-163

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

* Values outside of QC limits

RPD: 8 out of 12 outside limits

Spike Recovery: 0 out of 24 outside limits

COMMENTS:

FORM III BNA-GCMS

000058

3781185

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC Pesticides

000059

3781186

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
PESTICIDE - TCLP

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9809-154
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
P07016 P07016LB

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

Surrogate recovery for Decachlorobiphenyl was flagged as outside QC Limits in sample 9809-154-03MS(RA-A-035-DS). Surrogate recovery for Tetrachloro-m-xylene was within QC Limits. Surrogate recoveries for 9809-154-03MD were within QC Limits.

Laboratory Control Sample FORM 3
P07016BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3 - Water
9809-154-03 RPD : All analytes within QC limits.
RA-A-035-DS Spike Recovery : All analytes within QC limits.

Refer to Laboratory Control Samples for system verification.

Method Blank FORM 4
P07016LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7*

Calibration Verification(CV) : P309101B.37R (Primary)

Analyte	%Diff(15% Max)	Response
Endrin	20.0	Low
Tetrachloro-m-xylene	17.0	Low
Decachlorobiphenyl	19.0	Low

Low responses indicate that reported levels for these analytes may be biased low. Recoveries for Endrin were within QC Limits in P07016BS and 9809-154-03MS/MSD associated with this CV. Surrogate recoveries for Tetrachloro-m-xylene were within QC Limits for all samples associated with this project. The data was not affected.

000060

ENVIRONMENTAL TESTING AND CONSULTING, INC.

MEMPHIS, TN

CASE NARRATIVE

PESTICIDE - TCLP

3781187

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9809-154
Method (SW-846) : 1311/8081A

SAMPLE ANALYSIS

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


Laboratory Manager

000061

3781188

FORM 2
WATER PESTICIDE SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9809-154

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	9809-154-1	51	51							
02	9809-154-2	54	40							0
03	9809-154-3	55	48							0
04	9809-154-3M	56	19D							0
05	9809-154-3S	52	40							1
06	P07016LB	46	36							0
07	P07016BS	56	55							0
08										0
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S1 (TMX) = Tetrachloro-m-xylene
S2 (DBC) = Decachlorobiphenyl

QC LIMITS
(31- 96)
(34-115)

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

000062

FORM 4
PESTICIDE METHOD BLANK SUMMARY

3781189

EPA GC SAMPLE NO.

P07016LB

Lab Name: ETC, INC.

Lab Prep Batch: P07016

Lab File ID: P309101B-27R

Matrix: (soil/water) WATER

Level: (low/med) LOW

SDG No.: 9809-154

Instrument ID: PEST3B

Date Analyzed: 09/11/98

Time Analyzed: 1447

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	9809-154-1		P309101B-16R	09/11/98
02	9809-154-2		P309101B-17R	09/11/98
03	9809-154-3		P309101B-18R	09/11/98
04	9809-154-3M		P309101B-19R	09/11/98
05	9809-154-3S		P309101B-20R	09/11/98
06	P07016BS		P309101B-33R	09/11/98
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COMMENTS:

3781190

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

P07016LB

Lab Name: ETC, INC.

SDG No.: 9809-154

Matrix: (soil/water) WATER

Lab Prep Batch: P07016

Sample wt/vol: 250.0 (g/mL) ML

Lab File ID: P309101B-27R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10 (mL)

Date Analyzed: 09/11/98

Injection Volume: 1.0 (uL)

Dilution Factor: 10.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/Kg) UG/L	Q
58-89-9-----	gamma-BHC	1.60	U
5103-71-9-----	alpha-chlordane	1.60	U
5103-74-2-----	gamma-chlordane	1.60	U
72-20-8-----	Endrin	1.60	U
76-44-8-----	Heptachlor	1.60	U
72-43-5-----	Methoxychlor	1.60	U

FORM I PESTICIDE

000064

FORM 3
WATER PESTICIDE LABORATORY CONTROL SAMPLE

3781191

Lab Name: ETC, INC.

Lab Prep Batch: P07016

SDG No.: 9809-154

Matrix Spike - Sample No.: P07016BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Aldrin	1.00		0.690	69	34-105
alpha-BHC	1.00		0.684	68	41-102
beta-BHC	1.00		0.839	84	26-151
delta-BHC	1.00		0.589	59	21- 92
gamma-BHC	1.00		0.712	71	41-102
alpha-chlordane	1.00		0.822	82	48-117
gamma-chlordane	1.00		0.809	81	50-108
4,4'-DDD	1.00		0.856	86	39-124
4,4'-DDE	1.00		0.856	86	41-111
4,4'-DDT	1.00		0.911	91	39-123
Dieldrin	1.00		0.822	82	42-111
Endosulfan I	1.00		0.826	83	48-117
Endosulfan II	1.00		0.896	90	52-114
Endosulfan sulfate	1.00		0.852	85	46-111
Endrin	1.00		0.808	81	45-117
Endrin aldehyde	1.00		0.925	92	48-125
Endrin ketone	1.00		1.11	111	51-112
Heptachlor	1.00		0.737	74	43-114
Heptachlor epoxide	1.00		0.790	79	42-115
Methoxychlor	1.00		0.937	94	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:

WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P07016

SDG No.: 9809-154

Matrix Spike - Sample No.: 9809-154-3

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Aldrin	4.00		2.76	69	34-105
alpha-BHC	4.00		2.69	67	41-102
beta-BHC	4.00		3.24	81	26-151
delta-BHC	4.00		2.39	60	21- 92
gamma-BHC	4.00	0.000	2.82	70	41-102
alpha-chlordane	4.00	0.000	3.15	79	48-117
gamma-chlordane	4.00	0.410	3.36	74	50-108
4,4'-DDD	4.00		3.22	80	39-124
4,4'-DDE	4.00		3.16	79	41-111
4,4'-DDT	4.00		3.32	83	39-123
Dieldrin	4.00		3.16	79	42-111
Endosulfan I	4.00		3.13	78	48-117
Endosulfan II	4.00		3.35	84	52-114
Endosulfan sulfate	4.00		3.13	78	46-111
Endrin	4.00	0.000	3.29	82	45-117
Endrin aldehyde	4.00		3.98	100	48-125
Endrin ketone	4.00		3.59	90	51-112
Heptachlor	4.00	0.000	2.88	72	43-114
Heptachlor epoxide	4.00		3.03	76	42-115
Methoxychlor	4.00	0.000	3.19	80	39-140

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

COMMENTS:

FORM 3
WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY 3781193

Lab Name: ETC, INC.

Lab Prep Batch: P07016

SDG No.: 9809-154

Matrix Spike - Sample No.: 9809-154-3

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Aldrin	4.00	2.60	65	6	20	34-105
alpha-BHC	4.00	2.50	62	8	20	41-102
beta-BHC	4.00	3.15	79	2	20	26-151
delta-BHC	4.00	2.30	58	3	20	21- 92
gamma-BHC	4.00	2.66	66	6	20	41-102
alpha-chlordane	4.00	3.21	80	1	20	48-117
gamma-chlordane	4.00	3.36	74	0	20	50-108
4,4'-DDD	4.00	3.33	83	4	20	39-124
4,4'-DDE	4.00	3.16	79	0	20	41-111
4,4'-DDT	4.00	3.40	85	2	20	39-123
Dieldrin	4.00	3.23	81	2	20	42-111
Endosulfan I	4.00	3.07	77	1	20	48-117
Endosulfan II	4.00	3.41	85	1	20	52-114
Endosulfan sulfate	4.00	3.24	81	4	20	46-111
Endrin	4.00	3.25	81	1	20	45-117
Endrin aldehyde	4.00	3.69	92	8	20	48-125
Endrin ketone	4.00	3.84	96	6	20	51-112
Heptachlor	4.00	2.76	69	4	20	43-114
Heptachlor epoxide	4.00	2.98	74	3	20	42-115
Methoxychlor	4.00	3.50	88	10	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 20 outside limits
Spike Recovery: 0 out of 40 outside limits

COMMENTS:

3781194

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC Herbicides

000068

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
HERBICIDE - TCLP

3781195

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9809-154
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
P11006 P11006LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P11006BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9809-154-03 RPD : All analytes within QC limits.*
RA-A-037-DS Spike Recovery : All analytes within QC limits.
*
RPD for Silvex was flagged as outside QC Limits due to higher
recovery in the Matrix Spike. MS/MSD recoveries were within QC Limits.

Refer to Laboratory Control Samples for system verification.

Method Blank FORM 4
P11006LB

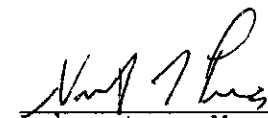
No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7

SAMPLE ANALYSIS

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


Laboratory Manager

000069

3781196

FORM 2
WATER HERBICIDE SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9809-154

	EPA GC SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P11006LB	66								0
02	P11006BS	73								0
03	9809-154-1	78								0
04	9809-154-2	68								0
05	9809-154-3	72								0
06	9809-154-3M	80								0
07	9809-154-3S	73								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

000070

FORM 4
HERBICIDE METHOD BLANK SUMMARY 3781197

EPA GC SAMPLE NO.

P11006LB

Lab Name: ETC, INC.

Lab Prep Batch: P11006

Lab File ID: T209101A-08R

Matrix: (soil/water) WATER

Level:(low/med) LOW

SDG No.: 9809-154

Instrument ID: PEST2A

Date Analyzed: 09/10/98

Time Analyzed: 1223

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P11006BS		T209101A-09R	09/10/98
02	9809-154-1		T209101A-10R	09/10/98
03	9809-154-2		T209101A-11R	09/10/98
04	9809-154-3		T209121A-09R	09/12/98
05	9809-154-3M		T209121A-10R	09/12/98
06	9809-154-3S		T209121A-11R	09/12/98
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COMMENTS:

3781198

FORM 1
HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

P11006LB

SDG No.: 9809-154

Matrix: (soil/water) WATER

Lab Prep Batch: P11006

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

Lab File ID: T209101A-08R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 5 (mL)

Date Analyzed: 09/10/98

Injection Volume: 1.0 (uL)

Dilution Factor: 5.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	UG/L	
94-75-7-----	2,4-D	1.00	U	
93-72-1-----	Silvex	1.00	U	

FORM I HERBICIDE

000072

FORM 3
WATER HERBICIDE LABORATORY CONTROL SAMPLE

3781199

Lab Name: ETC, INC.

Lab Prep Batch: P11006

SDG No.: 9809-154

Matrix Spike - Sample No.: P11006BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
2,4-D	2.50		2.12	85	25-125
Silvex	2.50		1.23	49	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

000073

3781200

FORM 3

WATER HERBICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P11006

SDG No.: 9809-154

Matrix Spike - Sample No.: 9809-154-3

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	M CONCENTRATION (ug/L)	M % REC #	QC. LIMITS REC.
2,4-D	10.00	0.000	9.15	92	25-125
Silvex	10.00	0.000	5.87	59	25-125

COMPOUND	SPIKE ADDED (ug/L)	S CONCENTRATION (ug/L)	S % REC #	% RPD #	QC LIMITS RPD REC.
2,4-D	10.00	8.68	87	6	20 25-125
Silvex	10.00	4.62	46	25*	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

000074

**COMPOSITE CONFIRMATION SAMPLES COLLECTED
FOLLOWING EXCAVATION IN AREA A**

Date Collected 09/03/98

RA-A-013 (Composite of Grids A6, A7, A18 & A20)

RA-A-014 (Composite of Grids A11, A22 & A23)

RA-A-EQ-005-CS (Equip. Blank)



3781202

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

September 9, 1998

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

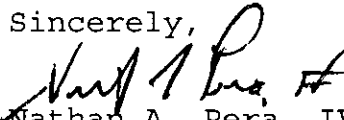
Ref: Analytical Testing
ETC Order # 9809153
Project Description DDMT

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

3781203

Chemical Analytical Data
Review/Evaluation/Validation

SOUTHERN REGION

Report Type: ☐ Preliminary ☒ Final Date Received: 9/24/98 Project Number: 920560
 Project Name: DDMT Analysis/Method: ^(SP) TCL P/PCB, PAH, metals TAL
 Laboratory: ETC Lab Project/Case Number: 9809153
 Sample Number(s): RA-A-013, 014, RA-A-EQ-005-CS

Evaluated By: S. P. S. S. S. Date Evaluated: 9/25/98
 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:				

3781204

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	3	5	15	15	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: _____
- [x] 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. Pasangjaye
Evaluator's Signature

9/25/98
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.
NC	Result reported from Primary Column Result did not confirm
*	QC Data (percent recovery/RPD for a particular analyte was outside QC Limits)

3781206

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
980915301	RA-A-013	SOIL	6010B	Silver
980915301	RA-A-013	SOIL	6010B	Aluminum
980915301	RA-A-013	SOIL	7060A	Arsenic
980915301	RA-A-013	SOIL	8270C	GC/MS PAH
980915301	RA-A-013	SOIL	6010B	Barium
980915301	RA-A-013	SOIL	6010B	Beryllium
980915301	RA-A-013	SOIL	6010B	Calcium
980915301	RA-A-013	SOIL	6010B	Cadmium
980915301	RA-A-013	SOIL	9010A	Cyanide
980915301	RA-A-013	SOIL	6010B	Cobalt
980915301	RA-A-013	SOIL	6010B	Chromium
980915301	RA-A-013	SOIL	6010B	Copper
980915301	RA-A-013	SOIL	6010B	Iron
980915301	RA-A-013	SOIL	7471A	Mercury
980915301	RA-A-013	SOIL	6010B	Potassium
980915301	RA-A-013	SOIL	6010B	Magnesium
980915301	RA-A-013	SOIL	6010B	Manganese
980915301	RA-A-013	SOIL	6010B	Sodium
980915301	RA-A-013	SOIL	6010B	Nickel
980915301	RA-A-013	SOIL	8081A	Organochlorine Pesticides
980915301	RA-A-013	SOIL	7421	Lead
980915301	RA-A-013	SOIL	8082	PCBs
980915301	RA-A-013	SOIL	6010B	Antimony
980915301	RA-A-013	SOIL	7740	Selenium
980915301	RA-A-013	SOIL	7841	Thallium
980915301	RA-A-013	SOIL	6010B	Vanadium
980915301	RA-A-013	SOIL	6010B	Zinc
980915302	RA-A-014	SOIL	6010B	Silver
980915302	RA-A-014	SOIL	6010B	Aluminum
980915302	RA-A-014	SOIL	7060A	Arsenic
980915302	RA-A-014	SOIL	8270C	GC/MS PAH
980915302	RA-A-014	SOIL	6010B	Barium
980915302	RA-A-014	SOIL	6010B	Beryllium
980915302	RA-A-014	SOIL	6010B	Calcium
980915302	RA-A-014	SOIL	6010B	Cadmium
980915302	RA-A-014	SOIL	9010A	Cyanide
980915302	RA-A-014	SOIL	6010B	Cobalt
980915302	RA-A-014	SOIL	6010B	Chromium
980915302	RA-A-014	SOIL	6010B	Copper
980915302	RA-A-014	SOIL	6010B	Iron
980915302	RA-A-014	SOIL	7471A	Mercury
980915302	RA-A-014	SOIL	6010B	Potassium
980915302	RA-A-014	SOIL	6010B	Magnesium
980915302	RA-A-014	SOIL	6010B	Manganese
980915302	RA-A-014	SOIL	6010B	Sodium
980915302	RA-A-014	SOIL	6010B	Nickel
980915302	RA-A-014	SOIL	8081A	Organochlorine Pesticides
980915302	RA-A-014	SOIL	7421	Lead
980915302	RA-A-014	SOIL	8082	PCBs
980915302	KA-A-014	SOIL	6010B	Antimony
980915302	RA-A-014	SOIL	7740	Selenium
980915302	RA-A-014	SOIL	7841	Thallium
980915302	RA-A-014	SOIL	6010B	Vanadium
980915302	RA-A-014	SOIL	6010B	Zinc
980915303	RA-A-EQ-005-CS	AQUEOUS	6010B	Silver

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ANALYTICAL SUMMARY TABLE

3781207

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>
980915303	RA-A-EQ-005-CS	AQUEOUS	6010B	Aluminum
980915303	RA-A-EQ-005-CS	AQUEOUS	7060A	Arsenic
980915303	RA-A-EQ-005-CS	AQUEOUS	8270C	GC/MS PAH
980915303	RA-A-EQ-005-CS	AQUEOUS	6010B	Barium
980915303	RA-A-EQ-005-CS	AQUEOUS	6010B	Beryllium
980915303	RA-A-EQ-005-CS	AQUEOUS	6010B	Calcium
980915303	RA-A-EQ-005-CS	AQUEOUS	6010B	Cadmium
980915303	RA-A-EQ-005-CS	AQUEOUS	9010A	Cyanide
980915303	RA-A-EQ-005-CS	AQUEOUS	6010B	Cobalt
980915303	RA-A-EQ-005-CS	AQUEOUS	6010B	Chromium
980915303	RA-A-EQ-005-CS	AQUEOUS	6010B	Copper
980915303	RA-A-EQ-005-CS	AQUEOUS	6010B	Iron
980915303	RA-A-EQ-005-CS	AQUEOUS	7470A	Mercury
980915303	RA-A-EQ-005-CS	AQUEOUS	6010B	Potassium
980915303	RA-A-EQ-005-CS	AQUEOUS	6010B	Magnesium
980915303	RA-A-EQ-005-CS	AQUEOUS	6010B	Manganese
980915303	RA-A-EQ-005-CS	AQUEOUS	6010B	Sodium
980915303	RA-A-EQ-005-CS	AQUEOUS	6010B	Nickel
980915303	RA-A-EQ-005-CS	AQUEOUS	8081A	Organochlorine Pesticides
980915303	RA-A-EQ-005-CS	AQUEOUS	7421	Lead
980915303	RA-A-EQ-005-CS	AQUEOUS	8082	PCBs
980915303	RA-A-EQ-005-CS	AQUEOUS	6010B	Antimony
980915303	RA-A-EQ-005-CS	AQUEOUS	7740	Selenium
980915303	RA-A-EQ-005-CS	AQUEOUS	7841	Thallium
980915303	RA-A-EQ-005-CS	AQUEOUS	6010B	Vanadium
980915303	RA-A-EQ-005-CS	AQUEOUS	6010B	Zinc

3781208

Environmental Testing & Consulting, Inc.

Login
Chain-of-Custody

000004

3781209



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
FORM 0019 REV 07

218021

000005

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	
DMT		Memphis, TN		20560		901-327-2750		901-327-6334		Elena Rodriguez	
PROJECT CONTACT		PROJECT PHONE NUMBER		PROJECT FAX		LABORATORY ADDRESS		ADDRESS			
Steve Offner		901-763-1117		901-763-1048		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		Memphis, TN 38111			
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-19-013	Soil	9-3-98	1030	NA	4x802	34m	34m	✓	✓	
2	RA-A-013 C14 (B)	Soil	9-3-98	1045	NA	4x802	34m	34m	✓	✓	
3	RA-A-EA-005-CS	Soil	9-3-98	1015	NA	4x802	34m	34m	✓	✓	
4	RA-9-03-98	Soil	9-3-98	1015	NA	4x802	34m	34m	✓	✓	
5											
6											
7											
8											
9											
10											
SAMPLES COLLECTED BY: Steve Offner / Nathan Pera											
RECEIVED BY: Nathan Pera											
DATE: 9/3/98											
TIME: 4:45 PM											
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											

3781210

COOLER RECEIPT FORM

Cooler Receipt Form
9809153 CRF p 1

LIMS # 9809153 Number of Coolers 1
Date Received 9/3/98
PROJECT DDMT VDTSR 9/3/98, 1640

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

- A PRELIMINARY EXAMINATION PHASE Date cooler was opened 9/3/98
by (print) Rebekah Barger (sign) RB
- 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 Loose Cubes YES
- 10 Have designated person initial here to acknowledge receipt of cooler RB date 9/3/98
- B LOG-IN PHASE Date samples were logged-in 9/3/98
by (print) Rebekah Barger (sign) RB
- 11 Describe type of packing in cooler Loose Ice Cubes, Baggies, Bubble Wrap
- 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# _____ YES
- 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) NA

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

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3781211

Environmental Testing & Consulting, Inc.

Sample Reports

000007

3781212

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

Client Name :OHM Remediation Services
Project Name :DDMT
Memphis, TN

Matrix :SOIL

Date Sample Received :09/03/98

Contract Laboratory Order Number :9809-153

<u>Contract Lab</u> <u>Sample No</u>	<u>Client Sample</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>
9809-153-01	RA-A-013	09/03/98	85	09/04/98	160.3	MC
9809-153-02	RA-A-014	09/03/98	88	09/04/98	160.3	MC


LABORATORY MANAGER

000008

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

3781213

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 09/03/98

ETC Order Number 9809153

ETC Lab ID 9809153-01

Sample ID: RA-A-013

Matrix :SOIL

Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	ND	mg/Kg	1 00	09/08/98	9010A	CY090898


LABORATORY MANAGER

000009

3781214

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 09/03/98
ETC Order Number 9809153

ETC Lab ID 9809153-02
Sample ID: RA-A-014

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	ND	mg/Kg	1.00	09/08/98	9010A	CY090898


LABORATORY MANAGER

000010

3781215

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 09/03/98

ETC Order Number 9809153

ETC Lab ID 9809153-03

Sample ID: RA-A-EQ-005-CS

Matrix :AQUEOUS

Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE ANALYZED	ANALYSIS METHOD	QC BATCH
Cyanide	ND	mg/L	0.010	09/04/98	9010A	CY090498


LABORATORY MANAGER

000011

3781216

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 09/03/98
 ETC Order Number 9809153

ETC Lab ID **9809153-01**
Sample ID: RA-A-013

Matrix :SOIL
 Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
GF Metals Digestion Batch	V8-SO-09					
ICP Metals Digestion Batch	V8-SO-11					JB 3051
Mercury Digestion Batch	V4-SO-31					JB 3051
Silver	ND	mg/Kg	0.700	19:18	09/08/98	RM 7471A
Aluminum	11,500	mg/Kg	4.00	19:52	09/08/98	TD 6010B
Arsenic	13.7	mg/Kg	0.200	15:47	09/04/98	TD 6010B
Barium	207	mg/Kg	0.200	19:18	09/10/98	TD 7060A
Beryllium	0.629	mg/Kg	0.100	19:18	09/08/98	TD 6010B
Calcium	2,540	mg/Kg	1.00	19:18	09/08/98	TD 6010B
Cadmium	ND	mg/Kg	0.400	19:18	09/08/98	TD 6010B
Cobalt	9.92	mg/Kg	0.700	19:18	09/08/98	TD 6010B
Chromium	14.0	mg/Kg	0.700	19:18	09/08/98	TD 6010B
Copper	20.7	mg/Kg	0.600	19:18	09/08/98	TD 6010B
Iron	23,600	mg/Kg	0.700	19:52	09/08/98	TD 6010B
Mercury	0.038	mg/Kg	0.020	14:09	09/04/98	RM 7471A
Potassium	916	mg/Kg	20.0	19:18	09/08/98	TD 6010B
Magnesium	2,660	mg/Kg	3.00	19:18	09/08/98	TD 6010B
Manganese	1,000	mg/Kg	0.200	19:18	09/08/98	TD 6010B
Sodium	76.0	mg/Kg	20.0	19:18	09/08/98	TD 6010B
Nickel	21.9	mg/Kg	1.50	19:18	09/08/98	TD 6010B
Lead	16.8	mg/Kg	0.100	14:17	09/08/98	JF 7421
Antimony	ND	mg/Kg	3.20	19:18	09/08/98	TD 6010B
Selenium	ND	mg/Kg	0.200	09:56	09/08/98	TD 7740
Thallium	0.298	mg/Kg	0.100	11:04	09/08/98	JF 7841
Vanadium	22.8	mg/Kg	0.800	19:18	09/08/98	TD 6010B
Zinc	79.1	mg/Kg	1.00	19:18	09/08/98	TD 6010B


 LABORATORY MANAGER

000012

3781217

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 09/03/98
 ETC Order Number 9809153

ETC Lab ID **9809153-02**
Sample ID: RA-A-014

Matrix :SOIL
 Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
GF Metals Digestion Batch	V8-SO-09					JB 3051
ICP Metals Digestion Batch	V8-SO-11					JB 3051
Mercury Digestion Batch	V4-SO-31					RM 7471A
Silver	ND	mg/Kg	0.700	19:25	09/08/98	TD 6010B
Aluminum	12,600	mg/Kg	4.00	19:58	09/08/98	TD 6010B
Arsenic	10.8	mg/Kg	0.200	15:05	09/04/98	TD 7060A
Barium	155	mg/Kg	0.200	19:25	09/10/98	TD 6010B
Beryllium	0.543	mg/Kg	0.100	19:25	09/08/98	TD 6010B
Calcium	1,850	mg/Kg	1.00	19:25	09/08/98	TD 6010B
Cadmium	ND	mg/Kg	0.400	19:25	09/08/98	TD 6010B
Cobalt	9.01	mg/Kg	0.700	19:25	09/08/98	TD 6010B
Chromium	14.9	mg/Kg	0.700	19:25	09/08/98	TD 6010B
Copper	19.5	mg/Kg	0.600	19:25	09/08/98	TD 6010B
Iron	23,100	mg/Kg	0.700	19:58	09/08/98	TD 6010B
Mercury	0.041	mg/Kg	0.020	14:10	09/04/98	RM 7471A
Potassium	995	mg/Kg	20.0	19:25	09/08/98	TD 6010B
Magnesium	2,710	mg/Kg	3.00	19:25	09/08/98	TD 6010B
Manganese	687	mg/Kg	0.200	19:25	09/08/98	TD 6010B
Sodium	75.5	mg/Kg	20.0	19:25	09/08/98	TD 6010B
Nickel	18.9	mg/Kg	1.50	19:25	09/08/98	TD 6010B
Lead	14.0	mg/Kg	0.100	14:10	09/08/98	JF 7421
Antimony	ND	mg/Kg	3.20	19:25	09/08/98	TD 6010B
Selenium	ND	mg/Kg	0.200	10:03	09/08/98	TD 7740
Thallium	0.300	mg/Kg	0.100	10:39	09/08/98	JF 7841
Vanadium	23.8	mg/Kg	0.800	19:25	09/08/98	TD 6010B
Zinc	71.6	mg/Kg	1.00	19:25	09/08/98	TD 6010B


 LABORATORY MANAGER

000013

3781218

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 09/03/98
 ETC Order Number 9809153

ETC Lab ID **9809153-03**
Sample ID: RA-A-EQ-005-CS

Matrix :AQUEOUS
 Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Metals Digestion Batch	V11-AQ-62					NR 3015
Mercury Digestion Batch	V4-AQ-36					JB 7470A
Silver	ND	mg/L	0.009	12:13	09/08/98	TD 6010B
Aluminum	ND	mg/L	0.060	12:13	09/08/98	TD 6010B
Arsenic	ND	mg/L	0.003	14:57	09/04/98	TD 7060A
Barium	ND	mg/L	0.003	12:13	09/08/98	TD 6010B
Beryllium	ND	mg/L	0.002	12:13	09/08/98	TD 6010B
Calcium	ND	mg/L	0.015	12:13	09/08/98	TD 6010B
Cadmium	ND	mg/L	0.005	12:13	09/08/98	TD 6010B
Cobalt	ND	mg/L	0.009	12:13	09/08/98	TD 6010B
Chromium	ND	mg/L	0.009	12:13	09/08/98	TD 6010B
Copper	0.009	mg/L	0.008	12:13	09/08/98	TD 6010B
Iron	0.011	mg/L	0.009	12:13	09/08/98	TD 6010B
Mercury	ND	mg/L	0.0002	14:08	09/08/98	RM 7470A
Potassium	ND	mg/L	0.250	12:13	09/08/98	TD 6010B
Magnesium	ND	mg/L	0.040	12:13	09/08/98	TD 6010B
Manganese	ND	mg/L	0.003	12:13	09/08/98	TD 6010B
Sodium	ND	mg/L	0.050	12:13	09/08/98	TD 6010B
Nickel	ND	mg/L	0.020	12:13	09/08/98	TD 6010B
Lead	ND	mg/L	0.002	12:30	09/08/98	JF 7421
Antimony	ND	mg/L	0.040	12:13	09/08/98	TD 6010B
Selenium	ND	mg/L	0.003	14:57	09/04/98	TD 7740
Thallium	ND	mg/L	0.002	10:31	09/08/98	JF 7841
Vanadium	ND	mg/L	0.010	12:13	09/08/98	TD 6010B
Zinc	ND	mg/L	0.010	12:13	09/08/98	TD 6010B


 LABORATORY MANAGER

000014

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

3781219

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

Project # 20560
FID # DACA45-96-D-0014

Site ID DDMT
Memphis, TN

Date Arrived 09/03/98
ETC Order Number 9809153

ETC Lab ID 9809153-01
Sample ID: RA-A-013

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				09/04/98	09/06/98	RR	8270C
QC Batch	P04031	ug/Kg					
Acenaphthene	ND	ug/Kg	67.0				
Acenaphthylene	ND	ug/Kg	67.0				
Anthracene	ND	ug/Kg	67.0				
Benzo(a)anthracene	ND	ug/Kg	67.0				
Benzo(b)fluoranthene	ND	ug/Kg	67.0				
Benzo(k)fluoranthene	ND	ug/Kg	67.0				
Benzo(g,h,i)perylene	ND	ug/Kg	67.0				
Benzo(a)pyrene	ND	ug/Kg	67.0				
Chrysene	ND	ug/Kg	67.0				
Dibenzo(a,h)anthracene	ND	ug/Kg	67.0				
Fluoranthene	52J	ug/Kg	67.0				
Fluorene	ND	ug/Kg	67.0				
Indeno(1,2,3-cd)pyrene	ND	ug/Kg	67.0				
Naphthalene	ND	ug/Kg	67.0				
Phenanthrene	ND	ug/Kg	67.0				
Pyrene	40J	ug/Kg	67.0				
Surrogate Standard	% Recovery		QC Limits				
S1 - Nitrobenzene-d5	65		39 80				
S2 - 2-Fluorobiphenyl	71		43 84				
S3 - 4-Terphenyl-d14	55		40 121				


LABORATORY MANAGER

ND - Not Detected

000015

3781220

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

Lab Name: ETC, INC.

Contract:

9809-153-1

Lab Code:

Case No.:

SAS No.:

SDG No.: 9809-153

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.5 (g/mL) G

Lab File ID: 1601016

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1(mL)

Date Analyzed: 09/06/98

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.				
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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**3781221**

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

Project # 20560
FID # DACA45-96-D-0014

Site ID DDMT
Memphis, TN

Date Arrived 09/03/98
ETC Order Number 9809153

ETC Lab ID 9809153-02
Sample ID: RA-A-014

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH				09/04/98	09/06/98	RR	8270C
QC Batch	P04031	ug/Kg					
Acenaphthene	ND	ug/Kg	67.0				
Acenaphthylene	ND	ug/Kg	67.0				
Anthracene	ND	ug/Kg	67.0				
Benzo(a)anthracene	ND	ug/Kg	67.0				
Benzo(b)fluoranthene	ND	ug/Kg	67.0				
Benzo(k)fluoranthene	ND	ug/Kg	67.0				
Benzo(g,h,i)perylene	ND	ug/Kg	67.0				
Benzo(a)pyrene	ND	ug/Kg	67.0				
Chrysene	ND	ug/Kg	67.0				
Dibenzo(a,h)anthracene	ND	ug/Kg	67.0				
Fluoranthene	ND	ug/Kg	67.0				
Fluorene	ND	ug/Kg	67.0				
Indeno(1,2,3-cd)pyrene	ND	ug/Kg	67.0				
Naphthalene	ND	ug/Kg	67.0				
Phenanthrene	ND	ug/Kg	67.0				
Pyrene	ND	ug/Kg	67.0				
Surrogate Standard	% Recovery	QC Limits					
S1 - Nitrobenzene-d5	81 Q	39	80				
S2 - 2-Fluorobiphenyl	88 Q	43	84				
S3 - 4-Terphenyl-d14	74	40	121				


LABORATORY MANAGER

ND - Not Detected

000017

3781222

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

Lab Name: ETC, INC.

Contract:

9809-153-2

Lab Code:

Case No.:

SAS No.:

SDG No.: 9809-153

Matrix: (soil/water) SOIL

Lab Sample ID:

Sample wt/vol: 30.3 (g/mL) G

Lab File ID: 1701017

Level: (low/med) LOW

Date Received: _____

% Moisture: _____ decanted: (Y/N) _____

Date Extracted:

Concentrated Extract Volume: 1(mL)

Date Analyzed: 09/06/98

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.				
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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

3781223

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

Project # 20560
FID # DACA45-96-D-0014

Site ID DDMT
Memphis, TN

Date Arrived 09/03/98
ETC Order Number 9809153

ETC Lab ID 9809153-03
Sample ID: RA-A-EQ-005-CS

Matrix :AQUEOUS
Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
GC/MS PAH							8270C
	P05037	ug/L		09/04/98	09/06/98	RR	
QC Batch	ND	ug/L	2.00				
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	58		35 85				
S2 - 2-Fluorobiphenyl	57		46 84				
S3 - 4-Terphenyl-d14	69		33 113				


LABORATORY MANAGER

ND - Not Detected

000019

3781224

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

9809-153-3

Lab Name: ETC, INC. Contract: _____
Lab Code: Case No.: SAS No.: SDG No.: 9809-153
Matrix: (soil/water) WATER Lab Sample ID: _____
Sample wt/vol: 1000 (g/mL) ML Lab File ID: 1801018
Level: (low/med) LOW Date Received: _____
% Moisture: _____ decanted: (Y/N) _____ Date Extracted: _____
Concentrated Extract Volume: 1 (mL) Date Analyzed: 09/06/98
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
1.				
2.				
3.				
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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

3781225

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

Project # 20560
FID # DACA45-96-D-0014

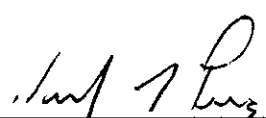
Site ID DDMT
Memphis, TN

Date Arrived 09/03/98
ETC Order Number 9809153

ETC Lab ID 9809153-01
Sample ID: RA-A-013

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides							8081A
				09/04/98	09/11/98	RG	
QC Batch	P06015	ug/Kg					
Aldrin	ND	ug/Kg	2.00				
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				
Alpha-Chlordane	ND	ug/Kg	2.00				
Gamma-Chlordane	ND	ug/Kg	2.00				
Chlordane	ND	ug/Kg	20.0				
4,4'-DDD	ND	ug/Kg	2.00				
4,4'-DDE	40.4	ug/Kg	2.00				
4,4'-DDT	34.0	ug/Kg	2.00				
Dieldrin	40.0	ug/Kg	2.00				
Endosulfan I	ND	ug/Kg	2.00				
Endosulfan II	ND	ug/Kg	2.00				
Endosulfan Sulfate	ND	ug/Kg	2.00				
Endrin	ND	ug/Kg	2.00				
Endrin Aldehyde	ND	ug/Kg	2.00				
Endrin Ketone	ND	ug/Kg	2.00				
Heptachlor	ND	ug/Kg	2.00				
Heptachlor Epoxide	ND	ug/Kg	2.00				
Methoxychlor	ND	ug/Kg	2.00				
Toxaphene	ND	ug/Kg	200				
Surrogate Standard	% Recovery		QC Limits				
S1 - Decachlorobiphenyl	51	Q	64	154			
S2 - Tetrachloro-m-xylene	49		39	130			


LABORATORY MANAGER

ND - Not Detected

000021

3781226

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

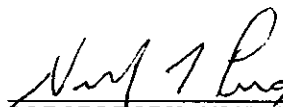
Project # 20560
 FID # DACA45-96-D-0014

Date Arrived 09/03/98
 ETC Order Number 9809153

ETC Lab ID 9809153-02
Sample ID: RA-A-014

Matrix :SOIL
 Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides							8081A
QC Batch	P06015	ug/Kg		09/04/98	09/11/98	RG	
Aldrin	ND	ug/Kg	2.00				
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				
Alpha-Chlordane	ND	ug/Kg	2.00				
Gamma-Chlordane	ND	ug/Kg	2.00				
Chlordane	ND	ug/Kg	20.0				
4,4'-DDD	ND	ug/Kg	2.00				
4,4'-DDE	ND	ug/Kg	2.00				
4,4'-DDT	10.3	ug/Kg	2.00				
Dieldrin	ND	ug/Kg	2.00				
Endosulfan I	ND	ug/Kg	2.00				
Endosulfan II	ND	ug/Kg	2.00				
Endosulfan Sulfate	ND	ug/Kg	2.00				
Endrin	ND	ug/Kg	2.00				
Endrin Aldehyde	ND	ug/Kg	2.00				
Endrin Ketone	ND	ug/Kg	2.00				
Heptachlor	ND	ug/Kg	2.00				
Heptachlor Epoxide	ND	ug/Kg	2.00				
Methoxychlor	ND	ug/Kg	2.00				
Toxaphene	ND	ug/Kg	200				
Surrogate Standard			% Recovery	QC Limits			
S1 - Decachlorobiphenyl	62	Q		64	154		
S2 - Tetrachloro-m-xylene	54			39	130		


 LABORATORY MANAGER

ND - Not Detected

000022

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

3781227

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

Project # 20560
FID # DACA45-96-D-0014

Site ID DDMT
Memphis, TN

Date Arrived 09/03/98
ETC Order Number 9809153

ETC Lab ID 9809153-03
Sample ID: RA-A-EQ-005-CS

Matrix :AQUEOUS
Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
Organochlorine Pesticides							8081A
				09/04/98	09/11/98	RG	
QC Batch	P07015	ug/L					
Aldrin	ND	ug/L	0.040				
Alpha-BHC	ND	ug/L	0.040				
Beta-BHC	ND	ug/L	0.040				
Delta-BHC	ND	ug/L	0.040				
Gamma-BHC (Lindane)	ND	ug/L	0.040				
Alpha-Chlordane	ND	ug/L	0.040				
Gamma-Chlordane	ND	ug/L	0.040				
Chlordane	ND	ug/L	0.250				
4,4'-DDD	ND	ug/L	0.040				
4,4'-DDE	ND	ug/L	0.040				
4,4'-DDT	ND	ug/L	0.040				
Dieldrin	ND	ug/L	0.040				
Endosulfan I	ND	ug/L	0.040				
Endosulfan II	ND	ug/L	0.040				
Endosulfan Sulfate	ND	ug/L	0.040				
Endrin	ND	ug/L	0.040				
Endrin Aldehyde	ND	ug/L	0.040				
Endrin Ketone	ND	ug/L	0.040				
Heptachlor	ND	ug/L	0.040				
Heptachlor Epoxide	ND	ug/L	0.040				
Methoxychlor	ND	ug/L	0.040				
Toxaphene	ND	ug/L	3.00				
Surrogate Standard			% Recovery	QC Limits			
S1 - Decachlorobiphenyl			84	34	115		
S2 - Tetrachloro-m-xylene			77	31	96		


LABORATORY MANAGER

ND - Not Detected

000023

3781223

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 # 20560
FID # DACA45-96-D-0014

Date Arrived 09/03/98
ETC Order Number 9809153

ETC Lab ID 9809153-01
Sample ID: RA-A-013

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				09/04/98	09/07/98	RG	8082
QC Batch	P06015	ug/Kg					
PCB-1016	ND	ug/Kg	35.0				
PCB-1221	ND	ug/Kg	35.0				
PCB-1232	ND	ug/Kg	35.0				
PCB-1242	ND	ug/Kg	35.0				
PCB-1248	ND	ug/Kg	35.0				
PCB-1254	ND	ug/Kg	35.0				
PCB-1260	ND	ug/Kg	35.0				
<u>Surrogate Standard</u>		<u>% Recovery</u>	<u>QC Limits</u>				
S1 - Tetrachloro-m-xylene	62		39	130			
S2 - Decachlorobiphenyl	80		64	154			


LABORATORY MANAGER

ND - Not Detected

000024

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

ORGANIC ANALYSIS DATA SHEET

3781229

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

Project # 20560
FID # DACA45-96-D-0014

Site ID DDMT
Memphis, TN

Date Arrived 09/03/98
ETC Order Number 9809153

ETC Lab ID 9809153-02
Sample ID: RA-A-014

Matrix :SOIL
Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs							8082
				09/04/98	09/07/98	RG	
QC Batch	P06015	ug/Kg					
PCB-1016	ND	ug/Kg	35.0				
PCB-1221	ND	ug/Kg	35.0				
PCB-1232	ND	ug/Kg	35.0				
PCB-1242	ND	ug/Kg	35.0				
PCB-1248	ND	ug/Kg	35.0				
PCB-1254	ND	ug/Kg	35.0				
PCB-1260	ND	ug/Kg	35.0				
Surrogate Standard	% Recovery	QC Limits					
S1 - Tetrachloro-m-xylene	70	39	130				
S2 - Decachlorobiphenyl	78	64	154				


LABORATORY MANAGER

ND - Not Detected

000025

3781230

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 # 20560
FID # DACA45-96-D-0014

Date Arrived 09/03/98
ETC Order Number 9809153

ETC Lab ID 9809153-03
Sample ID: RA-A-EQ-005-CS

Matrix :AQUEOUS
Sample Date :09/03/98

TEST	RESULT	UNITS	DETECTION LIMIT	DATE EXTRACTED	DATE ANALYZED	BY	METHOD
PCBs				09/04/98	09/07/98	RG	8082
QC Batch	P09009	ug/L					
PCB-1016	ND	ug/L	0.500				
PCB-1221	ND	ug/L	0.500				
PCB-1232	ND	ug/L	0.500				
PCB-1242	ND	ug/L	0.500				
PCB-1248	ND	ug/L	0.500				
PCB-1254	ND	ug/L	0.500				
PCB-1260	ND	ug/L	0.500				
Surrogate Standard	% Recovery		QC Limits				
S1 - Tetrachloro-m-xylene	62		31 96				
S2 - Decachlorobiphenyl	58		34 115				


LABORATORY MANAGER

ND - Not Detected

000026

3781231

Environmental Testing & Consulting, Inc.

†

**Quality Control Reports
Inorganics**

000027

3781232

ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
INORGANICS

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9809-153

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

3781233

Client Name OHM Remediation Services
Project DDMT-Memphis, TN

ETC Order Number 9809-153
File Name 9809-153 1

Method Blank

Analyte	Date Analyzed	Blank Concentration mg/L	QC Batch
Cyanide	09/04/98	<0.010	CY090498

Calibration Verification (CV)

Analyte	Date Analyzed	CV Conc mg/L	CV Conc Found	% Difference
Cyanide	09/04/98	0.200	0.210	5.0

Laboratory Control Sample (LCS)

Analyte	Date Analyzed	LCS Conc mg/L	LCS Conc Found	% Recovery
Cyanide	09/04/98	0.200	0.198	99.0

Matrix Spike/Matrix Spike Duplicate

Sample ID	Analyte	Spike mg/L	Sample mg/L	MS Conc Found	MS % Recovery	QC Limits	RPD
9809-153-03 MS	Cyanide	0.200	<0.010	0.191	96	68-114	
9809-153-03 MSD	Cyanide	0.200	<0.010	0.183	92	68-114	4

000029

3781234

Environmental Testing & Consulting, Inc.
Inorganic QC Data Summary

Client Name OHM Remediation Services
Project DDMT-Memphis, TN

ETC Order Number 9809-153
File Name 9809-153 2

Method Blank

Analyte	Date Analyzed	Blank Concentration mg/Kg	QC Batch
Cyanide	09/08/98	<1 00	CY090898

Calibration Verification (CV)

Analyte	Date Analyzed	CV Conc mg/L	CV Conc Found	% Difference
Cyanide	09/08/98	0 200	0 213	7 0

Laboratory Control Sample (LCS)

Analyte	Date Analyzed	LCS Conc mg/Kg	LCS Conc Found	% Recovery
Cyanide	09/08/98	20 0	19 4	97 0

Matrix Spike/Matrix Spike Duplicate

Sample ID	Analyte	Spike mg/Kg	Sample mg/Kg	MS Conc Found	MS % Recovery	QC Limits	RPD
9809-153-02 MS	Cyanide	20.0	<1 00	18.3	92	70-130	
9809-153-02 MSD	Cyanide	20 0	<1 00	19 2	96	70-130	4

Environmental Testing & Consulting, Inc.

3781235

Quality Control Reports

Metals (ICP/GFAA/CV)

000031

3781236

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 # : 9809-153

HOLDING TIMES

QC Batch(s) for this order : ICP Metals V8-SO-11
GFAA Metals V8-SO-09
Mercury V4-SO-31

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.

<u>Sample ID</u>	<u>Dilution</u>	<u>Metal</u>	<u>Factor</u>	<u>Sample ID</u>	<u>Dilution</u>	<u>Metal</u>	<u>Factor</u>
9809-153-01		Arsenic	1:2 (C)	9809-153-02		Aluminum	1:5 (C)
9809-153-01		Aluminum	1:5 (C)	9809-153-02		Iron	1:5 (C)
9809-153-01		Iron	1:5 (C)	9809-153-02		Lead	1:3 (C)
9809-153-01		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

9809-153.MQCBLANK

Method Blank

V8-SO-11BLK - ICP Metals
V8-SO-09BLK - GFAA Metals
V4-SO-31BLK - Mercury

Calcium identified in V8-SO-11BLK at 2.20 mg/Kg.
Iron identified in V8-SO-11BLK at 0.90 mg/Kg.

000032

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

3781237

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9809-153

QUALITY CONTROL

9712-153.MQCLCS

Laboratory Control Sample(s)

V8-SO-11LCS - ICP Metals

V8-SO-09LCS - GFAA Metals

V4-SO-31LCS - Mercury

All criteria met.

9809-153.MQCMSMSD

Matrix Spike / Matrix Spike Dup - ICP Metals

9809-153-02

RPD : All analytes within QC limits.*

RA-A-014

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 :

	mg/L	mg/L	%	QA
<u>Analyte</u>	<u>Expected</u>	<u>Found</u>	<u>Recovery</u>	<u>Evaluation</u>
Antimony	0.500	0.471	94	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. RPD for Potassium was flagged as outside QC Limits. Dilution Tests were performed for verification :

<u>Analyte</u>	<u>No Dilution</u>	<u>1:5 Dilution</u>	<u>1:25 Dilution</u>	<u>% Difference</u>	<u>QA Evaluation</u>
Aluminum	----	12600 mg/Kg	12400 mg/Kg	2	Pass
Calcium	1850	1910	-----	3	Pass
Iron	----	23100	23100	0	Pass
Manganese	687	685	-----	0	Pass
Potassium	995	939	-----	6	Pass
Magnesium	2710	2680	-----	1	Pass
Zinc	71.6	70.6	-----	1	Pass

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

000033

3781238

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 # : 9809-153

QUALITY CONTROL

Matrix Spike / Matrix Spike Dup - Graphite Metals

9809-153-02

RPD : All analytes within QC limits.

RA-A-014

Spike Recovery : All analytes within QC limits.*

*

Recoveries for Lead were flagged as outside QC Limits due to the level of these analytes present in the sample relative to the spike amounts. In addition, concentration of Arsenic was high relative to the spike amount. Dilution Tests were performed for verification :

Analyte	No Dilution	1:5 Dilution	% Difference	QA Evaluation
Arsenic	10.8 mg/Kg	11.0 mg/Kg	2	Pass

Analyte	1:3 Dilution	1:15 Dilution	% Difference	QA Evaluation
Lead	14.0 mg/Kg	13.9 mg/Kg	1	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.

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

Matrix Spike / Matrix Spike Dup - Hg

9809-153-02

RPD : All analytes within QC limits.

RA-A-014

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

000034

SOLID METHOD BLANK
METALS

3781239

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID ICP Metals
Laboratory ID GFAA Metals
Laboratory ID Mercury

V8-SO-11 BLK
V8-SO-09 BLK
V4-SO-31 BLK

V8-SO-11
V8-SO-09
V4-SO-31

Date Sample Prepared

09/08/98
09/04/98
09/04/98

ICP Metals
GFAA Metals
Mercury

Metals	Concentration mg/Kg	Detection Limit mg/Kg	Date Analyzed	Method
Silver	<0.700	0.700	09/08/98	6010B
Aluminum	<4.00	4.00	09/08/98	6010B
Arsenic	<0.200	0.200	09/04/98	7060A
Barium	<0.200	0.200	09/08/98	6010B
Beryllium	<0.100	0.100	09/08/98	6010B
Calcium	2.20	1.00	09/08/98	6010B
Cadmium	<0.400	0.400	09/08/98	6010B
Cobalt	<0.700	0.700	09/08/98	6010B
Chromium	<0.700	0.700	09/08/98	6010B
Copper	<0.600	0.600	09/08/98	6010B
Iron	0.900	0.700	09/08/98	6010B
Potassium	<20.0	20.0	09/08/98	6010B
Magnesium	<3.00	3.00	09/08/98	6010B
Manganese	<0.200	0.200	09/08/98	6010B
Sodium	<20.0	20.0	09/08/98	6010B
Nickel	<1.50	1.50	09/08/98	6010B
Lead	<0.100	0.100	09/08/98	7421
Antimony	<3.20	3.20	09/08/98	6010B
Selenium	<0.200	0.200	09/04/98	7740
Thallium	<0.100	0.100	09/08/98	7841
Vanadium	<0.800	0.800	09/08/98	6010B
Zinc	<1.00	1.00	09/08/98	6010B
Mercury	<0.020	0.020	09/04/98	7471A

Metals Blank

000035
9809-153.MQ1BLANK

3781240

SOLID LABORATORY CONTROL SAMPLE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID ICP Metals	<u>V8-SO-11</u>	LCS	<u>V8-SO-11</u>
Laboratory ID GFAA Metals	<u>V8-SO-09</u>	LCS	<u>V8-SO-09</u>
Laboratory ID Mercury	<u>V4-SO-31</u>	LCS	<u>V4-SO-31</u>

Date Prepared	<u>09/04/98</u>	ICP Metals
	<u>09/04/98</u>	GFAA Metals
	<u>09/04/98</u>	Mercury

Metals	Spike Added mg/Kg	Found mg/Kg	% R	#	QC Limits	
Silver	20.0	20.0	100		80	120
Aluminum	200	206	103		80	120
Arsenic	5.00	4.63	93		85	115
Barium	200	209	105		80	120
Beryllium	20.0	19.5	98		80	120
Calcium	400	398	100		80	120
Cadmium	20.0	19.7	99		80	120
Cobalt	100	99.3	99		80	120
Chromium	40.0	39.3	98		80	120
Copper	40.0	41.3	103		80	120
Iron	200	204	102		80	120
Potassium	400	414	104		80	120
Magnesium	400	392	98		80	120
Manganese	20.0	20.3	102		80	120
Sodium	400	411	103		80	120
Nickel	100	100	100		80	120
Lead	2.00	1.84	92		85	115
Antimony	200	205	103		80	120
Selenium	5.00	4.59	92		85	115
Thallium	2.00	1.91	96		85	115
Vanadium	100	101	101		80	120
Zinc	20.0	20.2	101		80	120
Mercury	0.167	0.156	93		80	120

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

Metals Laboratory Control Sample

000036

9809-153.MQ1LCS

SOLID MATRIX SPIKE
METALS

3781241

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP Metals	9809-153-02	V8-SO-11
Laboratory ID MS GFAA Metals	9809-153-02	V8-SO-09
Laboratory ID MS Mercury	9809-153-02	V4-SO-31

Date Sample Prepared	09/08/98	ICP Metals
	09/04/98	GFAA Metals
	09/04/98	Mercury

Metals	SPIKE Added mg/Kg	SAMPLE Conc mg/Kg	MS Conc mg/Kg	RPD <20% #	MS % Rec #	QC Limits	
Silver	21.4	ND	20.9	4	98	75	125
Aluminum	214	12600	14000	19	654 *	75	125
Arsenic	5.26	10.8	16.5	5	108	70	130
Barium	214	155	391	8	110	75	125
Beryllium	21.4	0.543	22.3	6	102	75	125
Calcium	429	1850	2300	8	105	75	125
Cadmium	21.4	ND	22.0	7	103	75	125
Cobalt	107	9.01	117	5	101	75	125
Chromium	42.9	14.9	58.8	9	102	75	125
Copper	42.9	19.5	65.0	5	108	75	125
Iron	214	23100	23700	6	280 *	75	125
Potassium	429	995	1660	21 *	155 *	75	125
Magnesium	429	2710	3350	10	149 *	75	125
Manganese	21.4	687	787	8	467 *	75	125
Sodium	429	75.5	540	7	108	75	125
Nickel	107	18.9	128	5	102	75	125
Lead	2.10	14.0	15.0	7	48 *	70	130
Antimony	214	ND	3.49	2	2 *	75	125
Selenium	5.26	ND	3.23	1	61 *	70	130
Thallium	2.10	0.300	2.02	6	82	70	130
Vanadium	107	23.8	126	9	96	75	125
Zinc	21.4	71.6	96.9	6	118	75	125
Mercury	0.183	0.041	0.213	1	94	75	125

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits ND - Not Detected

000037

9809-153 mq1MSMSD

3781242

Metals Matrix Spike

SOLID MATRIX SPIKE DUPLICATE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MSD ICP Metals	9809-153-02	V8-SO-11
Laboratory ID MSD GFAA Metals	9809-153-02	V8-SO-09
Laboratory ID MSD Mercury	9809-153-02	V4-SO-31

Date Sample Prepared	09/08/98	ICP Metals
	09/04/98	GFAA Metals
	09/04/98	Mercury

Metals	SPIKE Added mg/Kg	SAMPLE Conc mg/Kg	MSD Conc mg/Kg		MSD % Rec	#	QC Limits
Silver	21.4	ND	20.0		94		75 125
Aluminum	214	12600	11600		-467	*	75 125
Arsenic	5.46	10.8	17.3		119		70 130
Barium	214	155	361		96		75 125
Beryllium	21.4	0.543	21.1		96		75 125
Calcium	429	1850	2130		65	*	75 125
Cadmium	21.4	ND	20.5		96		75 125
Cobalt	107	9.01	111		95		75 125
Chromium	42.9	14.9	53.5		90		75 125
Copper	42.9	19.5	62.7		101		75 125
Iron	214	23100	22400		-327	*	75 125
Potassium	429	995	1350		83		75 125
Magnesium	429	2710	3030		75	*	75 125
Manganese	21.4	687	854		780	*	75 125
Sodium	429	75.5	505		100		75 125
Nickel	107	18.9	122		96		75 125
Lead	2.19	14.0	16.1		96		70 130
Antimony	214	ND	0		0	*	75 125
Selenium	5.46	ND	3.20		59	*	70 130
Thallium	2.19	0.300	2.15		85		70 130
Vanadium	107	23.8	115		85		75 125
Zinc	21.4	71.6	91.7		94		75 125
Mercury	0.179	0.041	0.210		94		75 125

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits ND - Not Detected

000038

9809-153 mq1MSMSD

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

3781243

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9809-153

HOLDING TIMES

QC Batch(s) for this order : ICP/GFAA V11-AQ-62
Mercury V4-AQ-36

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

9809-153.MQCBLANK

Method Blank

V11-AQ-62BLK - ICP/GFAA Metals
V4-AQ-36BLK - Mercury

No analytes detected in the Method Blank.

9809-153.MQCLCS

Laboratory Control Sample(s)

V11-AQ-62LCS - ICP/GFAA Metals
V4-AQ-36LCS - Mercury

All criteria met.

9809-153.MQCMSMSD

Matrix Spike / Matrix Spike Dup - ICP Metals

9809-153-03

RA-A-EQ-005-CS RPD : All analytes within QC limits.
Spike Recovery : All analytes within QC limits.

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

000039

3781244

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 # : 9809-153

QUALITY CONTROL

Matrix Spike / Matrix Spike Dup - Graphite Metals

9809-153-03 RPD : All analytes within QC limits.
RA-A-EQ-005-CS Spike Recovery : All analytes within QC limits.

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

Matrix Spike / Matrix Spike Dup - Hg

9809-153-03 RPD : All analytes within QC limits.
RA-A-EQ-005-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

000040

SOLID METHOD BLANK
METALS

3781245

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID ICP/GFAA Metals V11-AQ-62 BLK QC Batch V11-AQ-62

Laboratory ID Mercury V4-AQ-36 BLK V4-AQ-36

Date Sample Prepared 09/04/98 ICP/GFAA Metals

09/08/98 Mercury

Metals	Concentration mg/L	Detection Limit mg/L	Date Analyzed	Method
Silver	<0.009	0.009	09/08/98	6010B
Aluminum	<0.060	0.060	09/08/98	6010B
Arsenic	<0.003	0.003	09/04/98	7060A
Barium	<0.003	0.003	09/08/98	6010B
Beryllium	<0.002	0.002	09/08/98	6010B
Calcium	<0.015	0.015	09/08/98	6010B
Cadmium	<0.005	0.005	09/08/98	6010B
Cobalt	<0.009	0.009	09/08/98	6010B
Chromium	<0.009	0.009	09/08/98	6010B
Copper	<0.008	0.008	09/08/98	6010B
Iron	<0.009	0.009	09/08/98	6010B
Potassium	<0.250	0.250	09/08/98	6010B
Magnesium	<0.040	0.040	09/08/98	6010B
Manganese	<0.003	0.003	09/08/98	6010B
Sodium	<0.050	0.050	09/08/98	6010B
Nickel	<0.020	0.020	09/08/98	6010B
Lead	<0.002	0.002	09/08/98	7421
Antimony	<0.040	0.040	09/08/98	6010B
Selenium	<0.003	0.003	09/04/98	7740
Thallium	<0.002	0.002	09/08/98	7841
Vanadium	<0.010	0.010	09/08/98	6010B
Zinc	<0.010	0.010	09/08/98	6010B
Mercury	<0.0002	0.0002	09/08/98	7470A

Metals Blank

000041

9809-153.MQCBLANK

3781246

SOLID LABORATORY CONTROL SAMPLE
METALS

Lab Name

Environmental Testing and Consulting, Inc

Laboratory Control ID

ICP/GFAA Metals V11-AQ-62 LCS
Mercury V4-AQ-36 LCS

QC Batch

V11-AQ-62V4-AQ-36

Date Prepared

ICP/GFAA Metals 09/04/98
Mercury 09/08/98

Metals	Spike Added mg/L	Found mg/L	% R	#	QC Limits	
Silver	0.250	0.265	106		80	120
Aluminum	2.50	2.62	105		80	120
Arsenic	0.063	0.062	98		85	115
Barium	2.50	2.66	106		80	120
Beryllium	0.250	0.256	102		80	120
Calcium	5.00	5.32	106		80	120
Cadmium	0.250	0.268	107		80	120
Cobalt	1.25	1.30	104		80	120
Chromium	0.500	0.522	104		80	120
Copper	0.500	0.545	109		80	120
Iron	2.50	2.69	108		80	120
Potassium	5.00	5.28	106		80	120
Magnesium	5.00	5.20	104		80	120
Manganese	0.250	0.266	106		80	120
Sodium	5.00	5.36	107		80	120
Nickel	1.25	1.32	106		80	120
Lead	0.025	0.026	104		85	115
Antimony	2.50	2.73	109		80	120
Selenium	0.063	0.060	95		85	115
Thallium	0.025	0.026	104		85	115
Vanadium	1.25	1.33	106		80	120
Zinc	0.250	0.271	108		80	120
Mercury	0.0050	0.0053	106		80	120

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits

Metals Laboratory Control Sample

000042
9809-153.MQCLCS

SOLID MATRIX SPIKE
METALS

3781247

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP/GFAA Metals 9809-153-03 QC Batch V11-AQ-62
Laboratory ID MS Mercury 9809-153-03 V4-AQ-36

Date Sample Prepared 09/04/98 ICP/GFAA Metals
09/08/98 Mercury

Metals	SPIKE Added mg/L	SAMPLE Conc mg/L	MS Conc mg/L	RPD <20% #	MS % Rec #	QC Limits	
Silver	0.250	ND	0.271	1	108	75	125
Aluminum	2.50	ND	2.71	0	108	75	125
Arsenic	0.063	ND	0.060	2	95	85	115
Barium	2.50	ND	2.74	1	110	75	125
Beryllium	0.250	ND	0.263	1	105	75	125
Calcium	5.00	ND	5.43	1	109	75	125
Cadmium	0.250	ND	0.274	0	110	75	125
Cobalt	1.25	ND	1.33	1	106	75	125
Chromium	0.500	ND	0.532	0	106	75	125
Copper	0.500	0.009	0.557	1	110	75	125
Iron	2.50	0.011	2.75	0	110	75	125
Potassium	5.00	ND	5.41	1	108	75	125
Magnesium	5.00	ND	5.31	0	106	75	125
Manganese	0.250	ND	0.272	1	109	75	125
Sodium	5.00	ND	5.41	0	108	75	125
Nickel	1.25	ND	1.35	1	108	75	125
Lead	0.025	ND	0.026	8	104	85	115
Antimony	2.50	ND	2.69	0	108	75	125
Selenium	0.063	ND	0.061	3	97	85	115
Thallium	0.025	ND	0.027	4	108	85	115
Vanadium	1.25	ND	1.36	0	109	75	125
Zinc	0.250	ND	0.285	4	114	75	125
Mercury	0.0050	ND	0.0052	0	104	75	125

Column to be used to flag recovery values with an asterisk
* Values outside of QC limits ND - Not Detected

Metals Matrix Spike

000043
9809-153.mqcMSMSD

3781248

SOLID MATRIX SPIKE DUPLICATE
METALS

Lab Name Environmental Testing and Consulting, Inc

Laboratory ID MS ICP/GFAA Metals	9809-153-03	QC Batch V11-AQ-62
Laboratory ID MS Mercury	9809-153-03	V4-AQ-36

Date Sample Prepared	09/04/98	ICP/GFAA Metals
	09/08/98	Mercury

Metals	SPIKE Added mg/L	SAMPLE Conc mg/L	MSD Conc mg/L		MSD % Rec	#	QC Limits
Silver	0.250	ND	0.268		107	75	125
Aluminum	2.50	ND	2.70		108	75	125
Arsenic	0.063	ND	0.061		97	85	115
Barium	2.50	ND	2.71		108	75	125
Beryllium	0.250	ND	0.265		106	75	125
Calcium	5.00	ND	5.46		109	75	125
Cadmium	0.250	ND	0.275		110	75	125
Cobalt	1.25	ND	1.35		108	75	125
Chromium	0.500	ND	0.531		106	75	125
Copper	0.500	0.009	0.552		109	75	125
Iron	2.50	0.011	2.75		110	75	125
Potassium	5.00	ND	5.45		109	75	125
Magnesium	5.00	ND	5.30		106	75	125
Manganese	0.250	ND	0.274		110	75	125
Sodium	5.00	ND	5.43		109	75	125
Nickel	1.25	ND	1.36		109	75	125
Lead	0.025	ND	0.024		96	85	115
Antimony	2.50	ND	2.78		111	75	125
Selenium	0.063	ND	0.059		94	85	115
Thallium	0.025	ND	0.026		104	85	115
Vanadium	1.25	ND	1.36		109	75	125
Zinc	0.250	ND	0.275		110	75	125
Mercury	0.0050	ND	0.0052		104	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

000044

9809-153 mqcMSMSD

3781249

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC/MS Semi-Volatiles

000045

3781250

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 # : 9809-153
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
P04031 P04031LB

System Monitoring Compounds FORM 2

Surrogate recoveries within QC limits.*

*

Surrogate recoveries for Nitrobenzene-d5 and 2-Fluorobiphenyl were
flagged for high recovery in samples 9809-153-02(RA-A-013), P04031LB,
and P04031BS associated with this project.

Laboratory Control Sample FORM 3
P04031BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3

9809-153-02

RPD : All analytes within QC limits.

RA-A-013

Spike Recovery : All analytes within QC limits.*

*

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

Recoveries for Anthracene and Naphthalene were flagged as outside QC
Limits in the Matrix Spike. MSD recoveries were within QC Limits.

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

Method Blank FORM 4
P04031LB

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
Calibration Verification : All criteria met. FORM 7

Semi-Volatile Internal Standard Area and RT FORM 8

Daily Check Standard(s) Internal Standard Areas and Retention Times
within QC limits.

000046

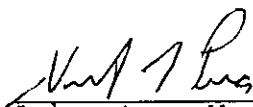
ENVIRONMENTAL TESTING AND CONSULTING, INC.
MEMPHIS, TN
CASE NARRATIVE
GC/MS SEMI-VOLATILE COMPOUNDS - SOIL

3781251

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9809-153
Method (SW-846) : 8270C/3550B

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC, 5971MSD
Dilutions Required : No dilutions required.


Laboratory Manager

000047

3781252

FORM 2
SOIL BNA-GCMS SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9809-153

Level: (low/med) LOW

	CLIENT SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P04031LB	87*	91*	73						2
02	P04031BS	86*	96*	72						2
03	9809-153-1	65	71	55						0
04	9809-153-2	81*	88*	74						2
05	9809-153-2M	57	69	57						0
06	9809-153-2S	62	79	64						0
07	P04031LB	85*	93*	86						2
08	P04031BS	87*	101*	86						2
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10										
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S1 (NBZ) = Nitrobenzene-d5
 S2 (FBP) = 2-Fluorobiphenyl
 S3 (TPH) = Terphenyl-d14

QC LIMITS
 (39- 80)
 (43- 84)
 (40-121)

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

C00048

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

3781253

CLIENT SAMPLE NO

P04031LB

Lab Name: ETC, INC.

Lab Prep Batch: P04031

Lab File ID: 1401014

Matrix: (soil/water) SOIL

Level:(low/med) LOW

SDG No.: 9809-153

Instrument ID: BNA2

Date Analyzed: 09/05/98

Time Analyzed: 2326

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

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P04031BS		1501015	09/05/98
02	9809-153-1		1601016	09/06/98
03	9809-153-2		1701017	09/06/98
04	9809-153-2M		1901019	09/06/98
05	9809-153-2S		2001020	09/06/98
06	P04031BS		1601016	09/09/98
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COMMENTS:

3781254

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

P04031LB

Lab Name: ETC, INC.

SDG No.: 9809-153

Matrix: (soil/water) SOIL

Lab Prep Batch: P04031

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

Lab File ID: 1401014

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1(mL)

Date Analyzed: 09/05/98

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	66.7	U
208-96-8-----	Acenaphthylene	66.7	U
120-12-7-----	Anthracene	66.7	U
56-55-3-----	Benzo(a)Anthracene	66.7	U
205-99-2-----	Benzo(b)fluoranthene	66.7	U
207-08-9-----	Benzo(k)fluoranthene	66.7	U
191-24-2-----	Benzo(g,h,i)perylene	66.7	U
50-32-8-----	Benzo(a)pyrene	66.7	U
218-01-9-----	Chrysene	66.7	U
53-70-3-----	Dibenzo(a,h)anthracene	66.7	U
206-44-0-----	Fluoranthene	66.7	U
86-73-7-----	Fluorene	66.7	U
193-39-5-----	Indeno(1,2,3-cd)pyrene	66.7	U
91-57-6-----	2-Methylnaphthalene	66.7	U
91-20-3-----	Naphthalene	66.7	U
85-01-8-----	Phenanthrene	66.7	U
129-00-0-----	Pyrene	66.7	U

FORM I BNA-GCMS

000050

FORM 3
SOIL BNA-GCMS LABORATORY CONTROL SAMPLE

3781255

Lab Name: ETC, INC.

Lab Prep Batch: P04031

SDG No.: 9809-153

Matrix Spike - Sample No.: P04031BS

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
Acenaphthene	1670		1460	87	34-126
Acenaphthylene	1670		1620	97	62-123
Anthracene	1670		1380	83	68-124
Benzo(a)Anthracene	1670		1350	81	60-133
Benzo(b)fluoranthene	1670		1490	89	67-126
Benzo(k)fluoranthene	1670		1820	109	75-131
Benzo(g,h,i)perylene	1670		1360	81	53-137
Benzo(a)pyrene	1670		1540	92	68-129
Chrysene	1670		1350	81	67-131
Dibenzo(a,h)anthracene	1670		1430	86	51-138
Fluoranthene	1670		1490	89	71-132
Fluorene	1670		1540	92	65-126
Indeno(1,2,3-cd)pyrene	1670		1280	77	34-170
Naphthalene	1670		1270	76	62-113
Phenanthrene	1670		1470	88	66-128
Pyrene	1670		1400	84	33-155

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 16 outside limits

COMMENTS:

FORM 3
SOIL BNA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P04031

SDG No.: 9809-153

Matrix Spike - Sample No.: 9809-153-2

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Acenaphthene	1640	0.00	1140	70	34-126
Acenaphthylene	1640	0.00	1200	73	62-123
Anthracene	1640	0.00	1090	66*	68-124
Benzo(a)Anthracene	1640	0.00	1310	80	60-133
Benzo(b)fluoranthene	1640	0.00	1200	73	67-126
Benzo(k)fluoranthene	1640	0.00	1590	97	75-131
Benzo(g,h,i)perylene	1640	0.00	1060	65	53-137
Benzo(a)pyrene	1640	0.00	1330	81	68-129
Chrysene	1640	0.00	1200	73	67-131
Dibenzo(a,h)anthracene	1640	0.00	1010	62	51-138
Fluoranthene	1640	0.00	1050	64*	71-132
Fluorene	1640	0.00	1130	69	65-126
Indeno(1,2,3-cd)pyrene	1640	0.00	1020	62	34-170
Naphthalene	1640	0.00	948	58*	62-113
Phenanthrene	1640	0.00	1150	70	66-128
Pyrene	1640	0.00	1010	62	33-155

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

COMMENTS:

FORM 3
SOIL BNA-GCMS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

3781257

Lab Name: ETC, INC.

Lab Prep Batch: P04031

SDG No.: 9809-153

Matrix Spike - Sample No.: 9809-153-2

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Acenaphthene	1640	1210	74	6	20	34-126
Acenaphthylene	1640	1280	78	7	20	62-123
Anthracene	1640	1180	72	9	20	68-124
Benzo(a)Anthracene	1640	1380	84	5	20	60-133
Benzo(b)fluoranthene	1640	1220	74	1	20	67-126
Benzo(k)fluoranthene	1640	1580	96	1	20	75-131
Benzo(g,h,i)perylene	1640	1260	77	17	20	53-137
Benzo(a)pyrene	1640	1410	86	6	20	68-129
Chrysene	1640	1290	79	8	20	67-131
Dibenzo(a,h)anthracene	1640	1190	72	15	20	51-138
Fluoranthene	1640	1110	68*	6	20	71-132
Fluorene	1640	1250	76	10	20	65-126
Indeno(1,2,3-cd)pyrene	1640	1020	62	0	20	34-170
Naphthalene	1640	1030	63	8	20	62-113
Phenanthrene	1640	1220	74	6	20	66-128
Pyrene	1640	1070	65	5	20	33-155

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

RPD: 0 out of 16 outside limits

Spike Recovery: 4 out of 32 outside limits

COMMENTS:

000053

3781258

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 # : 9809-153
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
P05037 P05037LB

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

*
Surrogate recoveries for Nitrobenzene-d5 and 2-Fluorobiphenyl were
flagged for high recovery in P05037BS/BD associated with this
project. These samples were re-analyzed for verification with
similiar recoveries.

Laboratory Control Sample FORM 3
P05037BS/BD

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
P05037LB

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
Calibration Verification : All criteria met. FORM 7

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

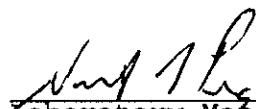
3781259

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

ETC Order # : 9809-153
Method (SW-846) : 8270C/3510C

SAMPLE ANALYSIS

Instrumentation : HP 5890 Series II GC, 5971MSD
Dilutions Required : No dilutions required.


Laboratory Manager

000055

3781260

FORM 2
WATER BNA-GCMS SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9809-153

	CLIENT SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P05037LB	82	76	70						
02	P05037BS	80	88*	70						0
03	P05037BD	85*	90*	72						1
04	9809-153-3	58	57	69						2
05	P05037BS	85*	94*	84						0
06	P05037BD	87*	96*	85						2
07										2
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S1 (NBZ) = Nitrobenzene-d5
 S2 (FBP) = 2-Fluorobiphenyl
 S3 (TPH) = Terphenyl-d14

QC LIMITS
 (35- 85)
 (46- 84)
 (33-113)

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

000056

3781261

FORM 4
BNA-GCMS METHOD BLANK SUMMARY

CLIENT SAMPLE NO

P05037LB

Lab Name: ETC, INC.

Lab Prep Batch: P05037

SDG No.: 9809-153

Lab File ID: 1101011

Instrument ID: BNA2

Matrix: (soil/water) WATER

Date Analyzed: 09/05/98

Level: (low/med) LOW

Time Analyzed: 2153

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

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P05037BS		1201012	09/05/98
02	P05037BD		1301013	09/05/98
03	9809-153-3		1801018	09/06/98
04	P05037BS		1301013	09/09/98
05	P05037BD		1401014	09/09/98
06				
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COMMENTS:

000057

3781262

FORM 1
BNA-GCMS ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: ETC, INC.

P05037LB

SDG No.: 9809-153

Matrix: (soil/water) WATER

Lab Prep Batch: P05037

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

Lab File ID: 1101011

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 1 (mL)

Date Analyzed: 09/05/98

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	UG/L	
83-32-9	Acenaphthene	2.0	U	
208-96-8	Acenaphthylene	2.0	U	
120-12-7	Anthracene	2.0	U	
56-55-3	Benzo(a) Anthracene	2.0	U	
205-99-2	Benzo(b) fluoranthene	2.0	U	
207-08-9	Benzo(k) fluoranthene	2.0	U	
191-24-2	Benzo(g,h,i) perylene	2.0	U	
50-32-8	Benzo(a) pyrene	2.0	U	
218-01-9	Chrysene	2.0	U	
53-70-3	Dibenzo(a,h) anthracene	2.0	U	
206-44-0	Fluoranthene	2.0	U	
86-73-7	Fluorene	2.0	U	
193-39-5	Indeno(1,2,3-cd) pyrene	2.0	U	
91-57-6	2-Methylnaphthalene	2.0	U	
91-20-3	Naphthalene	2.0	U	
85-01-8	Phenanthrene	2.0	U	
129-00-0	Pyrene	2.0	U	

FORM I BNA-GCMS

000058

FORM 3
WATER BNA-GCMS LABORATORY CONTROL SAMPLE

3781263

Lab Name: ETC, INC.

Lab Prep Batch: P05037

SDG No.: 9809-153

Matrix Spike - Sample No.: P05037BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Acenaphthene	50.0		40.3	81	37-123
Acenaphthylene	50.0		45.1	90	67-118
Anthracene	50.0		39.8	80	68-124
Benzo(a)Anthracene	50.0		39.9	80	69-125
Benzo(b)fluoranthene	50.0		44.4	89	68-127
Benzo(k)fluoranthene	50.0		51.8	104	73-128
Benzo(g,h,i)perylene	50.0		47.1	94	53-138
Benzo(a)pyrene	50.0		47.6	95	73-125
Chrysene	50.0		39.9	80	70-124
Dibenzo(a,h)anthracene	50.0		48.7	97	57-136
Fluoranthene	50.0		43.0	86	55-135
Fluorene	50.0		44.2	88	66-121
Indeno(1,2,3-cd)pyrene	50.0		44.1	88	57-140
Naphthalene	50.0		33.5	67	55-113
Phenanthrene	50.0		42.6	85	65-126
Pyrene	50.0		41.2	82	40-149

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

COMMENTS:

3781264

FORM 3
WATER BNA-GCMS LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P05037

SDG No.: 9809-153

Matrix Spike - Sample No.: P05037BD

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Acenaphthene	50.0	41.3	83	2	20	37-123
Acenaphthylene	50.0	46.0	92	2	20	67-118
Anthracene	50.0	40.8	82	2	20	68-124
Benzo(a)Anthracene	50.0	42.3	85	6	20	69-125
Benzo(b)fluoranthene	50.0	46.4	93	4	20	68-127
Benzo(k)fluoranthene	50.0	51.1	102	2	20	73-128
Benzo(g,h,i)perylene	50.0	40.5	81	15	20	53-138
Benzo(a)pyrene	50.0	49.2	98	3	20	73-125
Chrysene	50.0	42.3	85	6	20	70-124
Dibenzo(a,h)anthracene	50.0	43.3	87	11	20	57-136
Fluoranthene	50.0	44.8	90	4	20	55-135
Fluorene	50.0	45.7	91	3	20	66-121
Indeno(1,2,3-cd)pyrene	50.0	42.8	86	2	20	57-140
Naphthalene	50.0	32.2	64	4	20	55-113
Phenanthrene	50.0	44.1	88	3	20	65-126
Pyrene	50.0	42.2	84	2	20	40-149

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

RPD: 0 out of 16 outside limits

Spike Recovery: 0 out of 32 outside limits

COMMENTS:

3781265

Environmental Testing & Consulting, Inc.

**Quality Control Reports
GC Pesticides**

000061

3781266

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 # : 9809-153
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
P06015 P06015LB

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

*
Surrogate recoveries for Decachlorobiphenyl were flagged as outside QC Limits in samples 9809-153-01(RA-A-013), 9809-153-02(RA-A-014), and MS/MSD associated with this project due to required dilutions. Surrogate recoveries for Tetrachloro-m-xylene were within QC Limits for all samples associated with this project.

Laboratory Control Sample FORM 3
P06015BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9809-153-02 RPD : All analytes within QC limits.*
RA-A-014 Spike Recovery : All analytes within QC limits.
*
RPD for 4,4'-DDT was flagged as outside QC Limits due to higher recovery in the Matrix Spike.

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

Method Blank FORM 4
P06015LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7*
Endrin/Breakdown : All criteria met. FORM 7
*

Calibration Verification(CV) : P309101B.37R (Primary)

Analyte	%Diff(15% Max)	Response
Endrin	20.0	Low
Tetrachloro-m-xylene	17.0	Low
Decachlorobiphenyl	19.0	Low

000062

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

3781267

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9809-153
Method (SW-846) : 8081A/3550B

CALIBRATION

Low responses indicates that reported levels for these analytes may be biased low. Recoveries for Endrin were within QC Limits in P06015BS and 9809-153-02MS/MSD. Surrogate recoveries for Tetrachloro-m-xylene were within QC Limits for all samples associated with this CV. The data was not affected.

Calibration Verification(CV) : P109071A.20R (Primary)

Analyte	%Diff(15% Max)	Response
delta-BHC	16.4	High
4,4'-DDT	22.6	High
Endrin aldehyde	21.4	High
Endrin Ketone	38.0	High
Methoxychlor	25.0	High

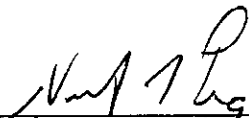
High responses indicate that reported levels for these analytes may be biased high. Method Blank P06015LB was the only project sample associated with this CV. No Target Analytes were identified in this sample. The data was not affected.

Initial Calibration (ICAL) : P309101B (Primary)

Initial calibration level 1 (0.0004 ng/ul) for Endrin Ketone was removed due to poor response. The reporting limit for this analyte was not affected.

SAMPLE ANALYSIS

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


Laboratory Manager

000063

FORM 2
SOIL PESTICIDE SURROGATE RECOVERY

Contract:

SDG No.: 9809-153

[illegible]

S1 (TMX) = Tetrachloro-m-xylene	QC LIMITS (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
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FORM 4
PESTICIDE METHOD BLANK SUMMARY

3781269

EPA GC SAMPLE NO.

P06015LB

Lab Name: ETC, INC.

Lab Prep Batch: P06015

SDG No.: 9809-153

Lab File ID: P109071A-19R

Instrument ID: PEST1A

Matrix: (soil/water) SOIL

Date Analyzed: 09/07/98

Level:(low/med) LOW

Time Analyzed: 2231

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	9808-153-2		P309101B-13R	09/11/98
02	9808-153-1		P309101B-14R	09/11/98
03	9808-153-2M		P309101B-21R	09/11/98
04	9808-153-2S		P309101B-22R	09/11/98
05	P06015BS		P309101B-34R	09/11/98
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COMMENTS:

3781270

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

P06015LB

SDG No.: 9809-153

Matrix: (soil/water) SOIL

Lab Prep Batch: P06015

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

Lab File ID: P109071A-19R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 09/07/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

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

FORM I PESTICIDE

000066

FORM 3
SOIL PESTICIDE LABORATORY CONTROL SAMPLE

3781271

Lab Name: ETC, INC.

Lab Prep Batch: P06015

SDG No.: 9809-153

Matrix Spike - Sample No.: P06015BS

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
Aldrin	33.33		31.43	94	34-105
alpha-BHC	33.33		29.30	88	41-102
beta-BHC	33.33		33.25	100	26-151
delta-BHC	33.33		23.97	72	21- 92
gamma-BHC	33.33		30.31	91	41-102
alpha-chlordane	33.33		33.98	102	48-117
gamma-chlordane	33.33		33.55	101	50-108
4,4'-DDD	33.33		33.93	102	39-124
4,4'-DDE	33.33		34.42	103	41-111
4,4'-DDT	33.33		36.58	110	39-123
Dieldrin	33.33		33.36	100	42-111
Endosulfan I	33.33		34.47	103	48-117
Endosulfan II	33.33		35.39	106	52-114
Endosulfan sulfate	33.33		33.31	100	46-111
Endrin	33.33		34.85	104	45-117
Endrin aldehyde	33.33		38.97	117	48-125
Endrin ketone	33.33		35.20	106	51-112
Heptachlor	33.33		32.76	98	43-114
Heptachlor epoxide	33.33		32.33	97	42-115
Methoxychlor	33.33		37.03	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:

3781272

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ETC, INC.

Lab Prep Batch: P06015

SDG No.: 9809-153

Matrix Spike - Sample No.: 9809-153-2

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Aldrin	32.57	0.000	27.36	84	31-111
alpha-BHC	32.57	0.000	25.92	80	22-112
beta-BHC	32.57	0.000	28.93	89	54-120
delta-BHC	32.57	0.000	21.15	65	10- 96
gamma-BHC	32.57	0.000	26.75	82	26-113
alpha-chlordane	32.57	0.000	30.91	95	49-103
gamma-chlordane	32.57	0.000	30.03	92	50-106
4,4'-DDD	32.57	0.000	28.87	89	47-112
4,4'-DDE	32.57	0.000	31.65	97	36-117
4,4'-DDT	32.57	9.08	44.68	109	49-124
Dieldrin	32.57	0.000	30.42	93	44-108
Endosulfan I	32.57	0.000	28.98	89	49-103
Endosulfan II	32.57	0.000	29.64	91	53-115
Endosulfan sulfate	32.57	0.000	27.26	84	51-110
Endrin	32.57	0.000	29.77	91	44-118
Endrin aldehyde	32.57	3.42	32.23	88	48-128
Endrin ketone	32.57	0.000	29.67	91	38-130
Heptachlor	32.57	0.000	28.65	88	47-113
Heptachlor epoxide	32.57	0.000	28.06	86	47-112
Methoxychlor	32.57	0.000	29.81	92	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

3781273

Lab Name: ETC, INC.

Lab Prep Batch: P06015

SDG No.: 9809-153

Matrix Spike - Sample No.: 9809-153-2

Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Aldrin	32.79	24.97	76	10	20	31-111
alpha-BHC	32.79	23.46	72	10	20	22-112
beta-BHC	32.79	26.62	81	9	20	54-120
delta-BHC	32.79	19.13	58	11	20	10- 96
gamma-BHC	32.79	24.51	75	9	20	26-113
alpha-chlordane	32.79	27.29	83	13	20	49-103
gamma-chlordane	32.79	27.39	84	9	20	50-106
4,4'-DDD	32.79	27.16	83	7	20	47-112
4,4'-DDE	32.79	27.89	85	13	20	36-117
4,4'-DDT	32.79	34.05	76	36*	20	49-124
Dieldrin	32.79	26.97	82	12	20	44-108
Endosulfan I	32.79	26.60	81	9	20	49-103
Endosulfan II	32.79	27.56	84	8	20	53-115
Endosulfan sulfate	32.79	25.80	79	6	20	51-110
Endrin	32.79	27.32	83	9	20	44-118
Endrin aldehyde	32.79	28.72	77	13	20	48-128
Endrin ketone	32.79	27.45	84	8	20	38-130
Heptachlor	32.79	26.49	81	8	20	47-113
Heptachlor epoxide	32.79	26.10	80	7	20	47-112
Methoxychlor	32.79	28.33	86	7	20	39-147

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

RPD: 1 out of 20 outside limits

Spike Recovery: 0 out of 40 outside limits

COMMENTS:

3781274

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 # : 9809-153
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
P07015 P07015LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P07015BS/BD

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
P07015LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6*
Calibration Verification : All criteria met. FORM 7**
Endrin/Breakdown : All criteria met. FORM 7***

*

Calibration Verification(CV) : P309101B.37R (Primary)

Analyte	%Diff(15% Max)	Response
Endrin	20.0	Low
Tetrachloro-m-xylene	17.0	Low
Decachlorobiphenyl	19.0	Low

Low responses indicates that reported levels for these analytes
may be biased low. Recoveries for Endrin were within QC Limits in
P06015BS and 9809-153-02MS/MSD. Surrogate recoveries for
Tetrachloro-m-xylene were within QC Limits for all samples
associated with this CV. The data was not affected.

000070

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

3781275

Client Name : OHM Remediation Services Corp.
Project Name : Defense Depot Memphis TN
ETC Order # : 9809-153
Method (SW-846) : 8081A/3510C

SAMPLE ANALYSIS

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


Laboratory Manager

000071

3781276

FORM 2
WATER PESTICIDE SURROGATE RECOVERY

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9809-153

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	9809-153-3	77	84							0
02	P07015LB	39	67							0
03	P07015BS	48	37							0
04	P07015BD	46	35							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

000072

FORM 4
PESTICIDE METHOD BLANK SUMMARY

3781277

EPA GC SAMPLE NO.

P07015LB

Lab Name: ETC, INC.

Lab Prep Batch: P07015

Lab File ID: P309101B-26R

Matrix: (soil/water) WATER

Level:(low/med) LOW

SDG-No.: 9809-153

Instrument ID: PEST3B

Date Analyzed: 09/11/98

Time Analyzed: 1416

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	9808-153-3		P309101B-15R	09/11/98
02	P07015BS		P309101B-29R	09/11/98
03	P07015BD		P309101B-30R	09/11/98
04				
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COMMENTS:

3781278

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

P07015LB

SDG No.: 9809-153

Matrix: (soil/water) WATER

Lab Prep Batch: P07015

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

Lab File ID: P309101B-26R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 09/11/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
309-00-2-----	Aldrin	0.0400	U
319-84-6-----	alpha-BHC	0.0400	U
319-85-7-----	beta-BHC	0.0400	U
319-86-8-----	delta-BHC	0.0400	U
58-89-9-----	gamma-BHC	0.0400	U
5103-71-9-----	alpha-chlordane	0.0400	U
5103-74-2-----	gamma-chlordane	0.0400	U
72-54-8-----	4,4'-DDD	0.0400	U
72-55-9-----	4,4'-DDE	0.0400	U
50-29-3-----	4,4'-DDT	0.0400	U
60-57-1-----	Dieldrin	0.0400	U
959-98-8-----	Endosulfan I	0.0400	U
33213-65-9-----	Endosulfan II	0.0400	U
1031-07-8-----	Endosulfan sulfate	0.0400	U
72-20-8-----	Endrin	0.0400	U
7421-93-4-----	Endrin aldehyde	0.0400	U
53494-70-5-----	Endrin ketone	0.0400	U
76-44-8-----	Heptachlor	0.0400	U
1024-57-3-----	Heptachlor epoxide	0.0400	U
72-43-5-----	Methoxychlor	0.0400	U

FORM I PESTICIDE

000074

FORM 3
WATER PESTICIDE LABORATORY CONTROL SAMPLE

3781279

Lab Name: ETC, INC.

Lab Prep Batch: P07015

SDG No.: 9809-153

Matrix Spike - Sample No.: P07015BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Aldrin	1.00		0.671	67	34-105
alpha-BHC	1.00		0.704	70	41-102
beta-BHC	1.00		0.823	82	26-151
delta-BHC	1.00		0.589	59	21- 92
gamma-BHC	1.00		0.724	72	41-102
alpha-chlordane	1.00		0.809	81	48-117
gamma-chlordane	1.00		0.808	81	50-108
4,4'-DDD	1.00		0.844	84	39-124
4,4'-DDE	1.00		0.837	84	41-111
4,4'-DDT	1.00		0.869	87	39-123
Dieldrin	1.00		0.805	80	42-111
Endosulfan I	1.00		0.813	81	48-117
Endosulfan II	1.00		0.876	88	52-114
Endosulfan sulfate	1.00		0.805	80	46-111
Endrin	1.00		0.781	78	45-117
Endrin aldehyde	1.00		0.919	92	48-125
Endrin ketone	1.00		0.899	90	51-112
Heptachlor	1.00		0.731	73	43-114
Heptachlor epoxide	1.00		0.781	78	42-115
Methoxychlor	1.00		0.875	88	39-140

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

COMMENTS: _____

3781280

FORM 3
WATER PESTICIDE LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P07015

SDG No.: 9809-153

Matrix Spike - Sample No.: P07015BS

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Aldrin	1.00	0.634	63	6	20	34-105
alpha-BHC	1.00	0.726	73	4	20	41-102
beta-BHC	1.00	0.828	83	1	20	26-151
delta-BHC	1.00	0.590	59	0	20	21- 92
gamma-BHC	1.00	0.753	75	4	20	41-102
alpha-chlordane	1.00	0.784	78	4	20	48-117
gamma-chlordane	1.00	0.772	77	5	20	50-108
4,4'-DDD	1.00	0.805	80	5	20	39-124
4,4'-DDE	1.00	0.788	79	6	20	41-111
4,4'-DDT	1.00	0.826	83	5	20	39-123
Dieldrin	1.00	0.806	81	1	20	42-111
Endosulfan I	1.00	0.806	81	0	20	48-117
Endosulfan II	1.00	0.840	84	5	20	52-114
Endosulfan sulfate	1.00	0.774	77	4	20	46-111
Endrin	1.00	0.750	75	4	20	45-117
Endrin aldehyde	1.00	0.845	84	9	20	48-125
Endrin ketone	1.00	0.832	83	8	20	51-112
Heptachlor	1.00	0.688	69	6	20	43-114
Heptachlor epoxide	1.00	0.778	78	0	20	42-115
Methoxychlor	1.00	0.799	80	10	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 20 outside limits

Spike Recovery: 0 out of 40 outside limits

COMMENTS:

000076

3781281

Environmental Testing & Consulting, Inc.

Quality Control Reports

GC PCBs

000077

3781282

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 # : 9809-153
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
P06015 P06015LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P06015BS

All criteria met.

Matrix Spike / Matrix Spike Dup FORM 3
9809-153-02 RPD : All analytes within QC limits.
RA-A-014 Spike Recovery : All analytes within QC limits.

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

Method Blank FORM 4
P06015LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7*

Calibration Verification(CV) : C209061.52R

Analyte	%Diff(15% Max)	Response
Decachlorobiphenyl	21.2	Low

Low response indicates that reported levels for this analyte may be biased low. Surrogates recoveries for all samples associated with this project were within QC Limits. The data was not affected.

SAMPLE ANALYSIS

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


Laboratory Manager

000078

FORM 2
SOIL PCB SURROGATE RECOVERY

3781283

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9809-153

Level: (low/med) LOW

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P06015LB	86	97							0
02	P06015BS	91	99							0
03	9809-153-1	62	80							0
04	9809-153-2	70	78							0
05	9809-153-2M	67	74							0
06	9809-153-2S	68	75							0
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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

000079

3781284

FORM 4
PCB METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

Lab Name: ETC, INC.

P06015LB

Lab Prep Batch: P06015

SDG No.: 9809-153

Lab File ID: C209061A-11R

Instrument ID: PEST2A

Matrix: (soil/water) SOIL

Date Analyzed: 09/06/98

Level: (low/med) LOW

Time Analyzed: 1654

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P06015BS		C209061A-16R	09/06/98
02	9809-153-1		C209061A-40R	09/07/98
03	9809-153-2		C209061A-41R	09/07/98
04	9809-153-2M		C209061A-50R	09/07/98
05	9809-153-2S		C209061A-51R	09/07/98
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COMMENTS:

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

3781285

EPA GC SAMPLE NO.

P06015LB

Lab Name: ETC, INC.

SDG No.: 9809-153

Matrix: (soil/water) SOIL

Lab Prep Batch: P06015

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

Lab File ID: C209061A-11R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 09/06/98

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

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

000081

3781286

FORM 3
SOIL PCB LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P06015

SDG No.: 9809-153

Matrix Spike - Sample No.: P06015BS

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		344.1	103	25-125
Aroclor 1260	333.3		321.6	96	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

000082

FORM 3
SOIL PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

3781287

Lab Name: ETC, INC.

Lab Prep Batch: P06015

SDG No.: 9809-153

Matrix Spike - Sample No.: 9809-153-2

Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	M CONCENTRATION (ug/Kg)	M % REC #	QC. LIMITS REC.
Aroclor 1242	331.1	0.000	255.5	77	25-125
Aroclor 1260	331.1	0.000	243.5	74	25-125

COMPOUND	SPIKE ADDED (ug/Kg)	S CONCENTRATION (ug/Kg)	S % REC #	% RPD #	QC LIMITS RPD REC.
Aroclor 1242	325.7	255.6	78	1	20 25-125
Aroclor 1260	325.7	250.6	77	4	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

000083

3781288

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 # : 9809-153
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
P09009 P09009LB

System Monitoring Compounds FORM 2
Surrogate recoveries within QC limits.

Laboratory Control Sample FORM 3
P09009BS/BD

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
P09009LB

No Target Analytes detected above Practical Quantitation Limit.

CALIBRATION

Initial Calibration : All criteria met. FORM 6
Calibration Verification : All criteria met. FORM 7

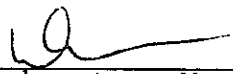
*
Calibration Verification(CV) : C209061.52R

Analyte	%Diff(15% Max)	Response
Decachlorobiphenyl	21.2	Low

Low response indicates that reported levels for this analyte may be
biased low. Surrogates recoveries for all samples associated with
this project were within QC Limits. The data was not affected.

SAMPLE ANALYSIS

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


Laboratory Manager

000084

FORM 2
WATER PCB SURROGATE RECOVERY

3781289

Lab Name: ETC, INC.

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 9809-153

	EPA GC SAMPLE NO.	S1 (TMX) #	S2 (DBC) #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	P09009LB	68	72							0
02	P09009BS	56	78							0
03	P09009BD	62	55							0
04	9809-153-3	62	58							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

000085

3781290

FORM 4
PCB METHOD BLANK SUMMARY

EPA GC SAMPLE NO.

P09009LB

Lab Name: ETC, INC.

Lab Prep Batch: P09009

SDG No.: 9809-153

Lab File ID: C209C61A-10R

Instrument ID: PEST2A

Matrix: (soil/water) WATER

Date Analyzed: 09/06/98

Level:(low/med) LOW

Time Analyzed: 1615

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

	EPA GC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	P09009BS		C209061A-14R	09/06/98
02	P09009BD		C209061A-15R	09/06/98
03	9809-153-3		C209061A-42R	09/07/98
04				
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COMMENTS:

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

3781291

EPA GC SAMPLE NO.

P09009LB

Lab Name: ETC, INC.

SDG No.: 9809-153

Matrix: (soil/water) WATER

Lab Prep Batch: P09009

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

Lab File ID: C209061A-10R

Level: (low/med) LOW

Date Received: _____

Concentrated Extract Volume: 10(mL)

Date Analyzed: 09/06/98

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

000087

3781292

FORM 3
WATER PCB LABORATORY CONTROL SAMPLE

Lab Name: ETC, INC.

Lab Prep Batch: P09009

SDG No.: 9809-153

Matrix Spike - Sample No.: P09009BS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
Aroclor 1242	10.00		7.25	72	25-125
Aroclor 1260	10.00		8.44	84	25-125

COMPOUND	SPIKE ADDED (ug/L)	BD CONCENTRATION (ug/L)	BD % REC #	% RPD #	QC LIMITS RPD REC.
Aroclor 1242	10.00	8.08	81	12	20 25-125
Aroclor 1260	10.00	8.98	90	7	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

000088

FINAL PAGE

PART II

ADMINISTRATIVE RECORD

PART II

FINAL PAGE