

865 4208

File: 541.460.000n  
M.D.



# THE MEMPHIS DEPOT TENNESSEE

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## ADMINISTRATIVE RECORD COVER SHEET

AR File Number 865

*Part II of II*

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File:  
M.D. 541.460.000 g

865

**APPENDIX E**

**CITY OF MEMPHIS APPROVAL LETTER FOR DISCHARGE OF STORMWATER**

865 422



DR. WILLIE W. HERENTON - Mayor  
KEITH L. MCGEE - Chief Administrative Officer  
DIVISION OF PUBLIC WORKS  
JERRY R. COLLINS JR - Director  
Maynard C. Stiles Wastewater Treatment Plant

Wednesday, April 20, 2005

Mr. David Price  
Project Manager  
MACTEC Engineering and Consultant, Inc.  
3200 Town Point Drive NM, Suite 100  
Kennesaw, Georgia 30144

RE: Request for disposal of groundwater at the Dunn Field, Memphis Depot, Memphis, Tennessee  
Industrial Wastewater Discharge Agreement Permit No. S-NN3-097  
Memphis Depot Caretaker @ 2163 Airways Blvd., Memphis, Tennessee

Dear Mr. Price:

We have received and approve your request to discharge of 30,000 gallons of rainwater into the sanitary sewer system at the above referenced location. The wastewater was collected in an open excavation. The volumetric readings should be included in the monthly report.

This approval is for one (1) discharge, one time only.

If you should have any questions, please feel free to contact me at (901) 353-2392.

Sincerely,

Akil AL-Chokhachi  
Environmental Engineer

cc: Processing

**APPENDIX F**

**DOCUMENTATION OF APPROVAL TO PRE-CHARACTERIZE DISPOSAL SITE 31**

Price, David

**From:** Wrenn, Greg  
**Sent:** Wednesday, March 09, 2005 5:46 PM  
**To:** 'Ballard.Turpin@epamail.epa.gov'; evan.w.spann@state.tn.us  
**Cc:** Price, David; Jesse.Perez@brooks.af.mil; KeiGras@aol.com; Smith, Lane; Michael Dobbs - DLA; Youngs, Steve; Holmes, Thomas  
**Subject:** RE: Dunn Field Disposal Sites Excavation - Request to Pre-Characterize Waste for Disposal  
**Attachments:** Field Change Approval Request No. 1 (Rev 1).pdf



Field Change  
Approval Request ...

As requested, attached is the revised change request approval form.

-----Original Message-----

**From:** Ballard.Turpin@epamail.epa.gov [mailto:Ballard.Turpin@epamail.epa.gov]  
**Sent:** Monday, March 07, 2005 12:37 PM  
**To:** Wrenn, Greg  
**Cc:** Price, David; evan.w.spann@state.tn.us; Jesse.Perez@brooks.af.mil; KeiGras@aol.com; Smith, Lane; Michael Dobbs - DLA; Youngs, Steve; Holmes, Thomas  
**Subject:** Re: Dunn Field Disposal Sites Excavation - Request to Pre-Characterize Waste for Disposal

I don't have a problem with the approach from EPA's perspective. We have done this at other DDMT actions. However, please include in a revised change order the method by which MACTEC will ensure that the composite samples collected prior to excavation accurately represent the full extent of the excavation. In other words, if a 50X50X10 pit contains 925 cubic yards, please explain how the pit will be subdivided so that each "subunit" of the pit is characterized.

Wm. Turpin Ballard, RPM  
 Federal Facilities Branch  
 EPA Region 4  
 404/562-8553 fax -8518

"Wrenn, Greg"  
 <GJWRENN@mactec.com>

03/07/2005 12:12  
 PM

To  
 Turpin Ballard/R4/USEPA/US@EPA,  
 evan.w.spann@state.tn.us  
 cc  
 Michael Dobbs - DLA  
 <michael.dobbs@dla.mil>,  
 Jesse.Perez@brooks.af.mil,  
 KeiGras@aol.com, "Holmes, Thomas"  
 <TCHOLMES@mactec.com>, "Smith,  
 Lane" <LLSMITH@mactec.com>,  
 "Youngs, Steve"  
 <SRYOUINGS@mactec.com>, "Price,  
 David" <DDPRICE@mactec.com>  
 Subject  
 Dunn Field Disposal Sites  
 Excavation - Request to  
 Pre-Characterize Waste for  
 Disposal

Attached for your review and approval is a request allowing MACTEC the option to pre-characterize waste from the Dunn Field Disposal Sites prior to excavation. Please call myself or David Price at 770-421-3400 with any questions. Thank you for your assistance with this project.

Gregory J. Wrenn, P.E. | Department Manager MACTEC Engineering and Consulting, Inc.

3200 Town Point Dr. | Kennesaw, GA 30144 Office 770-421-3472 | Mobile 678-362-2174 | Fax 770-421-3486 Email [gjwrenn@mactec.com](mailto:gjwrenn@mactec.com) | Web [www.mactec.com](http://www.mactec.com) (See attached file: Waste Pre-Characterization Approval Request.pdf)

## FIELD CHANGE APPROVAL (FCA)

<b>Project Name:</b>	<b>Project Number:</b>	<b>FCA Number:</b>	<b>Date:</b>
Dunn Field Disposal Sites – ET&D	6301-05-0004	001 – Revision 1	March 9, 2005
<b>Identification of Area and Item:</b>			
Dunn Field Disposal Sites 3, 4.1, 10, 13 and 31 – Defense Depot Memphis, Tennessee			
<p>MACTEC Engineering and Consulting, Inc. (MACTEC), under subcontract to Laguna Construction Company, Inc., will perform work under AFCEE Contract No. FA8903-04-D-8690 Task Order 0009 to characterize, excavate and dispose of hazardous and non-hazardous soil and buried material located in several disposal pits in Dunn Field, Defense Depot Memphis, Tennessee. The Remedial Action Work Plan (RAWP) indicates that excavated soil will be placed in stockpiles and roll-off containers, then sampled and characterized for disposal purposes. The planned characterization sample frequency is one 5-point composite sample for every 250 cubic yards of excavated soil (minimum of one composite sample per disposal area).</p>			
<b>Description of Change:</b>			
<p>MACTEC requests a change to the proposed characterization sampling plan that would allow the option of collecting composite samples from the disposal areas prior to excavation. A 5-point composite characterization sample will still be collected for each 250 cubic yards (CY) of impacted material to be excavated or at least one sample per disposal site. The benefit for sampling and pre-characterizing the waste prior to excavation is the ability for the disposal facility to provide acceptance of the waste stream prior to excavation and to allow for direct-loading of the waste onto trucks, rather than stockpiling. MACTEC will utilize the sampling protocol described below to ensure that the pre-characterization samples are representative of the waste:</p> <p>The estimated volume of the disposal site to be pre-characterized will be divided by 250 CY, and the total rounded up to the next whole number to ensure that the frequency of waste characterization samples does not exceed one per 250 CY of soil (Example: 925 CY site/250 CY = 3.7 samples; therefore, 4 composite samples would be collected).</p> <p>Each composite sampling section, representing equal volumes of soil not to exceed 250 CY, will be further divided into five approximately equal volume subsections. Grab samples collected from the approximate center of each subsection at the approximate midpoint of the excavation depth will be used for the composite sample. The grab samples will be collected using the excavator bucket as indicated in Section 3.3.2 of the Work and Test Procedure 11 that is included in the Remedial Action Sampling and Analysis Plan.</p>			
<b>Expected Impact:</b>			
<b>Design Impact:</b>			
The proposed change would improve the excavation, materials handling, and disposal process by reducing multiple handling of excavated material, reducing the amount of time excavated material remains on site, and reducing the potential for spread of contaminants.			
<b>Schedule Impact:</b>			
This change would eliminate the time required to construct stockpiles and to handle the material twice, thus decreasing the overall schedule.			
<b>Cost Impact:</b>			
Reducing time, equipment, and materials needed to stockpile and handle excavated material will result in an associated reduction in cost for this task.			
<b>Comments:</b>			
<b>Approved – US EPA:</b>		<b>Date:</b>	
Turpin Ballard			
<b>Approved – TDEC:</b>		<b>Date:</b>	
Evan Spann			
<b>Distribution:</b>			
US EPA (Turpin Ballard), TDEC (Evan Spann), DLA (Michael Dobbs), AFCEE (Jesse Perez), Laguna Construction (Keith Grasty), MACTEC (Thomas Holmes, David Price, Project File)			

**Price, David**

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**From:** Ballard.Turpin@epamail.epa.gov  
**Sent:** Monday, March 14, 2005 10:44 AM  
**To:** Wrenn, Greg  
**Cc:** Price, David; evan.w.spann@state.tn.us; Jesse.Perez@brooks.af.mil; KeiGras@aol.com; Smith, Lane; Michael Dobbs - DLA; Youngs, Steve; Holmes, Thomas  
**Subject:** RE: Dunn Field Disposal Sites Excavation - Request to Pre-Characterize Waste for Disposal

This change is acceptable to EPA - i will sign the change at the BCT next week, if that is OK with you

Wm. Turpin Ballard, RPM  
Federal Facilities Branch  
EPA Region 4  
404/562-8553 fax -8518



**Price, David**

---

**From:** Evan.W Spann [Evan.W.Spann@state.tn.us]  
**Sent:** Monday, March 14, 2005 4:27 PM  
**To:** Ballard.Turpin@epamail.epa.gov; Wrenn, Greg  
**Cc:** KeiGras@aol.com; Jesse.Perez@brooks.af.mil; michael.dobbs@dla.mil; Price, David; Smith, Lane; Youngs, Steve; Holmes, Thomas  
**Subject:** RE: Dunn Field Disposal Sites Excavation - Request to Pre-Characterize Waste for Disposal

TDEC-DoR as well. David and I spoke this AM. Please be aware that the Special Waste permit should be applied for a waste that meets the characteristics of the pre-characterization.

Evan W Spann, P.G.  
Environmental Project Manager  
TDEC - Division of Remediation  
2510 Mt. Moriah Rd., Suite E-645  
Memphis, TN 38115-1520  
(901) 368-7916

>>> <Ballard.Turpin@epamail.epa.gov> 3/14/2005 9:44:06 AM >>>

This change is acceptable to EPA - i will sign the change at the BCT next week, if that is OK with you

Wm. Turpin Ballard, RPM  
Federal Facilities Branch  
EPA Region 4  
404/562-8553 fax -8518

**APPENDIX G**  
**USEPA WASTE DISPOSAL FACILITY APPROVAL TO ACCEPT CERCLA-GENERATED**  
**WASTES**



THE

ENVIRONMENTAL QUALITY  
COMPANY

FILE COPY

January 5, 1999

Re: Offsite Policy Compliance  
Michigan Disposal Waste Treatment Plant  
MID 000-724 831

To whom it may concern:

The purpose of this letter is to clarify the notification letter from William E. Muno of the United States Environmental Protection Agency Region 5, dated November 06, 1992, addressed to Mr. David Lusk of Michigan Disposal, Inc. As stated in the letter Michigan Disposal, Inc is certified to accept CERCLA (Superfund) waste.

Since the 1992 letter, Michigan Disposal, Inc. has changed it's name to Michigan Disposal Waste Treatment Plant. The address and EPA Identification number remain the same.

The status of our ability to accept CERCLA waste remains unchanged as of January 05, 1999.

Sincerely,  
EQ-The Environmental Quality Company

Jennifer Baker  
Regulatory Affairs Manager

cc: G. Photosios



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

77 WEST JACKSON BOULEVARD

CHICAGO, IL 60604-3590

NOV 06 1992

REPLY TO THE ATTENTION OF:

HRE-8J

Mr. David Lusk  
Michigan Disposal Inc.  
1349 Huron  
Ypsilanti, Michigan 48197

Re: Off-site Policy Compliance  
Michigan Disposal Inc.  
MID 000 724 831

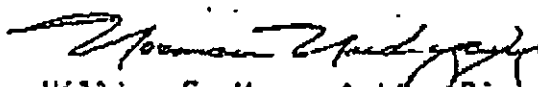
Dear Mr. Lusk:

The United States Environmental Protection Agency previously informed you in a letter dated September 22, 1992, that your facility was not acceptable to receive waste from response actions taken under the Comprehensive Environmental Response, Compensation & Liability Act (CERCLA) due to relevant violations of the Resource Conservation and Recovery Act (RCRA).

The purpose of this letter is to notify you that the deficiencies under 40 CFR 264.173(a), 268.7(a)(7), and 268.7(b)(4)&(5) have been resolved. We want to inform you that your facility is acceptable to receive CERCLA (Superfund) waste.

If you have any questions, please call Gertrud Matuschkovitz in the RCRA Enforcement Branch at (312) 353-7921.

Sincerely yours,

  
William E. Muno, Acting Director  
Waste Management Division

cc: Ben Okwumabua, MDNR  
Michael Busse, MDNR



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

ATLANTA FEDERAL CENTER  
100 ALABAMA STREET, S.W.  
ATLANTA, GEORGIA 30303-3104

August 19, 1997

4WD-RCRA

CERTIFIED MAIL  
RETURN RECEIPT REQUESTEDMr. James E. Fleming  
BFI South Shelby Landfill  
5494 Malone Road  
Memphis, TN 38118SUBJ: CERCLA Off-site Rule: Affirmative Determination of  
Acceptability for BFI South Shelby Landfill  
Shelby County, Memphis, Tennessee, Tennessee Department of  
Environment & Conservation Solid Waste Permit  
Number SNL 79-106-0135.

Dear Mr. Fleming:

The U.S. Environmental Protection Agency, (EPA), Region 4 has made an affirmative determination of acceptability for the receipt of non-hazardous CERCLA off-site waste at the Subtitle D lined section of BFI South Shelby Landfill (BFI-South Shelby), Memphis, Tennessee, Tennessee Department of Environment & Conservation Solid Waste Permit Number 79-106-0135 Pursuant to 40 C.F.R. § 300.440(a)(4), EPA has completed an initial assessment of BFI-South Shelby, and finds that the Subtitle D lined cell at BFI-South Shelby is acceptable for the receipt of non-hazardous off-site waste. Such off-site waste is defined as those wastes generated as a result of activities authorized pursuant to, or funded by, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

On September 22, 1993, EPA amended the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300, by adding Section 300.440, now known as the Off-site Rule. The rule implements and codifies the requirements contained in CERCLA Section 121(d)(3), and incorporates many provisions of the November 13, 1987, OSWER Directive (No. 9834.11), known as the Off-site Policy. The Off-site Rule establishes the criteria and procedures for determining if facilities are acceptable for the off-site receipt of CERCLA waste, and outlines the actions affected by the standard.

The Off-site Rule requires that prior to a facility's initial receipt of CERCLA waste, EPA shall determine if there are relevant releases or relevant violations at the facility. EPA believes that affirmative determinations of "compliance" and "control of releases" are necessary before a facility may be deemed acceptable for the receipt of CERCLA wastes.

This affirmative determination of BFI-South Shelby is based on information provided by representatives of the Tennessee Department of Environment & Conservation (TDEC). On May 14, 1997, TDEC conducted an inspection to determine BFI-South Shelby's compliance with the applicable state regulations and effective operating permits. The results of the inspection indicate that the Subtitle D lined cell at BFI-South Shelby is currently in compliance with applicable environmental standards. Based on communication with TDEC personnel, the U.S. EPA Regional Office has no information indicating any environmentally significant release of hazardous substances from the Subtitle D lined receiving unit. Therefore, effective upon receipt of this letter BFI-South Shelby is acceptable to receive non-hazardous CERCLA off-site waste at the Subtitle D lined cell of the facility described above. EPA would like to make it clear that the affirmative determination of acceptability is for the Subtitle D lined cell only. Should any new information affecting this determination develop, EPA reserves its right to revisit this decision.

Please note that this determination does not supersede the requirements of Subtitle C of the Resource Conservation and Recovery Act for CERCLA wastes which are also hazardous.

The CERCLA off-site status for BFI-South Shelby is acceptable for Subtitle D solid waste and will remain so until EPA notifies you otherwise. However, please note that the CERCLA off-site status for a facility is dynamic in nature and is subject to change. If you have any questions concerning this matter, please contact Houston Gilliland Jr., of my staff, at (404) 562-8617.

Sincerely yours,

  
Richard D. Green  
Acting Director  
Waste Management Division

Enclosure

cc: Mark Thomas, TDEC, w/enclosure  
Tom Tiesler, TDEC

**APPENDIX H  
FIELD AIR MONITORING FORMS**

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # SN001843 Model # Mini Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	101 ppm	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information fresh air calibration → 0.0 ppm

Equipment Problems

Work Performed



3/16/05



# ATTACHMENT 7 PID MONITORING FORM

AOC/Trench: DS 31  
Date: 3/16/05

Location	Instrument	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30
Upwind															0.0	0.0	0.0	0.0							
Work Area															0.0	0.0	0.0	0.0							
Downwind															0.0	0.0	0.0	0.0							

Notes:

Re characterization sampling - 1340 - 1510

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

*Michael P. L. L. L.*

AOC/Trench: DS31  
Date: 3/16/08

[illegible]

### Notes:

Pre-characterization - DSS - 1346-1510

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

Wm. B. F. Felt

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # SN 001843 Model # Mini Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	100 ppm	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information fresh air calibration 20.0 ppm

Equipment Problems

Work Performed

*Michael H. La*  
3/17/05

ATTACHMENT 7  
PID MONITORING FORM

AOC/Trench: DS10  
Date: 3/17/05

[illegible]

**Notes:**

$$DS10 - 1355 - 1410 + 1510 - 1530 + 1700 - 1715$$

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

865 439

Wm. L. L. L.

**ATTACHMENT 7**  
**PARTICULATE MONITORING FORM**

AOC/Trench: DS10  
Date: 3/17/05

Date: 3/17/05

[illegible]

**Notes:**

DS 10 - 1355-1410 & 1510-1530 & 1700-1715

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

*Robert R. R. R.*

040002.04

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # SN001843 Model # Mini Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	101 ppm	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information fresh air calibration → 0.0 ppm

Equipment Problems

Work Performed

*Michael B. Hoffman*  
3/18/05

# PID MONITORING FORM

Date: 3/18/05

**Notes:**

DS10 - 0910 - 0935 + 115 - 1140 ✓ 1610 - 1645

- Notes:
- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
  - 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
  - 3) Activities in progress during monitoring will be recorded in Notes.

Mr. J. L. L.

# PARTICULATE MONITORING FORM

Date: 3/18/05

**Notes:**

D510 - 0910-0935 & 115-1140 + 1610-1645

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

22/11/20



## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # 5N 001843Model # Mini Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	<u>100 ppm</u>	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information fresh air calibration → 0.1 ppm

Equipment Problems

Work Performed



3/19/05

## ATTACHMENT 7

## PID MONITORING FORM

AOC/Trench: DS10Date: 3/19/05

Location	Instrument	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30
Upwind						0.0	0.0	0.0	0.0									0.0	0.0	0.0	0.0	0.0	0.0		
Work Area						0.0	0.0	0.0	0.0							0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Downwind						0.0	0.0	0.0	0.0							0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		

Notes:

DS10 - 0915-0955 1320-1745

- Notes:
- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
  - 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
  - 3) Activities in progress during monitoring will be recorded in Notes.



# PARTICULATE MONITORING FORM

AOC/Trench: DS/D

Date: 3/19/05

[illegible]

**Notes:**

DS10 - 0715-0755 1320-745

1320-1745

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

Wm. D. P. H. K.

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # SN 001843Model # Mini Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	<u>100 ppm</u>	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information

fresh air calibration → 0.0 ppm

Equipment Problems

Work Performed

Michael P. L. P.3/20/05

# PID MONITORING FORM

Date: 3/20/05

Notes:  $\mu p L$   
~~D240~~ D513 - 0935 - 1105

Notes:  $m \neq 0$ 

- Notes:
- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
  - 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
  - 3) Activities in progress during monitoring will be recorded in Notes.

Ernest R. Barker

AOC/Trench: DS13  
Date: 3/20/05

[illegible]

**Notes:**

DS13-0935-1105

- Notes:
- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
  - 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
  - 3) Activities in progress during monitoring will be recorded in Notes.

*[Signature]*

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # SN001843Model # MiniRae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	<u>100 ppm</u>	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information

fresh air calibration 7 0.0 ppm

Equipment Problems

Work Performed

Michael D. Phillips  
3/20/05

# PID MONITORING FORM

Date: 3/21/05

**Notes:**

DS 4.1 - 1015 - 1120 1230 - 1450

\*work was discontinued for approximately one hour due to elevated PT readings at  $\approx 1120$ .

\* PID readings above 0.5 ppm were not sustained.

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

040002.04

Mr. D. L. P.



## ATTACHMENT 7

# PARTICULATE MONITORING FORM

AOC/Trench: 054.1  
Date: 3/21/05

[illegible]

**Notes:**

DS 4.1 1015-1120 1230-1450

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

Michael R. L. L.

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # SN001843Model # Mini Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0		

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information

No excavation activities today due to  
rainy weather

Equipment Problems

Work Performed

Michael L. Loh  
3/22/05

# PID MONITORING FORM

Date: 3/22/05

[illegible]

### Notes:

No excavation activities today due to rainy weather.

Notes:

- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour..
- 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
- 3) Activities in progress during monitoring will be recorded in Notes.

W. D. P. L.

AOC/Trench:             
Date: 3/22/05

[illegible]

**Notes:**

No excavations today due to rainy weather

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

Michael P. S. Ph.D.

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # JD 601843Model # Mini Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	<u>100 ppm</u>	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information

fresh air calibration → 0.0 ppm

Equipment Problems

Work Performed

John D. Chaffin  
3/23/05

**PID MONITORING FORM**

AOC/Trench: DS 3/DS10

Date: 3/23/05

[illegible]

### Notes:

DS 3      1210-1220

0510 1410-1425 1505-1545

\* Experiment at DS 3 stopped due to presence of glass bottles (large quantity).

- Notes:
- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
  - 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
  - 3) Activities in progress during monitoring will be recorded in Notes.

Wm. P. L. L.

## ATTACHMENT 7

# PARTICULATE MONITORING FORM

AOC Trench: D13/D510  
Date: 3/23/05

[illegible]

**Notes:**

1210-1220

1410-1425

# 15051-5051

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

040(x)2.(14

*[Signature]*

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # SN001843Model # Mini Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	161 ppm	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information

fresh air calibration → 0.0 ppm

Equipment Problems

Work Performed

*Michael P. L. P.*  
3/24/05



# PID MONITORING FORM

AOC/Trench: D510

Date: 3/24/05

[illegible]

**Notes:**

DS/0 - 0925 - 0945

1355-1416

1510-1600

Notes:

- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
- 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
- 3) Activities in progress during monitoring will be recorded in Notes.

040002.04

W. H. L.



## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # 52001843Model # Mini Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	100 ppm	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information

fresh air calibration → 0.0 ppm

Equipment Problems

Work Performed

*Michael B. Allen*  
3/25/05



# PARTICULATE MONITORING FORM

AOC/Trench: —  
Date: 3/25/05

[illegible]

**Notes:**

\* No excavation performed today.

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

Wm. H. P. L. R.

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # SN001843 SN001098-MPL Model # Mini-Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0		

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information No calibration performed today. No earth-  
moving activities performed.

Equipment Problems

Work Performed

*Michael R. De...*

4/12/05

ATTACHMENT 7

PID MONITORING FORM

AOC/Trench: \_\_\_\_\_  
 Date: 4/12/05

Location	Instrument	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30
Upwind																									
Work Area																									
Downwind																									

Notes:

No air monitoring performed today.  
No excavation performed today

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
 3) Activities in progress during monitoring will be recorded in Notes.

*[Signature]*  
 4/12/05

04002.04



## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # SN001843  
SN001098 NPLModel # MiniRae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	101 ppm	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information

fresh air cal → 0.0 ppm

Equipment Problems

Work Performed



4/13/05

ATTACHMENT 7

# PARTICULATE MONITORING FORM

AOC/Trench: DS to Stockpile  
Date: 1/1/01

Date: 4/13/05

[illegible]

**Notes:**

loading D510 stockpile in Dump Trucks for transport to PET-South Shale landfill.  
Raining conditions until ca 1:00 p.m.

- Notes:
- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
  - 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
  - 3) Activities in progress during monitoring will be recorded in Notes.

Wm. D. Latta

ATTACHMENT 7  
PID MONITORING FORM

AOC/Treinch: DSO Stock p/2  
Date: 4/3/05

[illegible]

**Notes:**

loading DSD Stackpile is Dump Trucks for transport to AFS South Shelby Landfill.  
Heavy conditions with in 100 per

- Notes:
- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
  - 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
  - 3) Activities in progress during monitoring will be recorded in Notes.

Michael S. L. Lee

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # 5N001843  
52001078 APVModel # MiniRae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	101 ppm	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information fresh air calibration → 0.0 ppm

Equipment Problems

Work Performed

*Michael P. Lohr*  
4/14/05

AOC/Trench: DS10 Stockpile to DS4.1 over excavation  
Date: 4/14/05

[illegible]

**Notes:**

10:00 → DS 10 stack pile  
10:30 → DS 4.1 overcast  
11:30 → DS 10 stack pile  
12:30 & 14:00 → DS 10 stack pile loading  
14:30 → 16:30 → DS 12 stack pile loading

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

*Paul H. Ladd*

4/14/05

**PID MONITORING FORM**

not sustained above 1.0 ppm

[illegible]

10:00 - DS10 Stockpile loading  
10:30 → DS41 over excavated  
11:30 → DS10 Stockpile loading  
12:30 to 1400 → DS10 Stockpile loading  
14:30 → 16:30 → DS10 Stockpile loading

Notes:

- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
- 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
- 3) Activities in progress during monitoring will be recorded in Notes.

Wm. D. P. Jones

4/14/05

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # JN001843  
SN001098 MPLModel # MiniRae 2006

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	100 ppm.	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information

fresh air calibration → 0.0 ppm

Equipment Problems

Work Performed

Michael P. Pabla  
4/15/05

AOC/Trench: DS 4.1/Dr 13 Stack piles  
Date: 4/15/05

[illegible]

**Notes:**

7:30 - 10:00 → DS 4.1 hrs 13.5 to 6 p.ks  
14:40 → DS 3.1

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.



**ATTACHMENT 7**  
**PARTICULATE MONITORING FORM**

AOC Trench: D54.1 / D513 Stetp 1, 2, 3  
Date: 4/15/15

[illegible]

**Notes:**

7:30 - 10:00 → DS4.1 / DS13 stack piles  
14:00 → DS3

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

476

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # SN001843 Model # Mini Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	<u>100 ppm</u>	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information fresh air calibration - 0.0 ppm

Equipment Problems

Work Performed

Michael P. Roth  
4/16/05

## PID MONITORING FORM

AOC/Trench: DS 31

Date: 4/16/05

[illegible]

**Notes:**

- Notes:
- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
  - 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
  - 3) Activities in progress during monitoring will be recorded in Notes.

Michael J. L. L.

ATTACHMENT 7

AOC/Trench: DS 31

Date: 4/16/05

Location	Instrument	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30
Upwind		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
Work Area		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
Downwind		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
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		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000									
		0.000	0.000	0.000		0.000	0.000																	

**Notes:**

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

Wm. L. P. L. L.

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # SN001843 Model # Mini Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	<u>100 ppm</u>	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information Fresh air calibration - 0.0 ppm

Equipment Problems

Work Performed

Michael J. Zelen4/17/05

AOC/Trench: D510  
Date: 4/17/05

[illegible]

**Notes:**

- Notes:
- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
  - 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
  - 3) Activities in progress during monitoring will be recorded in Notes.

*Miss J. L. L.*

**ATTACHMENT 7**  
**PARTICULATE MONITORING FORM**

AOC Trench: D510  
Date: 4/17/05

[illegible]

**Notes:**

- Notes:
- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
  - 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
  - 3) Activities in progress during monitoring will be recorded in Notes.

Richard D. Ladd

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # \_\_\_\_\_ Model # \_\_\_\_\_

## CALIBRATION INFORMATION

LOT # \_\_\_\_\_

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	<u>                    </u>	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information PID was stolen on 3/4/17/05. New PID is  
being ordered from Pine Environmental

Equipment Problems \_\_\_\_\_

Work Performed \_\_\_\_\_

*Michael A. [Signature]*  
4/18/05



# ATTACHMENT 7

## PID MONITORING FORM

AOC/Trench: \_\_\_\_\_  
 Date: 4/16/05

Location	Instrument	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30
Upwind																									
Work Area																									
Downwind																									

### Notes:

No air monitoring performed today. PID was stolen on 4/17/05. New equipment ordered from Dica. Technician.

Previous PID monitoring at DS-31 indicated no volatile organics in the air stream.

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
 3) Activities in progress during monitoring will be recorded in Notes.

865 484

ATTACHMENT 7  
PARTICULATE MONITORING FORM

Date: 4/18/05

[illegible]

Notes.  
No air monitoring performed today. Air quality monitor stolen on 4/17/05. New equipment ordered from Bae Environmental.

Previous Antiepileptic monitoring activities indicated pertained levels well below the action level of 5.0 mg/ml.

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

040002.04

865 485

5  
M. H. D. L.

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # \_\_\_\_\_ Model # \_\_\_\_\_

## CALIBRATION INFORMATION

LOT #


CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0		

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information PID arrived via Fed Ex. Picked up PID at  
office at 1335. Spills from DS31 loaded out  
by this time. Receiving backfill at DS31

Equipment Problems \_\_\_\_\_

Work Performed \_\_\_\_\_

  
4/19/05

**PID MONITORING FORM**

AOC/Trench: —  
Date: 4/19/05

[illegible]

### Notes:

Up air venting performed today. STD received at 1335. All seals from D531 loaded out. Sekinoy back to D531 but D531.

- Notes:
- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
  - 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
  - 3) Activities in progress during monitoring will be recorded in Notes.

Michael W. L. L.

AOC/French: —  
Date: 4/19/02

[illegible]

**Notes:**

Chairman: King returned today

- Notes:
- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
  - 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
  - 3) Activities in progress during monitoring will be recorded in Notes.

Wm. D. P. L. L.

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # SN 003879 Model # Mini-Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	101 ppm	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information fresh air calibration - 0.0 ppm

Equipment Problems

Work Performed

*Walter G. L. Lee*  
4/20/05

**AOC/Trench:**

Date: 4/20/05

[illegible]

**Notes:**

No soils loaded out today. No PTD monitoring conducted.

- Notes:
- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
  - 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
  - 3) Activities in progress during monitoring will be recorded in Notes.

Michael J. Kelly

**ATTACHMENT 7**  
**PARTICULATE MONITORING FORM**

**AOC/Trench:**

Date: 4/20/05

[illegible]

**Notes:**

no sails loaded out today. No particulate monitoring conducted.

- Notes:
- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
  - 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
  - 3) Activities in progress during monitoring will be recorded in Notes.

*Michael J. Baker*



## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # SN 003879Model # Midas Rec 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	100 ppm	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information

fresh air calibration - 0.0 ppm

Equipment Problems

Work Performed

*Matthew D. L. L.*  
4/21/05

AOC/Trench: DS31

Date: 4/21/05

[illegible]

**Notes:**

1005-1030 - Over-excitation at 753.1  
1310-1340 - Over-excitation at 3510

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

*W. D. L.*

Date: 4/11/05

[illegible]

1005-1030 - over excavation at D531  
1510 - 1340 - over excavation at D510

Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

Paul D. S. R.

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # \_\_\_\_\_ Model # \_\_\_\_\_

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0		

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information No calibration performed today. No excavation activities conducted today.

### Equipment Problems.

Work Performed Michael J. Kline 4/22/05

# PID MONITORING FORM

Date: 4/12/05

[illegible]

Notes: ASD <sup>WFO</sup>  
No participant monitoring performed today due to no excavation activities.

- Notes:
- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
  - 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
  - 3) Activities in progress during monitoring will be recorded in Notes.

# PARTICULATE MONITORING FORM

**AOC/Trench:**

Date: 4/22/05

[illegible]

Notes: partwinkle npl

No ~~HTD~~ monitoring performed today due to no excavation activities.

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

Wm. L. P. L. L.

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # SN 00 3879Model # Mini Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	<u>101 ppm</u>	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information

fresh air calibration → 0.1 ppm

Equipment Problems

Work Performed

Michael D. Kipfer  
4/23/05

## PID MONITORING FORM

AOC/Trench: DS10/DS31  
Date: 4/23/05

[illegible]

**Notes:**

RS 10	0920-1020	1035-1055
RS 31	1210-1230	1325-1345

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

W. J. P. J.



Wm. L. G. L. L.

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # SN 003879Model # Mini Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0		

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information

no calibration performed today - no site activity

Equipment Problems

Work Performed

*Michael D. L. Plon*  
4/24/05

# PID MONITORING FORM

AOC/Trench: —  
Date: 4/24/05

[illegible]

**Notes:**

No site activity today.

- Notes:
- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
  - 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
  - 3) Activities in progress during monitoring will be recorded in Notes.

Mr. J. P. L. L.



## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # 52003879Model # Mini Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	<u>100 ppm</u>	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information

fresh air calibration → 0.0 ppm

Equipment Problems

Work Performed

Michael P. L. L.4/25/05

## PID MONITORING FORM

AOC/Trench: —  
Date: 4/25/05

[illegible]

**Notes:**

to excavations performed today

Notes:

- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
- 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
- 3) Activities in progress during monitoring will be recorded in Notes.

Edw. L. L.

# PARTICULATE MONITORING FORM

**AOC/Trench:**

Date: 4/25/05

[illegible]

**Notes:**

Q: No extension performed today

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

*[Handwritten signature]*

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # 5A 003879Model # MiniRae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	<u>101 ppm</u>	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information

fresh air calibration → 0.0 ppm

Equipment Problems

Work Performed

Robert L. L. L.  
4/26/05





# ATTACHMENT 7

# PARTICULATE MONITORING FORM

AOCT trench: —  
Date: 4/26/05

[illegible]

**Notes:**

No activity due to bad weather

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

W. J. F. F.

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # SN 003879 Model # Mini Rae 2050

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	100 ppm	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information

fresh air calibration - 0.0 ppm

Equipment Problems

Work Performed

*Michael A. Salter*  
4/27/05

Michael P. Loh

# PARTICULATE MONITORING FORM

AOC/Trench: D531

[illegible]

DS31 - 0815-0830 730-1745

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

John S. L. M.

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # 5N 00 38 79Model # Mir Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	101 pp-	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information fresh air calibration → 0.0 pp-

Equipment Problems

Work Performed

*Mark D. Little*  
4/28/05



# PARTICULATE MONITORING FORM

**AOC/Trench:**

Date: 4/28/05

[illegible]

**Notes:**

No excavation performed today.

Notes:

- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
- 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
- 3) Activities in progress during monitoring will be recorded in Notes.

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Mr. J. L. L. L.



## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # 52003879Model # Mir & Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	100 ppm	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information

fresh air calibration → 0.1 ppm

Equipment Problems

Work Performed

*[Signature]*  
4/29/05

# PID MONITORING FORM

**AOC/French:**

Date: 4/29/05

[illegible]

**Notes:**

No excavation performed today

Notes:

- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
- 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
- 3) Activities in progress during monitoring will be recorded in Notes.

*Paul J. Kelly*

# PARTICULATE MONITORING FORM

AOC/Trench: —  
Date: 4/29/05

[illegible]

### Notes:

No excavation performed today

Notes:

- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
- 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
- 3) Activities in progress during monitoring will be recorded in Notes.

*[Handwritten signature]*

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # 011505Model # Mini Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	<u>100 ppm</u>	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information Fresh air calibration - 5.0 ppm

Equipment Problems

Work Performed

Mark J. P. L. L.2/28/05

**PHD MONITORING FORM**

Date: 2/28/06

[illegible]

No readings taken today. There were no excavation activities today.

Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

Wm. L. L.

## APPENDIX 7

AOC/French: DS3/DS16  
Date: 2/28/66

[illegible]

### Notes:

No readings taken today. There were no excavation activities today.

Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

W. H. P. L. L.

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## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # 011505Model # Mini Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	<u>100 ppm</u>	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information fresh air calibration - 0.0 ppm

Equipment Problems

Work Performed

Mick P. L. L.3/1/06

PID MONITORING FORM

AOC/French: DS3/DS18

Date: 3/1/06

[illegible]

### Notes:

0925-1310-05/3

1440-156-DS/10

Peak readings for each time period are added.

Downward readings were taken immediately outside the E2 so work area and Demand readings are the same.

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

Wm. L. L. L.

3/1/06



## APPENDIX 7

## PARTICULATE MONITORING FORM

AOC/French: DS3/DS16  
Date: 3/1/06

[illegible]

### Notes:

0925-1310-053

1440-1520-DS10

Peak Readings for each time period are noted

Downwind readings were taken immediately outside the E230 work area & Downwind readings are the same.

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

3/1/06

## Field Air Monitoring Form

## Gastec Detector Tubes

Detector Tube Type	Time	Reading	Notes
Aniline #181	0930	0 ppm	
Aniline #181	0950	0 ppm	
Aniline #181	1005	0 ppm	
Aniline #181	1020	0 ppm	
Aniline #181	1120	0 ppm	No excavation activity 1030-1120
Aniline #181	1155	0 ppm	Per HASP protocol, Detector tube readings once/30 mins.
Aniline #181	1225	0 ppm	
Aniline #181	1255	0 ppm	
No more excavation at Disposal Site 3 for the day.			
		MPL	

SHSO: Michael LaPradeDate: 3/1/06Project Name: DDMT-Disposal Sites Remedial Action

## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # 011505 Model # Mini Rae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	<u>100 ppm</u>	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information Fresh air calibration ~ 0.0 ppm

Equipment Problems

Work Performed Michael P. C. P. 3/2/06

# PID MONITORING FORM

Date: 3/2/06

[illegible]

1115 - 1300

Readings indicate peaks readings for that time period.

Work Area and Demand collected at the same location just outside the work area.

- Notes:
- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
  - 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
  - 3) Activities in progress during monitoring will be recorded in Notes.

M. J. P. L. 3/2/02

## ATTACHMENT 7

D53

2/06

[illegible]

**Notes:**

1115-1306

Readings indicate peak reading for that time period.

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

865 528  
3/2/06  
M. L. L. L.



## PHOTOIONIZATION DETECTOR CALIBRATION FORM

Serial # / ID # 011505 Model # AES-Kae 2000

## CALIBRATION INFORMATION

LOT #

CAL GAS	Isobutylene	CONCENTRATION	100PPM
SPAN SETTING	1.0	<u>100 ppn</u>	

PARTS LIST	RESPONSE	DATE CHECKED	CHECKED BY
Case			
Moisture Filter			
Charcoal Filter			
Charger			
Manual			
Extension Tip			
Calibration Gas			
Regulator & Tubing			
Alkaline Battery Pack			
Wrist Strap			

Additional Information fresh air calibration → 0.0 ppn

Equipment Problems \_\_\_\_\_

Work Performed with R.L. H. 3/13/06

# PID MONITORING FORM

AOC/Trench: DS 3

Date: 3/3/06

[illegible]

**Notes:**

DSB 0715-0725 0815-0950 1430-1440

\*PTD readings about 0.5 ppm are not sustained.

- Notes: 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.  
2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.  
3) Activities in progress during monitoring will be recorded in Notes.

(14)(1)(2)(4)

W. L. P. L. L.



# PARTICULATE MONITORING FORM

AOC/French: DS 3

Date: 3/3/06

[illegible]

**Notes:**

D53

0715-0725

0560-5180

1430-1440

Notes:

- 1) Air monitoring will be performed during excavation and documented by recording the values to the nearest half-hour.
- 2) Air monitoring may also be performed periodically throughout the day during the beginning of each new work activity.
- 3) Activities in progress during monitoring will be recorded in Notes.

( ) 4 ( ) ( ) 2 . ( ) 4

Dr. J. L. L. L.

## Field Air Monitoring Form

## Gastec Detector Tubes

Detector Tube Type	Time	Reading	Notes
Aniline #181	0820	0 ppm	
Aniline #181	0920	0 ppm	
<hr/>			
Detector tube readings for aniline are discontinued due to the absence of glass bottles in the excavation per the HATSP protocol			
		MPL	

SHSO: Michael LaPradeDate: 3/3/06Project Name: DDMT - Disposal Sites Removal Action

**APPENDIX I**  
**QUALITY CONTROL REPORTS FOR SAMPLE DELIVERY GROUPS**



## MEMORANDUM

---

TO: David Price, P.G.

FROM: Judy Hartness; Paul Brafford, CHMM

DATE: April 5, 2005

SUBJECT: **Comparison of Disposal Site 10 Characterization Sample Results to TCLP and RCI Criteria**  
**Dunn Field Disposal Sites Remedial Action**  
**Defense Depot Memphis, Tennessee**  
**MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the characterization soil sample chemical results collected from Disposal Site 10 and the Toxicity Characteristic Leaching Procedure (TCLP) regulatory level, and reactivity, corrosivity, and ignitability (RCI) hazardous waste criteria (40 CFR, §261.21 – 24, 2002). Copper is not listed in the TCLP rule and was compared to the tap water values listed in the EPA Preliminary Remediation Goals Table (October, 2004). In addition, for non-detected constituents, the reporting limits (RLs) were compared to the TCLP regulatory and RCI criteria to verify the constituent was not present at a level above the value.

Two characterization soil samples (DSRA-031905-WB/DS10-C-1 and DSRA-032505-WB/DS10-C-2) were collected from five-point composite samples at Disposal Site 10 by MACTEC on March 19 and 25, 2005. The samples were delivered to ETC Laboratory of Memphis, Tennessee, for analysis of TCLP volatile organic compounds (VOCs), TCLP semi-volatile organic compounds (SVOCs), TCLP pesticides, TCLP herbicides, TCLP metals plus copper, and RCI.

### Comparison of Results

Table 3-1 presents the results of the characterization samples collected from Disposal Site 10 on March 19 and 25, 2005 and respective TCLP/RCI regulatory/hazardous waste criteria. Laboratory analytical results indicate that none of the constituents exceed their respective TCLP or RCI criteria. Therefore, the excavated soils from Disposal Site 10 can be disposed as non-hazardous waste.

MACTEC is currently coordinating efforts to dispose of the waste with a subcontractor. Following your approval of this waste characterization, MACTEC will schedule the removal.



## MEMORANDUM

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TO: David Price, P.G.

FROM: Judy Hartness; Paul Brafford, CHMM

DATE: April 26, 2005

SUBJECT: **Comparison of Disposal Site 10 Characterization Sample Results to TCLP and RCI Criteria**  
**Dunn Field Disposal Sites Remedial Action**  
**Defense Depot Memphis, Tennessee**  
**MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the characterization soil sample chemical results collected from Disposal Site 10 and the Toxicity Characteristic Leaching Procedure (TCLP) regulatory level, and reactivity, corrosivity, and ignitability (RCI) hazardous waste criteria (40 CFR, §261.21 – 24, 2002). Copper is not listed in the TCLP rule and was compared to the tap water values listed in the EPA Preliminary Remediation Goals Table (October, 2004). In addition, for non-detected constituents, the reporting limits (RLs) were compared to the TCLP regulatory and RCI criteria to verify the constituent was not present at a level above the value.

One additional characterization soil sample (DSRA-041905-WB/DS10-C-3) was collected from five-point composite samples at Disposal Site 10 by MACTEC on April 19, 2005. The sample was delivered to ETC Laboratory of Memphis, Tennessee, for analysis of TCLP volatile organic compounds (VOCs), TCLP semi-volatile organic compounds (SVOCs), TCLP pesticides, TCLP herbicides, TCLP metals plus copper, and RCI.

### Comparison of Results

Table 3-1 presents the results of the characterization sample collected from Disposal Site 10 on April 19, 2005 and respective TCLP/RCI regulatory/hazardous waste criteria. Laboratory analytical results indicate that none of the constituents exceed their respective TCLP or RCI criteria. Therefore, the excavated soils from Disposal Site 10 can be disposed as non-hazardous waste.

MACTEC is currently coordinating efforts to dispose of the waste with a subcontractor. Following your approval of this waste characterization, MACTEC will schedule the removal.



## MEMORANDUM

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TO: David Price, P.G.

FROM: Judy Hartness; Paul Brafford, CHMM

DATE: April 22, 2005

SUBJECT: **Comparison of Confirmation Sample Results to Remedial Goals –  
Disposal Site 10  
Dunn Field Disposal Sites Remedial Action  
Defense Depot Memphis, Tennessee  
MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the "Confirmation" soil sample chemical results collected from Disposal Site 10 and the Remedial Goals (RGs) as listed in Table 5-5, Attachment 2 of the Dunn Field Disposal Sites Remedial Action Work Plan (MACTEC, 2004). Any detected constituent not listed on Table 5-5 was compared to the values listed in the EPA Region 9 Preliminary Remediation Goal (PRG) Table (October, 2004). If both an industrial Direct Contact Exposure value and a Migration to Groundwater value were listed, the lower of the two values was used for comparison. In addition, for non-detect constituent results, the reporting limits (RLs) were compared to the RG/PRG to verify the constituent was not present at a level above the risk value.

Confirmation soil samples were collected from 9 wall and 5 floor locations within the excavation at Disposal Site 10 by MACTEC on March 19, 20, and 25, and April 17, 2005. The samples were delivered to ETC Laboratory of Memphis, Tennessee, for analysis of Target Compound List (TCL) semi-volatile organic compounds (SVOCs), and RCRA metals plus copper.

### Comparison of Results

Table 4-1 presents the results of the Confirmation samples collected from Disposal Site 10 and the respective RGs/PRGs. Various metals, several Polynuclear Aromatic Hydrocarbons (PAHs), and di-n-butyl phthalate were detected in each of the confirmation samples collected from Disposal Site 10. Several PAHs, and mercury were detected in the samples at concentrations below the RL but above the method detection limit and results were qualified as estimated values and flagged "J". In addition, silver results in each of the samples were considered estimated and flagged "J" due to low recoveries in the matrix spike (MS)/MS duplicate samples and chromium, copper, and lead results were qualified as estimated values and flagged "J" in sample DSRA-031905-DS10-G-FL5 and its duplicate due to poor duplicate precision.

Each of the detected values were compared and determined to be below their respective RG/PRG with the exception of copper in soil sample DSRA-041705-DS10-G-WL7, copper and lead in soil sample DSRA-032005-DS10-G-WL9, and lead in soil sample DSRA-032505-DS10-G-FL3.

Based on the analytical data presented for the representative samples collected from the excavation at Disposal Site 10, the soil sample results collected from wall locations 7 and 9, and floor location 3 exceed the chemical screening criteria. Additional excavation and confirmation sampling is recommended for this site.



## MEMORANDUM

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TO: David Price, P.G.

FROM: Judy Hartness; Paul Brafford, CHMM

DATE: April 29, 2005

SUBJECT: **Comparison of Over-Excavation Confirmation Sample Results to Remedial Goals – Disposal Site 10**  
**Dunn Field Disposal Sites Remedial Action**  
**Defense Depot Memphis, Tennessee**  
**MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the "Over-Excavation Confirmation" soil sample chemical results collected from Disposal Site 10 and the Remedial Goals (RGs) as listed in Table 5-5, Attachment 2 of the Dunn Field Disposal Sites Remedial Action Work Plan (MACTEC, 2004). Any detected constituent not listed on Table 5-5 was compared to the values listed in the EPA Region 9 Preliminary Remediation Goal (PRG) Table (October, 2004). If both an industrial Direct Contact Exposure value and a Migration to Groundwater value were listed, the lower of the two values was used for comparison. In addition, for non-detect constituent results, the reporting limits (RLs) were compared to the RG/PRG to verify the constituent was not present at a level above the risk value.

Based on the analytical data presented for the representative samples collected from the excavation at Disposal Site 10, the soil sample results collected from wall locations 7 and 9, and floor location 3 exceeded the chemical screening criteria. Additional excavation and over-excavation confirmation sampling was performed at this site.

Over-Excavation Confirmation soil samples were collected from 1 floor (FL3) and 2 wall (WL7 and WL9) locations previously identified as exceeding their respective RGs at Disposal Site 10 by MACTEC on April 21 and 23, 2005. The samples were delivered to ETC Laboratory of Memphis, Tennessee, for analysis of Target Compound List (TCL) semi-volatile organic compounds (SVOCs), and RCRA metals plus copper.

### Comparison of Results

Table 4-2 presents a comparison of the results of the Over-Excavation to the original Confirmation samples collected from Disposal Site 10 and the respective RGs/PRGs. Various metals, several Polynuclear Aromatic Hydrocarbons (PAHs), and di-n-butyl phthalate were detected in the over-excavation confirmation samples collected from Disposal Site 10. In addition, bis(2-chloroethyl)ether was detected in sample FL7 at a concentration below the RL but above the MDL. Any constituent result detected in the samples and reported at concentrations below the RL but above the method detection limit were qualified as estimated values and flagged "J". In addition, silver results in each of the samples were considered estimated and flagged "J" due to low recoveries in the matrix spike (MS)/MS duplicate samples.

One over-excavation sample (WL10) was collected adjacent WL7 sample and each of the detected values were compared and determined to be below their respective RG/PRG. However, two over-excavation samples (WL11 and WL12) collected adjacent WL9 exceeded their respective RGs for copper, lead and/or silver. One over-excavation floor sample (FL6) was collected below FL3 and reported values of copper and lead over the RGs. Therefore, over-excavation sample FL7 was collected and results were below RGs/PRGs. Therefore, the DQOs for this portion of the excavation have been achieved.

Based on the analytical data presented for the representative samples collected from Disposal Site 10, the over-excavation confirmation soil indicates additional excavation is required on the northwest quadrant of Disposal Site 10.





## MEMORANDUM

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TO: David Price, P.G.

FROM: Judy Hartness; Paul Brafford, CHMM

DATE: May 5, 2005

SUBJECT: **Comparison of Over-Excavation Characterization Sample Results to TCLP and RCI Criteria**  
**Dunn Field Disposal Sites Remedial Action**  
**Defense Depot Memphis, Tennessee**  
**MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the characterization soil sample chemical results collected from the over-excavated materials from Disposal Sites 4.1, 10, and 31 and the Toxicity Characteristic Leaching Procedure (TCLP) regulatory level, reactivity, corrosivity, and ignitability (RCI) hazardous waste criteria (40 CFR, §261.21 – 24, 2002). Copper is not listed in the TCLP rule and was compared to the tap water values listed in the EPA Preliminary Remediation Goals Table (October, 2004). In addition, for non-detected constituents, the reporting limits (RLs) were compared to the TCLP regulatory and RCI criteria to verify the constituent was not present at a level above the value.

One characterization soil sample (DSRA-042905-WB-OVER-C-1) was collected from composite samples from the over-excavated materials from Disposal Sites 4.1, 10, and 31 by MACTEC on April 29, 2005. The sample was delivered to ETC Laboratory of Memphis, Tennessee, for analysis of Toxicity Characteristic Leaching Procedure (TCLP) volatile organic compounds (VOCs), TCLP semi-volatile organic compounds (SVOCs), TCLP pesticides, TCLP herbicides, TCLP metals plus copper, and RCI.

### **Comparison of Results**

Table 3-5 presents the results of the characterization sample collected from the over-excavated materials from Disposal Sites 4.1, 10, and 31 on April 29, 2005 and respective TCLP/RCI regulatory/hazardous waste criteria. Laboratory analytical results indicate that none of the constituents exceed their respective TCLP or RCI criteria. Therefore, the over-excavated soils from Disposal Sites 4.1, 10, and 31 can be disposed as non-hazardous waste.



## MEMORANDUM

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TO: David Price, P.G.

FROM: Judy Hartness; Paul Brafford, CHMM

DATE: March 6, 2006

SUBJECT: **Comparison of Confirmation Sample Results to Remedial Goals – Area Adjacent to Disposal Site 10  
Dunn Field Disposal Sites Remedial Action  
Defense Depot Memphis, Tennessee  
MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the confirmation soil sample chemical results collected from the area adjacent to Disposal Site 10 and the Remedial Goals (RGs) as listed in Table 5-5, Attachment 2 of the Dunn Field Disposal Sites Remedial Action Work Plan (MACTEC, 2004). Any detected constituent not listed on Table 5-5 was compared to the values listed in the EPA Region 9 Preliminary Remediation Goal (PRG) Table (October, 2004). If both an Industrial Direct Contact Exposure value and a Migration to Groundwater value were listed, the lower of the two values was used for comparison. In addition, for non-detect constituent results, the reporting limits (RLs) were compared to the RG/PRG to verify the constituent was not present at a level above the risk value.

Based on the analytical data presented for the representative samples collected from the excavation at Disposal Site 10 in April 2005, the soil sample results collected from wall locations (WL) 7 and 9, and floor location (FL) 3 exceeded the chemical screening criteria. Additional excavation and over-excavation confirmation sampling was performed at this site. Over excavation samples (WL11 and WL12) collected adjacent to WL9 exceeded their respective RGs for copper, lead and/or silver. One over-excavation floor sample (FL6) was collected below the FL3 location and reported values of copper and lead over the RGs. Another over-excavation sample, FL7, was collected beneath the FL6 location and results were below RGs/PRGs.

Based on the analytical data presented for the representative samples collected from Disposal Site 10, the over-excavation confirmation soil data indicated additional excavation was required on the northwest quadrant of Disposal Site 10.

The additional excavation included the collection of 1 floor (FL3) with a duplicate and 3 wall (WL1, WL2 and WL3) confirmation soil samples from the area adjacent to Disposal Site 10 by MACTEC on March 2, 2006. The samples were delivered to ETC Laboratory of Memphis, Tennessee, for analysis of Target Compound List (TCL) semi-volatile organic compounds (SVOCs), and RCRA metals plus copper.

### Comparison of Results

Table 4-3 presents a comparison of the results of the confirmation samples collected from the area adjacent to Disposal Site 10 and the respective RGs/PRGs. Various metals were detected in each wall and floor sample collected. In addition, eight Polynuclear Aromatic Hydrocarbons (PAHs), and di-n-butyl phthalate were detected in the floor confirmation samples. Any constituent result

detected in the samples and reported at concentrations below the laboratory RL but above the method detection limit were qualified as estimated values and flagged "J". In addition, copper and lead results in samples DSRA-0306-DS10A-FL1 and its duplicate were considered estimated and flagged "J" due to poor precision. Each of the detected values were compared and determined to be below to their respective RG/PRG.

Based on the analytical data presented for the representative samples collected from the area adjacent to Disposal Site 10, the confirmation soil meets the chemical screening criteria and the excavation can be backfilled and closed.



## MEMORANDUM

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TO: David Price, P.G.

FROM: Judy Hartness; Paul Brafford, CHMM

DATE: March 25, 2005

SUBJECT: **Comparison of Confirmation Sample Results to Remedial Goals –  
Disposal Site 13  
Dunn Field Disposal Sites Remedial Action  
Defense Depot Memphis, Tennessee  
MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the "Confirmation" soil sample chemical results collected from Disposal Site 13 and the Remedial Goals (RGs) as listed in Table 5-5, Attachment 2 of the Dunn Field Disposal Sites Remedial Action Work Plan (MACTEC, 2004). Any detected constituent not listed on Table 5-5 was compared to the values listed in the EPA Region 9 Preliminary Remediation Goal (PRG) Table (October, 2004). If both an industrial Direct Contact Exposure value and a Migration to Groundwater value were listed, the lower of the two values was used for comparison. In addition, for non-detect results, the reporting limits (RLs) were compared to the RGs/PRGs to verify the constituent was not present at a level above the risk value.

Confirmation soil samples were collected from 5 wall and 2 floor locations within the excavation at Disposal Site 13 by MACTEC on May 20, 2005. The samples were delivered to ETC Laboratory of Memphis, Tennessee, for analysis of Target Compound List (TCL) semi-volatile organic compounds (SVOCs), and RCRA metals plus copper.

### **Comparison of Results**

Table 4-4 presents the results of the Confirmation samples collected from Disposal Site 13 and the respective RGs/PRGs. Various metals were detected in each of the confirmation samples collected from Disposal Site 13. One sample, DSRA-032005-DS13-DUP1, duplicate sample of DSRA-032005-DS13-G-WL3, contained di-n-butyl phthalate just above the RL. The parent sample did not contain di-n-butyl phthalate. Mercury was detected in each confirmation sample at concentrations below the RL but above the method detection limit and results were considered estimated and flagged "J". Each of the detected values were compared and determined to be below to their respective RG/PRG.

Based on the analytical data presented for the representative samples collected from Disposal Site 13, the confirmation soil meets the chemical screening criteria and the excavation can be backfilled and closed.



## MEMORANDUM

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TO: David Price, P.G.

FROM: Judy Hartness; Paul Brafford, CHMM

DATE: March 28, 2005

SUBJECT: **Comparison of Disposal Site 13 Characterization Sample Results to TCLP and RCI Criteria**  
**Dunn Field Disposal Sites Remedial Action**  
**Defense Depot Memphis, Tennessee**  
**MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the characterization soil sample chemical results collected from Disposal Site 13 and the Toxicity Characteristic Leaching Procedure (TCLP) regulatory level, reactivity, corrosivity, and ignitability (RCI) hazardous waste criteria (40 CFR, §261.21 – 24, 2002). Copper is not listed in the TCLP rule and was compared to the tap water values listed in the EPA Preliminary Remediation Goals Table (October, 2004). In addition, for non-detected constituents, the reporting limits (RLs) were compared to the TCLP regulatory and RCI criteria to verify the constituent was not present at a level above the value.

One characterization soil sample (DSRA-032005-WB/DS13-C-1) was collected from five-point composite samples at Disposal Site 13 by MACTEC on May 20, 2005. The samples were delivered to ETC Laboratory of Memphis, Tennessee, for analysis of Toxicity Characteristic Leaching Procedure (TCLP) volatile organic compounds (VOCs), TCLP semi-volatile organic compounds (SVOCs), TCLP pesticides, TCLP herbicides, TCLP metals plus copper, and RCI.

### Comparison of Results

Table 3-2 presents the results of the characterization samples collected from Disposal site 13 on May 20, 2005 and respective TCLP/RCI regulatory/hazardous waste criteria. Laboratory analytical results indicate that none of the constituents exceed their respective TCLP or RCI criteria. Therefore, the excavated soils from Disposal Site 13 can be disposed as non-hazardous waste.

MACTEC is currently coordinating efforts to dispose of the waste with a subcontractor. Following your approval of this waste characterization, MACTEC will schedule the removal.



## MEMORANDUM

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TO: David Price, P.G.

FROM: Judy Hartness; Paul Brafford, CHMM

DATE: March 25, 2005

SUBJECT: **Comparison of Confirmation Sample Results to Remedial Goals –  
Disposal Site 4.1  
Dunn Field Disposal Sites Remedial Action  
Defense Depot Memphis, Tennessee  
MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the "Confirmation" soil sample chemical results collected from Disposal Site 4.1 and the Remedial Goals (RGs) as listed in Table 5-5, Attachment 2 of the Dunn Field Disposal Sites Remedial Action Work Plan (MACTEC, 2004). Any detected constituent not listed on Table 5-5 was compared to the values listed in the EPA Region 9 Preliminary Remediation Goal (PRG) Table (October, 2004). If both an industrial Direct Contact Exposure value and a Migration to Groundwater value were listed, the lower of the two values was used for comparison. In addition, for non-detect results, the reporting limits (RLs) were compared to the RG/PRG to verify the constituent was not present at a level above the risk value.

Confirmation soil samples were collected from 6 wall and 3 floor locations within the excavation at Disposal Site 4.1 by MACTEC on May 21, 2005. The samples were delivered to ETC Laboratory of Memphis, Tennessee, for analysis of Target Compound List (TCL) semi-volatile organic compounds (SVOCs), and RCRA metals plus copper.

### **Comparison of Results**

Table 4-5 presents the results of the Confirmation samples collected from Disposal Site 4.1 and the respective RG/PRG. Various metals were detected in each of the confirmation samples collected from Disposal Site 4.1. One sample, DSRA-032105-DS4.1-G-WL6, contained 12 Polynuclear Aromatic Hydrocarbons (PAHs) and bis(2-chloroethyl)ether at concentrations below the RL but above the method detection limit and results were considered estimated and flagged "J". Each of the detected values were compared and determined to be below to their respective RG/PRG with the exception of copper, lead and bis(2-chloroethyl)ether in soil sample DSRA-032105-DS4.1-G-WL6.

Based on the analytical data presented for the representative samples collected from the excavation at Disposal Site 4.1, the soil sample results collected from wall location 6 exceed the chemical screening criteria. Additional excavation and soil confirmation sampling is recommended for this site.



## MEMORANDUM

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TO: David Price, P.G.

FROM: Judy Hartness; Paul Brafford, CHMM

DATE: March 28, 2005

SUBJECT: **Comparison of Disposal Site 4.1 Characterization Sample Results to TCLP and RCI Criteria**  
**Dunn Field Disposal Sites Remedial Action**  
**Defense Depot Memphis, Tennessee**  
**MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the "Characterization" soil sample chemical results collected from Disposal Site 4.1 and the Toxicity Characteristic Leaching Procedure (TCLP) regulatory level, reactivity, corrosivity, and ignitability (RCI) hazardous waste criteria (40 CFR, §261.21 – 24, 2002). Copper is not listed in the TCLP rule and was compared to the tap water values listed in the EPA Preliminary Remediation Goals Table (October, 2004). In addition, for non-detected constituents, the reporting limits (RLs) were compared to the TCLP regulatory and RCI criteria to verify the constituent was not present at a level above the value.

One characterization soil sample (DSRA-032105-WB/DS4.1-C-1) was collected from five-point composite samples at Disposal Site 4.1 by MACTEC on May 21, 2005. The samples were delivered to ETC Laboratory of Memphis, Tennessee, for analysis of Toxicity Characteristic Leaching Procedure (TCLP) volatile organic compounds (VOCs), TCLP semi-volatile organic compounds (SVOCs), TCLP pesticides, TCLP herbicides, TCLP metals plus copper, and RCI.

### Comparison of Results

Table 3-3 presents the results of the characterization samples collected from Disposal site 4.1 on May 21, 2005 and respective TCLP/RCI regulatory/hazardous waste criteria. Laboratory analytical results indicate that none of the constituents exceed their respective TCLP or RCI criteria. Therefore, the excavated soils from Disposal Site 4.1 can be disposed as non-hazardous waste.

MACTEC is currently coordinating efforts to dispose of the waste with a subcontractor. Following your approval of this waste characterization, MACTEC will schedule the removal.



## MEMORANDUM

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TO: David Price, P.G.

FROM: Judy Hartness; Paul Brafford, CHMM

DATE: April 19, 2005

SUBJECT: **Comparison of Over-Excavation Confirmation Sample Results to Remedial Goals – Disposal Site 4.1**  
**Dunn Field Disposal Sites Remedial Action**  
**Defense Depot Memphis, Tennessee**  
**MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the "Over-Excavation Confirmation" soil sample chemical results collected from Disposal Site 4.1 and the Remedial Goals (RGs) as listed in Table 5-5, Attachment 2 of the Dunn Field Disposal Sites Remedial Action Work Plan (MACTEC, 2004). Any detected constituent not listed on Table 5-5 was compared to the values listed in the EPA Region 9 Preliminary Remediation Goal (PRG) Table (October, 2004). If both an industrial Direct Contact Exposure value and a Migration to Groundwater value were listed, the lower of the two values was used for comparison. In addition, for non-detect constituent results, the reporting limits (RLs) were compared to the RG/PRG to verify the constituent was not present at a level above the risk value.

Based on the analytical data presented for the representative samples collected from the excavation at Disposal Site 4.1, the soil sample results collected from wall location 6 exceeded the chemical screening criteria. Additional excavation and over-excavation confirmation sampling was performed at this site.

Over-Excavation Confirmation soil sample, DSRA-041405-DS4.1-G-WL7, was collected from the over-excavation adjacent the wall location previously identified as exceeding the RGs at Disposal Site 4.1 by MACTEC on April 14, 2005. The samples were delivered to ETC Laboratory of Memphis, Tennessee, for analysis of Target Compound List (TCL) semi-volatile organic compounds (SVOCs), and RCRA metals plus copper.

### Comparison of Results

Table 4-6 presents the results of the Over-Excavation Confirmation sample collected from Disposal Site 4.1 and the respective RGs/PRGs. Various metals were detected in the over-excavation confirmation sample collected from Disposal Site 4.1. Cadmium and mercury were detected in the sample at concentrations below the RL but above the method detection limit and results were qualified as estimated values and flagged "J".

Each of the detected values were compared and determined to be below their respective RG/PRG. Therefore, based on the analytical data presented for the representative samples collected from Disposal Site 4.1, the over-excavation confirmation soil meets the chemical screening criteria and the excavation can be backfilled and closed.





## MEMORANDUM

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TO: David Price, P.G.

FROM: Judy Hartness; Paul Brafford, CHMM

DATE: February 23, 2006

SUBJECT: **Comparison of Disposal Site 3 Characterization Sample Results to TCLP and RCI Criteria**  
**Dunn Field Disposal Sites Remedial Action**  
**Defense Depot Memphis, Tennessee**  
**MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the characterization soil sample chemical results collected from Disposal Site 3 and the Toxicity Characteristic Leaching Procedure (TCLP) regulatory level, and reactivity, corrosivity, and ignitability (RCI) hazardous waste criteria (40 CFR, §261.21 – 24, 2002). Copper is not listed in the TCLP rule and was compared to the tap water values listed in the EPA Preliminary Remediation Goals Table (October, 2004). In addition, for non-detected constituents, the reporting limits (RLs) were compared to the TCLP regulatory and RCI criteria to verify the constituent was not present at a level above the value.

A composite sample was prepared in order to characterize the waste for disposal generated from the excavation of Disposal Site 3 at the Defense Depot Memphis, Tennessee (DDMT) Dunn Field site. Sample DSRA-0206-WBDS3-1 was the composite sample of representative waste material that will be generated during the excavation of Disposal Site 3. The characterization sample was collected by MACTEC on January 31, 2006. The sample was a mixture of excavated soil, vermiculite, and liquid from the containers generated from the following mixture ratio: soil = 31 pounds (lbs)/vermiculite = 0.24 lbs/ liquid waste = 1 lb. The liquid waste was previously analyzed and consisted of 0.0106% 3,3'-Dimethylbenzidine (the acid derivative of o-toluidine).

The sample was delivered to ETC Laboratory of Memphis, Tennessee, for analysis of TCLP volatile organic compounds (VOC), TCLP semi-volatile organic compounds (SVOCs), TCLP pesticides, TCLP herbicides, and TCLP metals by inductively coupled plasma (ICP) and cold vapor (mercury), total polychlorinated biphenyls (PCBs), RCI, and a screen for radiation.

### Comparison of Results

Table 1 presents the results of the characterization sample collected from Disposal Site 3 on January 31, 2006 and respective TCLP/RCI regulatory/hazardous waste criteria. Laboratory analytical results indicate that none of the constituents exceed their respective TCLP or RCI criteria. In addition, the radiation screening results were below the backfill material results. Therefore, the excavated soils from Disposal Site 3 can be disposed as non-hazardous waste.

MACTEC is currently coordinating efforts to dispose of the waste with a subcontractor. Following your approval of this waste characterization, MACTEC will schedule the removal.



## MEMORANDUM

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TO: David Price, P.G.

FROM: Judy Hartness; Paul Brafford, CHMM

DATE: March 13, 2006

SUBJECT: **Comparison of Confirmation Sample Results to Remedial Goals –  
Disposal Site 3  
Dunn Field Disposal Sites Remedial Action  
Defense Depot Memphis, Tennessee  
MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the confirmation soil sample chemical results collected from Disposal Site 3 and the Remedial Goals (RGs) as listed in Table 5-5, Attachment 2 of the Dunn Field Disposal Sites Remedial Action Work Plan (MACTEC, 2004). Any detected constituent not listed on Table 5-5 was compared to the values listed in the EPA Region 9 Preliminary Remediation Goal (PRG) Table (October, 2004). If both an Industrial Direct Contact Exposure value and a Migration to Groundwater value were listed, the lower of the two values was used for comparison. In addition, for non-detect constituent results, the reporting limits (RLs) were compared to the RG/PRG to verify the constituent was not present at a level above the risk value.

Excavation of Disposal Site 3 was initiated in March 2005 and subsequently halted due to the presence of numerous containers filled with an unknown liquid. A review of available records indicated that 3,000 quarts of unknown chemicals and 5 cubic feet of ortho-toluidine dihydrochloride were buried in Disposal Site 3 in 1955. Three of the intact containers were sent to ETC Laboratory of Memphis, Tennessee, to evaluate the physical and chemical characteristics of the containerized liquids. Results indicated that the containers contained 3,3'-dimethylbenzidine, suspected to have been produced from the derivatization of ortho-toluidine. An addendum to the Work Plan was prepared to address the procedures to excavate, characterize, transport, and properly dispose of the buried materials associated with the liquid containers by MACTEC in February 2006. The *Remedial Action Work Plan Addendum 1, Revision 1* was approved in March 2006.

After excavation activities were completed, MACTEC collected 3 confirmation soil floor samples (DSRA-0306-DS3FL1, FL2, FL3) with a duplicate and 6 wall (DSRA-0306-DS3-WL1, WL2, WL3, WL4, WL5, and WL6) confirmation soil samples from Disposal Site 3 on March 3, 2006. The samples were delivered to ETC Laboratory of Memphis, Tennessee, for analysis of Target Compound List (TCL) semi-volatile organic compounds (SVOCs), and RCRA metals plus copper.

SVOC analysis of samples WL6 and FL1 indicated the presence of sample matrix interferences which required the laboratory to dilute the samples and acid surrogates were recovered below the control limits. Samples were recollected from these locations (labeled as DSRA-030706-DS3WL6A and FL1A) on March 7, 2006 and were successfully analyzed for SVOCs.

### Comparison of Results

Table 4-9 presents a comparison of the results of the confirmation samples collected from Disposal Site 3 and the respective RGs/PRGs. Various metals were detected in each wall and floor sample collected. In addition, four Polynuclear Aromatic Hydrocarbons (PAHs) were detected in wall sample DSRA-0306-DS3-WL1 and two PAHs were detected in floor sample DSRA-0306-DS3-FL2 at concentrations between the reporting limit (RL) and the method detection limit (MDL). Di-n-butyl phthalate was detected in the wall sample WL3. Site-specific compounds of concern, 3,3'-dimethylbenzidine and ortho-toluidine (o-toluidine), were not detected in any of the confirmation samples collected and analyzed.

As previously mentioned, two samples were recollected because matrix interferences caused low recovery of internal standards and surrogate standards in the initial SVOC analysis of confirmation samples DSRA-0306-DS3-WL6 and - FL1. Dilutions were performed on the samples to minimize matrix effects and internal standard recovery was acceptable; however, the acid surrogate recoveries were below acceptable QC limits. The SVOC analysis of the recollected samples, DSRA-0306-DS3-WL6A and - FL1A, was successful. Therefore, the SVOC data from the recollected samples were used for remedial decisions.

The o-toluidine RG is 0.04 mg/kg and the ETC SW8270C MDL for o-toluidine was experimentally determined to be 0.0445 mg/kg. The MDL determination is based upon using the method-specified 30 grams of sample (wet-weight basis). However, when 30 grams of an actual sample is taken for analysis and is reported on a dry weight basis, the sample MDL is adjusted for percent moisture in the sample which results in an increase in the sample MDL (a.k.a. SQL). The o-toluidine MDL and sample adjusted SQL are the lowest achievable values using the methods approved for this remediation project.

Any constituent result detected in the samples and reported at concentrations below the laboratory RL but above the MDL were qualified as estimated values and flagged "J". In addition, arsenic results in samples DSRA-0306-DS3-FL3 and its duplicate were considered estimated and flagged "J" due to poor sampling precision. Each of the detected values were compared and determined to be below to their respective RG/PRG.

Based on the analytical data presented for the representative samples collected from Disposal Site 3, the closure screening criteria have been achieved and the excavation may be backfilled and closed.



## MEMORANDUM

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TO: David Price, P.G.

FROM: Judy Hartness; Paul Brafford, CHMM

DATE: March 23, 2005

SUBJECT: **Comparison of Disposal Site 31 Pre-Characterization Sample Results to TCLP and RCI Criteria**  
**Dunn Field Disposal Sites Remedial Action**  
**Defense Depot Memphis, Tennessee**  
**MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the "Pre-Characterization" soil sample chemical results collected from Disposal Site 31 and the Toxicity Characteristic Leaching Procedure (TCLP), the reactivity, corrosivity, and ignitability (RCI) criteria. Copper is not listed in the TCLP rule and was compared to the tap water values listed in the EPA Preliminary Remediation Goals Table (October, 2004). In addition, for non-detected results, the reporting limits (RLs) were compared to the TCLP and RCI criteria to verify the constituent was not present at a level above the value.

Five Pre-Characterization soil samples (DSRA-031605-WB/DS31-C-1, DSRA-031605-WB/DS31-C-2, DSRA-031605-WB/DS31-C-3, DSRA-031605-WB/DS31-C-4, and DSRA-031605-WB/DS31-C-5) were collected from five-point composite samples at Disposal Site 31 by MACTEC on May 16, 2005. The samples were delivered to ETC Laboratory of Memphis, Tennessee, for analysis of Toxicity Characteristic Leaching Procedure (TCLP) volatile organic compounds (VOCs), TCLP semi-volatile organic compounds (SVOCs), TCLP pesticides, TCLP herbicides, TCLP metals plus copper, and RCI.

### Comparison of Results

Table 3-4 presents the results of the Pre-Characterization samples collected from Disposal site 31 on May 16, 2005 and respective TCLP/RCI values. Laboratory analytical results indicate that none of the constituents exceed their respective TCLP or RCI criteria. Therefore, the excavated soils from Disposal Site 31 can be disposed as non-hazardous waste.

MACTEC is currently coordinating efforts to dispose of the waste with a subcontractor. Following your approval of this waste characterization, MACTEC will schedule the removal.



## MEMORANDUM

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TO: David Price, P.G.

FROM: Judy Hartness; Paul Brafford, CHMM

DATE: April 22, 2005

SUBJECT: **Comparison of Confirmation Sample Results to Remedial Goals –  
Disposal Site 31  
Dunn Field Disposal Sites Remedial Action  
Defense Depot Memphis, Tennessee  
MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the "Confirmation" soil sample chemical results collected from Disposal Site 31 and the Remedial Goals (RGs) as listed in Table 5-5, Attachment 2 of the Dunn Field Disposal Sites Remedial Action Work Plan (MACTEC, 2004). Any detected constituent not listed on Table 5-5 was compared to the values listed in the EPA Region 9 Preliminary Remediation Goal (PRG) Table (October, 2004). If both an industrial Direct Contact Exposure value and a Migration to Groundwater value were listed, the lower of the two values was used for comparison. In addition, for non-detect constituent results, the reporting limits (RLs) were compared to the RG/PRG to verify the constituent was not present at a level above the risk value.

Confirmation soil samples were collected from 9 wall and 7 floor locations within the excavation at Disposal Site 31 by MACTEC on April 17, 18, and 19, 2005. The samples were delivered to ETC Laboratory of Memphis, Tennessee, for analysis of Target Compound List (TCL) semi-volatile organic compounds (SVOCs), and RCRA metals plus copper.

### Comparison of Results

Table 4-7 presents the results of the Confirmation samples collected from Disposal Site 31 and the respective RGs/PRGs. Various metals, several Polynuclear Aromatic Hydrocarbons (PAHs), dibenzofuran, di-n-butyl phthalate, and hexachlorobenzene were detected in the confirmation samples collected from Disposal Site 31. Several PAHs, dibenzofuran, hexachlorobenzene, and mercury were detected in the samples at concentrations below the RL but above the method detection limit and results were qualified as estimated values and flagged "J". In addition, arsenic, cadmium, copper, mercury, and several PAH results were qualified as estimated values and flagged "J" in sample DSRA-041905-DS31-G-WL9 and its duplicate due to poor duplicate precision.

Each of the detected values were compared and determined to be below their respective RG/PRG with the exception of benzo(a)pyrene in soil sample DSRA-041905-DS31-G-WL2 and benzo(a)pyrene and dibenz(a,h)anthracene in soil sample DSRA-041905-DS31-G-FL2.

Based on the analytical data presented for the representative samples collected from the excavation at Disposal Site 31, the soil sample results collected from wall and floor location 2 exceed the chemical screening criteria. Additional excavation and confirmation sampling is recommended for this site.



## MEMORANDUM

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TO: David Price, P.G.

FROM: Judy Hartness; Paul Brafford, CHMM

DATE: May 2, 2005

SUBJECT: **Comparison of Over-Excavation Confirmation Sample Results to Remedial Goals – Disposal Site 31**  
**Dunn Field Disposal Sites Remedial Action**  
**Defense Depot Memphis, Tennessee**  
**MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the "Over-Excavation Confirmation" soil sample chemical results collected from Disposal Site 31 and the Remedial Goals (RGs) as listed in Table 5-5, Attachment 2 of the Dunn Field Disposal Sites Remedial Action Work Plan (MACTEC, 2004). Any detected constituent not listed on Table 5-5 was compared to the values listed in the EPA Region 9 Preliminary Remediation Goal (PRG) Table (October, 2004). If both an industrial Direct Contact Exposure value and a Migration to Groundwater value were listed, the lower of the two values was used for comparison. In addition, for non-detect constituent results, the reporting limits (RLs) were compared to the RG/PRG to verify the constituent was not present at a level above the risk value.

Based on the analytical data presented for the representative samples collected from the excavation at Disposal Site 31, the soil sample results collected from wall location 2 and floor location 2 exceeded the chemical screening criteria. Additional excavation and over-excavation confirmation sampling was performed at this site.

Over-Excavation Confirmation soil samples were collected from 1 wall (WL10) and 4 floor (FL8, FL9, FL10, and FL11) locations previously identified as exceeding their respective RGs at Disposal Site 31 by MACTEC on April 21, 23, and 27, 2005. The samples were delivered to ETC Laboratory of Memphis, Tennessee, for analysis of Target Compound List (TCL) semi-volatile organic compounds (SVOCs), and RCRA metals plus copper.

### Comparison of Results

Table 4-8 presents a comparison of the results of the Over-Excavation to the original Confirmation samples collected from Disposal Site 31 and the respective RGs/PRGs. Various metals and SVOCs, in addition to several Polynuclear Aromatic Hydrocarbons (PAHs), were detected in the over-excavation confirmation samples collected from Disposal Site 31. Any constituent result detected in the samples and reported at concentrations below the RL but above the method detection limit were qualified as estimated values and flagged "J".

One over-excavation sample (WL10) was collected adjacent the WL2 sample and each of the detected values were compared and determined to be below their respective RG/PRG. However, three over-excavation samples (FL8, FL9, and FL10) collected adjacent FL2 exceeded their respective RGs for the following PAHs: benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, dibenz(a,h)anthracene and/or indeno(1,2,3-cd)pyrene. Over-excavation floor sample (FL8) was collected below FL2 and reported values of benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, dibenz(a,h)anthracene were over the RGs. Therefore, over-excavation sample FL9 was collected and benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, dibenz(a,h)anthracene and/or indeno(1,2,3-cd)pyrene results were over the RGs/PRGs. Subsequently, based on the exceedences in FL9, over-excavation sample FL10 was collected and benzo(a)pyrene results were over the RG. Finally, over-excavation sample FL11 was collected and results were below the respective RGs/PRGs.

Therefore, based on the analytical data presented for the representative over-excavation samples WL10 and FL11 collected from Disposal Site 31, the over-excavation confirmation soil meets the chemical screening criteria and the excavation can be backfilled and closed.



## MEMORANDUM

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TO: David Price

FROM: Judy Hartness, Paul Brafford, CHMM

DATE: January 16, 2006

SUBJECT: **Comparison of Backfill Sample Results to Remedial Goals  
Dunn Field Disposal Sites Remedial Action  
Defense Depot Memphis, Tennessee  
MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the Backfill soil sample chemical results and the Remedial Goals (RGs) as listed in Table 5-5, Attachment 2 of the Dunn Field Disposal Sites Remedial Action Work Plan (MACTEC, 2004). Any detected constituent not listed on Table 5-5 was compared to the values listed in the EPA Region 9 Preliminary Remediation Goal (PRG) Table (October, 2004). If both an industrial Direct Contact Exposure value and a Migration to Groundwater value were listed, the lower of the two values was used for comparison. In addition, for non-detect results, the reporting limits (RLs) were compared to the RG/PRG to verify the constituent was not present at a level above the risk value.

Two soil samples (DSRA-1205-BA2-C-01/DSRA-1205-BA2-G-01, DSRA-1205-BA2-C-02/DSRA-1205-BA2-G-02) were prepared from five-point composite samples, with the exception of the volatile organic compounds (VOCs) that were collected as grab samples, by MACTEC on December 6, 2005. The samples were collected from a borrow source at 1735 Thomas Road, Memphis, TN 38134 and analyzed to confirm the soil was appropriate for use as backfill. The samples were delivered to ETC Laboratory of Memphis, Tennessee, for analysis of Target Compound List (TCL) VOCs, TCL semi-volatile organic compounds (SVOCs), TCL pesticides, PCBs, herbicides, and Target Analyte List (TAL) metals.

### Comparison of Results

Table 3-9 presents the results of the Backfill samples collected on December 6, 2005 and respective RG/PRG. Twenty metals and one VOC were detected in both the Backfill soil samples. Beryllium, cadmium, cobalt, mercury, potassium, sodium, thallium, and trichloroethene were detected below the RL but above the method detection limit in both samples and were considered estimated concentrations and flagged "J". Each of the detected values were compared and determined to be below their respective RG/PRG.

Based on the analytical data presented for the representative samples collected from the backfill borrow materials, the backfill soil meets the chemical screening criteria and is considered appropriate for use at the Dunn Field Disposal Sites.





## MEMORANDUM

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TO: David Price

FROM: Judy Hartness; Paul Brafford, CHMM

DATE: March 23, 2005

SUBJECT: **Comparison of Backfill Sample Results to Remedial Goals  
Dunn Field Disposal Sites Remedial Action  
Defense Depot Memphis, Tennessee  
MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the Backfill soil sample chemical results and the Remedial Goals (RGs) as listed in Table 5-5, Attachment 2 of the Dunn Field Disposal Sites Remedial Action Work Plan (MACTEC, 2004). Any detected constituent not listed on Table 5-5 was compared to the values listed in the EPA Region 9 Preliminary Remediation Goal (PRG) Table (October, 2004). If both an industrial Direct Contact Exposure value and a Migration to Groundwater value were listed, the lower of the two values was used for comparison. In addition, for non-detect results, the reporting limits (RLs) were compared to the RG/PRG to verify the constituent was not present at a level above the risk value.

Three soil samples (DSRA-030405-BA1-C-01/DSRA-031505-BA1-G-01, DSRA-031505-BA1-C-02, and DSRA-031505-BA1-C-03) were prepared from five-point composite samples collected by MACTEC on May 4 and 15, 2005. The samples were collected from a borrow source at 1735 Thomas Road, Memphis, TN 38134 to confirm the soil was appropriate for use as backfill. The samples were delivered to ETC Laboratory of Memphis, Tennessee, for analysis of Target Compound List (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), TCL pesticides, PCBs, herbicides, and Target Analyte List (TAL) metals.

### Comparison of Results

Table 3-7 presents the results of the Backfill samples collected on March 4 and 15, 2005 and respective RG/PRG. Eighteen metals and one SVOC were detected in the Backfill soil sample DSRA-030405-BA1-C-01/DSRA-031505-BA1-G-01. Antimony, beryllium, calcium, mercury, potassium, and pyrene were detected below the RL but above the method detection limit and were considered estimated and flagged "J". Nineteen metals were detected in backfill soil sample DSRA-031505-BA1-C-02 and nineteen metals and acetone were detected in backfill soil sample DSRA-031505-BA1-C-03. Beryllium, potassium, and sodium in sample DSRA-031505-BA1-C-02 and beryllium, calcium, potassium, and selenium in sample DSRA-031505-BA1-C-03 were detected below the RL but above the method detection limit and were considered estimated and flagged "J". Each of the detected values were compared and determined to be below to their respective RG/PRG.

Based on the analytical data presented for the representative samples collected from the backfill borrow materials, the backfill soil meets the chemical screening criteria and is considered appropriate for use at the Dunn Field Disposal Sites.



## MEMORANDUM

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TO: David Price, P.G.

FROM: Judy Hartness; Paul Brafford, CHMM

DATE: March 29, 2005

SUBJECT: **Comparison of Backfill Sample Results to Remedial Goals  
Dunn Field Disposal Sites Remedial Action  
Defense Depot Memphis, Tennessee  
MACTEC Project No. 6301-05-0004**

This memorandum provides a summary of the comparison between the Backfill soil sample chemical results and the Remedial Goals (RGs) as listed in Table 5-5, Attachment 2 of the Dunn Field Disposal Sites Remedial Action Work Plan (MACTEC, 2004). Any detected constituent not listed on Table 5-5 was compared to the values listed in the EPA Region 9 Preliminary Remediation Goal (PRG) Table (October, 2004). If both an industrial Direct Contact Exposure value and a Migration to Groundwater value were listed, the lower of the two values was used for comparison. In addition, for non-detect constituent results, the reporting limits (RLs) were compared to the RGs/PRGs to verify the constituent was not present at a level above the risk value.

Three soil samples (DSRA-032105-BA1-C-04, DSRA-032105-BA1-G-04DUP, and DSRA-031505-BA1-C-05) were prepared from five-point composite samples collected by MACTEC on March 21, 2005. The samples were collected from a borrow source at 1735 Thomas Road, Memphis, TN 38134 to confirm the soil was appropriate for use as backfill. The samples were delivered to ETC Laboratory of Memphis, Tennessee, for analysis of Target Compound List (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), TCL pesticides, PCBs, herbicides, and Target Analyte List (TAL) metals.

### Comparison of Results

Table 3-8 presents the results of the Backfill samples collected on March 21, 2005 and respective RGs/PRGs. Eighteen metals were detected in each of the Backfill soil samples. Beryllium, mercury, and potassium were detected below the RL but above the method detection limit and were considered estimated and flagged "J". Each of the detected values were compared and determined to be below to their respective RG/PRG.

Based on the analytical data presented for the representative samples collected from the backfill borrow materials, the backfill soil meets the chemical screening criteria and is considered appropriate for use at the Dunn Field Disposal Sites.

**APPENDIX J  
DATA QUALITY EVALUATION**

## APPENDIX J

### DATA QUALITY EVALUATION

The remedial action (RA) sampling event at the Dunn Field excavation sites was conducted during March, April, and December 2005, and January and March 2006. Samples were selected for confirmation, characterization, and backfill analysis in accordance with the *Defense Depot Memphis, Tennessee, Dunn Field Disposal Sites Remedial Action Work Plan Rev. 1* (RAWP) (MACTEC, 2004a). The field and laboratory procedures were implemented consistent with Appendix D of the RAWP (MACTEC, 2004a) and the *Remedial Action Sampling and Analysis Plan, Rev. 0* (RA SAP) (MACTEC, 2004b) and the *Remedial Action Work Plan Addendum 1, Rev. 1* (MACTEC, 2006). The following sections discuss the field activities, analytical methods, data quality evaluation process, and any anomalies identified with the quality assurance (QA)/quality control (QC) associated with the laboratory data.

#### 1.1 FIELD ACTIVITIES

The initial field effort included the collection of soil samples from 4 disposal sites (4.1, 13, 10, and 31) from March 19, 2005 to April 29, 2005. The sample locations are presented in the Remedial Action Completion Report. Storm water was collected on April 14, 2005 from Disposal Site 10 and analyzed for metals and total suspended solids (TSS). Liquid samples were collected from Disposal Site 3 and screened for characterization parameters and verification of the existence of buried waste per the Record of Decision (ROD) (CH2M Hill, 2004).

With the discovery of liquid containers at Disposal Site 3 and additional removal required for Disposal Site 10, field activities were temporarily suspended until characterization of the liquid containers from Disposal Site 3 could be performed, changes to the scope of work could be quantified, and a Remedial Action Work Plan Addendum 1 (MACTEC, 2006) could be developed. Remedial activities for Disposal Site 3 and the additional removal of soils at Disposal Site 10 were performed in March 2006.

The field QC program for the remedial action (RA) sample collection included specific procedures for soil sampling as described in the RAWP (MACTEC, 2004a) and the RA SAP (MACTEC, 2004b). Sample bottles met USEPA requirements for environmentally clean containers. Sample container labels were pre-printed to facilitate sample tracking from the field through the laboratory.

Field QC samples were collected to evaluate sampling techniques and decontamination procedures. These samples included field duplicates, trip blanks, and field equipment blanks. Documentation of the sampling was performed in the field to ensure that the samples collected, sample labels, chain-of-custody records, and request for analysis forms were consistent. Custody seals were placed on each sample cooler prior to delivery to the lab by site personnel.

## **1.2 ANALYTICAL METHODS**

The confirmation soil samples were analyzed for semi-volatile organic compounds (SVOCs) by method 8270C, and Resource Conservation and Recovery Act (RCRA) metals plus copper by methods 6010B/7470A. The characterization samples were analyzed for Toxicity Characteristic Leaching Procedure (TCLP) VOCs by method 1311/8260B, TCLP RCRA metals plus copper by methods 1311/6010B/7470A, TCLP pesticides by method 1311/8081A, TCLP herbicides by method 1311/8150A, TCLP SVOCs by method 1311/8270C, and reactivity, corrosivity, and ignitability (RCI) by SW846 methods Chapter 7.3.3.2, 7.3.4, 9045, and 1010, respectively. The backfill samples were analyzed for Target Compound List (TCL) VOCs by method 8260B, Target Analyte List (TAL) metals by methods 6010B/7470A, TCL pesticides by method 8081A, TCL herbicides by method 8150A, polychlorinated biphenyls (PCBs) by method 8082, and TCL SVOCs by method 8270C. In addition, the liquid container samples collected from Disposal Site 3 were analyzed for VOCs by method 8260B, SVOCs by method 8270C with library identification for o-toluidine and 3,3'-dimethylbenzidine, Karl Fisher Water by D4928, chloride by 325.3, density by 2710F, total solids by 160.3, ignitability by 1010, and waste screening for pH, water reactivity, solubility, and oxidizer potential.

A method detection limit (MDL) study was performed by ETC for o-toluidine and 3,3'-dimethylbenzidine and determined to be 0.0445 mg/kg for o-toluidine and 0.189 mg/kg for 3,3'-dimethylbenzidine in soil. The MDLs were compared to the RGs and were determined to be of sufficient sensitivity to be used for remedial decisions. The MDL study is included in detail in Appendix D of the RAWP Addendum 1, Rev.1 (MACTEC, 2006).

The laboratory QC program, including sample handling, laboratory control, and reporting is documented in the RA SAP (MACTEC, 2004). Sample handling includes documentation of sample receipt, placement in storage, lab personnel using the sample, and disposal. The laboratory control consists of instrument calibration and maintenance, laboratory control samples (LCS), method blanks and matrix

spikes. Reporting of the laboratory control data was planned prior to the collection of the data, allowing the laboratory to place the appropriate information into the data package so that the data quality evaluation (DQE) could be performed in a timely manner.


### **1.3 DATA QUALITY EVALUATION**

The laboratory data quality was evaluated following the DQE standard operating procedures (SOPs) presented in the RA SAP (MACTEC, 2004). The objective of the DQE was to provide a review of the chemical data packages submitted by the laboratory and to qualify that data relative to the DQOs stated in the RA SAP (MACTEC, 2004). The DQE consisted of review of laboratory QC data and field QC parameters, and data qualification by flagging of the data as usable, usable with qualification, or unusable.

The data quality relative to laboratory analyses was evaluated using the criteria stated in the RA SAP (MACTEC, 2004) for each analytical method performed. A Level II validation was performed and the following information was reviewed:

- Sample Integrity
- Sample Completeness
- Sample Holding Times
- Laboratory Methods for Extraction and Analysis
- Method Accuracy and Precision (Matrix Spike/Matrix Spike Duplicate)
- Laboratory Performance Criteria (Blanks, LCS Recoveries)

Field QC parameters were evaluated through the chemical analysis of field duplicates, field blanks, and field documentation.

The DQE was summarized by use of flags that indicate to the reviewer that the data has been qualified using the established criteria. Sample Delivery Group (SDG) narratives detailing the evaluation of the laboratory data are included in this attachment. The SDGs and associated soil samples are listed on .

The following sections discuss only those deficiencies encountered during the evaluation that resulted in unusable data.

### **1.3.1 Data Quality Evaluation Summary – Soil**

Total analytical completeness for the RA sampling event at the Dunn Field excavation sites was 99%, which meets the completeness DQO stated in the DDMT SAP (MACTEC, 2004). A level II data package was requested and reviewed. The review process included assessment of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any anomalies among the method were qualified as estimated, but determined to be usable data. A formal validation was not performed on the screening results of the liquid container samples collected from Disposal Site 3. Qualification of the data resulted primarily from sampling precision, surrogate recoveries that exceeded the QC limits, MS/MSD results, and/or constituent concentrations detected in the samples and reported at concentrations below the RL but above the method detection limit. The soil data that was usable with qualifications are discussed in the attached DQE narratives and summarized below.

#### Sampling Precision

The following sample results were qualified as estimated and flagged “J” due to the non-homogeneity of some constituents in the soil samples:

- Arsenic results in Disposal Site 3 sample DSRA-0306-DS3-FL3 and its duplicate
- Chromium, copper, and lead results in Disposal Site 10 sample DSRA-031905-DS10-G-FL5 and its duplicate
- Copper and lead results in the additional soil removal at Disposal Site 10 samples DSRA-0306-DS10A-FL1 and its duplicate
- Arsenic, cadmium, copper, mercury, and several PAH results in Disposal Site 31 sample DSRA-041905-DS31-G-WL9 and its duplicate
- Copper results for Disposal Site 31 characterization sample DSRA-031605-WB/DS31-C-3 and its duplicate
- Barium and mercury results for Disposal Site 4.1 samples DSRA-032105-DS4.1-G-WL2 and its duplicate
- Di-n-butyl phthalate and mercury results in Disposal Site 31 sample DSRA-041705-DS31-G-FL7 and its duplicate

#### Surrogate Recovery

Two samples were recollected because matrix interferences caused low recovery of internal standards and surrogate standards in the initial SVOC analysis of Disposal Site 3 confirmation samples

DSRA-0306-DS3-WL6 and DSRA-0306-DS3-FL1. Dilutions were performed on the samples to minimize matrix effects and internal standard recovery was acceptable; however, the acid surrogate recoveries were below acceptable QC limits resulting in unusable (flagged "R") acid compound data. The SVOC analysis of the recollected samples, DSRA-0306-DS3-WL6A and - FL1A, was successful. Therefore, the SVOC data from the recollected samples were used for remedial decisions and project DQOs were not impacted.

The herbicide results in characterization samples DSRA-031605-WB/DUP2 and DSRA-0206-WBDS3-1 were flagged "UJ" and qualified as estimated due to low surrogate recovery for DCAA. The acid SVOC results for Disposal Site 10 sample DSRA-042105-DS10-G-FL6 and the PCB sample results for backfill sample DSRA-1205-BA2-C-1 were flagged "UJ" and qualified as estimated due to low surrogate recovery.

#### Matrix Spike/Matrix Spike Duplicate Results

The following sample results were qualified as estimated and flagged "J" due to low or high constituent recoveries in the MS/MSD samples:

- Silver results in each of the Disposal Site 10 confirmation samples
- Barium and copper results in the additional soils removal for Disposal Site 10 samples DSRA-0306-DS10A-G-DUP1 and parent sample DSRA-0306-DS10A-FL1
- Diethyl phthalate and benzo(b)fluoranthene results for Disposal Site 31 sample DSRA-042705-DS31-G-FL10 and anthracene, fluoranthene, selenium, and positive cadmium results for each of the Disposal Site 31 confirmation samples
- 3,3-Dichlorobenzidine results in backfill sample DSRA-030405-BA1-C-01
- Antimony in backfill samples DSRA-031505-BA-1-G-02 and DSRA-031505-BA-1-G-03
- The beta-BHC, 4,4'-DDD, and methoxychlor results for backfill sample DSRA-1205-BA2-C-1

#### Laboratory Control Sample Results

The following sample results were qualified as estimated and flagged "J/UJ" due to low recoveries in the LCS samples:



- The delta-BHC results for backfill samples DSRA-031505-BA-1-C-02 and DSRA-031505-BA-1-C-03
- The reactive cyanide results for Disposal Site 3 characterization sample DSRA-0206-WBDS3-1

#### Method Blank Results

Chloroform results in characterization samples DSRA-031905-WB/DS10-C-1 and DSRA-032005-WB/DS13-C-1 and the 2-butanone result for DSRA-041905-WB/DS10-C-03 were qualified as possibly biased high or false positive based on chloroform and/or 2-butanone in the method blank and flagged "B". No impact to the project DQOs was observed because the detected chloroform and 2-butanone were at concentrations below the TCLP regulatory criteria for disposal.

#### Summary

In summary, the data obtained from the Dunn Field excavation sites are of sufficient quality to support the characterization of solid waste removed from Disposal Sites 3, 4.1, 10, 13, and 31 and to confirm that, within the excavation, the cleanup levels established in the ROD were achieved.

TABLE J-1  
SDG SUMMARY TABLE  
DUNN FIELD DISPOSAL SITES REMEDIAL ACTION REPORT  
Defense Depot Memphis, Tennessee

No.	SDG	Soil Samples	Quality Control Samples
<b>2005 Remedial Sampling Events</b>			
1	503212	DSRA-030405-BA1-C-01	
2	503519	DSRA-031505-BA1-G-01	DSRA-031505-TB-02
3	503527	DSRA-031505-BA1-G-02	DSRA-031505-BA1-EB-01
		DSRA-031505-BA1-C-02	TB-031505
		DSRA-031505-BA1-G-03	
		DSRA-031505-BA1-C-03	
4	503568	DSRA-031605-WB/DS31-C-1	DSRA-031605-WB/DUP-02
		DSRA-031605-WB/DS31-C-2	DSRA-031605-TB
		DSRA-031605-WB/DS31-C-3	
		DSRA-031605-WB/DS31-C-4	
		DSRA-031605-WB/DS31-C-5	
5	503672	DSRA-031905-DS10-WL3	DSRA-031905-DS10-DUP-01
		DSRA-031905-DS10-WL4	
		DSRA-031905-DS10-FL5	
6	503694	DSRA-032005-DS13-G-FL1	DSRA-032005-DS13-DUP-01
		DSRA-032005-DS13-G-FL2	
		DSRA-032005-DS13-G-WL1	
		DSRA-032005-DS13-G-WL2	
		DSRA-032005-DS13-G-WL3	
		DSRA-032005-DS13-G-WL4	
		DSRA-032005-DS13-G-WL5	
		DSRA-032005-DS10-G-FL1	
		DSRA-032005-DS10-G-FL2	
		DSRA-032005-DS10-G-WL1	
		DSRA-032005-DS10-G-WL2	
		DSRA-032005-DS10-G-WL9	
7	503695	DSRA-031905-WB/DS10-C-1	
		DSRA-032005-WB/DS13-C-1	
8	503696	DSRA-032105-BA1-G-4	DSRA-032105-BA1-G-DUP
		DSRA-032105-BA1-C-4	DSRA-032105-BA1-C-DUP
		DSRA-032105-BA1-G-5	DSRA-032105-BA1-TB-03
		DSRA-032105-BA1-C-5	
9	503730	DSRA-032105-DS4.1-G-FL1	DSRA-032105-DS4.1-DUP-01
		DSRA-032105-DS4.1-G-FL2	
		DSRA-032105-DS4.1-G-FL3	
		DSRA-032105-DS4.1-G-WL1	
		DSRA-032105-DS4.1-G-WL2	
		DSRA-032105-DS4.1-G-WL3	
		DSRA-032105-DS4.1-G-WL4	
		DSRA-032105-DS4.1-G-WL5	
		DSRA-032105-DS4.1-G-WL6	
10	503731	DSRA-032105-WB/DS4.1-C-1	
11	503892	DSRA-032505-DS10-FL3	DSRA-032505-EB-01
		DSRA-032505-DS10-WL5	
12	503893	DSRA-032505-WB/DS10-C-2	DSRA-032505-WB/EB-01
			DSRA-032505-WB-DUP-1
13	504446	DSRA-041405-DS4.1-G-WL7	DSRA-041405-EB-02

**TABLE J-1**  
**SDG SUMMARY TABLE**  
**DUNN FIELD DISPOSAL SITES REMEDIAL ACTION REPORT**  
**Defense Depot Memphis, Tennessee**

No.	SDG	Soil Samples	Quality Control Samples
14	504541	DSRA-041705-DS31-G-WL5	DSRA-041705-DS31-G-DUP-01
		DSRA-041705-DS31-G-WL6	
		DSRA-041705-DS31-G-FL5	
		DSRA-041705-DS31-G-FL6	
		DSRA-041705-DS31-G-FL7	
		DSRA-041705-DS10-G-FL4	
		DSRA-041705-DS10-G-WL6	
		DSRA-041705-DS10-G-WL7	
		DSRA-041705-DS10-G-WL8	
		DSRA-041805-DS31-G-FL1	
		DSRA-041805-DS31-G-FL3	
		DSRA-041805-DS31-G-FL4	
15	504571	DSRA-041905-DS31-G-FL2	DSRA-041905-DS31-G-DUP-02 DSRA-041905-EB-03
		DSRA-041905-DS31-G-WL1	
		DSRA-041905-DS31-G-WL2	
		DSRA-041905-DS31-G-WL3	
		DSRA-041905-DS31-G-WL4	
		DSRA-041905-DS31-G-WL7	
		DSRA-041905-DS31-G-WL8	
16	504626	DSRA-041905-DS31-G-WL9	
		DSRA-041905-WB/DS10-C-3	
17	504673		DSRA-042005-WB/EB-02 DSRA-042005-TB-01
18	504681	DSRA-042105-DS10-G-WL10	
		DSRA-042105-DS10-G-WL11	
		DSRA-042105-DS10-G-FL6	
		DSRA-042105-DS31-G-FL8	
19	504746	DSRA-042105-DS31-G-WL10	
		DSRA-042305-DS10-G-FL7	
		DSRA-042305-DS10-G-WL12	
20	504833	DSRA-042305-DS31-G-FL9	
21	504868	DSRA-042705-DS31-G-FL10	
22	504928	DSRA-042705-DS31-G-FL11	
23	0504505 : Rain Water	DSRA-042905-WB-OVER-C-1	
24	0503921: Liquid Waste	DSRA-041505-SW-G-01	
		DSRA-032505-DR/053-G-01	
		DSRA-032505-DR/053-G-02	
25	512162	DSRA-032505-DR/053-G-03	DSRA-1205-TB
		DSRA-1205-BA2-C-1	
		DSRA-1205-BA1-G-1	
		DSRA-1205-BA2-C-2	
		DSRA-1205-BA1-G-2	

TABLE J-1  
SDG SUMMARY TABLE  
DUNN FIELD DISPOSAL SITES REMEDIAL ACTION REPORT  
Defense Depot Memphis, Tennessee

No.	SDG	Soil Samples	Quality Control Samples
<b>2006 Remediation Sampling Event</b>			
26	602044	DSRA-0206-WBDS3-1 DSRA-0106-BA3-C-01	
27	603082	DSRA-0306-DS10A-G-FL1 DSRA-0306-DS10A-G-WL1 DSRA-0306-DS10A-G-WL2 DSRA-0306-DS10A-G-WL3	DSRA-0306-DS10A-G-DUP1
28	603125	DSRA-0306-DS3-G-FL1 DSRA-0306-DS3-G-FL2 DSRA-0306-DS3-G-FL3 DSRA-0306-DS3-G-WL1 DSRA-0306-DS3-G-WL2 DSRA-0306-DS3-G-WL3 DSRA-0306-DS3-G-WL4 DSRA-0306-DS3-G-WL5 DSRA-0306-DS3-G-WL6	DSRA-0306-DS3-G-DUP1 DSRA-0306-EB-01
29	603224	DSRA-0306-DS3-G-FL1A	DSRA-0306-DS3-G-WL6A

**Notes:**

SDG = Sample Delivery Group

SDG# 0503212

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**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0503212****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8260B, 8270C, 8081A, 8151A, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for volatile organic compound (VOCs), semi-volatile organic compounds (SVOCs), pesticides, herbicides, and metals plus mercury by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following water and quality control (QC) samples:

DSRA-030405-BA1-C-01
----------------------

This sample was collected on March 4, 2005. An equipment blank (EB), DSRA-031505-BA1-EB-01 (located in SDG 0503527), was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

**VOCs (8260B)**

This sample was submitted for VOC analysis on a 7 day TAT. Level II review was performed on the VOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and trip and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The VOC samples were not analyzed within the recommended hold time. The sample DSRA-030405-BA1-G-01 had to be re-collected at a later date.

**SVOCs (8270C)**

The sample was submitted for SVOC analysis on a 7 day TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field

SDG# 0503212

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duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were assumed to be within QC limits.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of SVOCs by USEPA Method 8270C. Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for pyrene in sample DSRA-030405-BA1-C-01.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-030405-BA1-C-01 were within the acceptable QC control limits, with the exception of a low recovery for 3,3-dichlorobenzidine.

Action: The 3,3-dichlorobenzidine results were flagged "J" and qualified as estimated.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no SVOCs were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Pesticides (8081A)**

The sample was submitted for pesticides analysis on a 7 day TAT. Level II review was performed on the TCLP pesticides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP pesticides by USEPA Method 8081A.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of TCLP pesticides by USEPA Method 8081A, with the exception of a 10x dilution in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no pesticides were detected.

**Surrogates**

The recoveries for the two method-specified surrogates decachlorobiphenyl (S1) and tetrachloro-m-xylene (S2) were within the acceptable QC limits and/or SMF criteria, with the exception of a high recovery for decachlorobiphenyl in the method blank.

Action: No action was required since all of the associated results were non-detect.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-030405-BA1-G-01 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no pesticides were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Herbicides (8151A)**

The samples within this SDG were submitted for herbicides analysis on a 7 day TAT. Level II review was performed on the herbicides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP herbicides by USEPA Method 8151A.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of TCLP herbicides by USEPA Method 8151A.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no herbicides were detected.

**Surrogates**

The recoveries for the method-specified surrogate DCAA (S1) were within applicable QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-030405-BA1-C-01 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no herbicides were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**PCBs (8082)**

The sample was submitted for PCB analysis on a 7 day TAT. Level II review was performed on the PCB data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of PCBs by USEPA Method 8082.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of PCBs by USEPA Method 8082.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no PCBs were detected.



**Surrogates**

The recoveries for the two method-specified surrogates decachlorobiphenyl (S1) and tetrachloro-m-xylene (S2) were within applicable QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The MS/MSD recoveries and RPDs for spiked sample DSRA-030405-BA1-CG-01 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no PCBs were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Metals (6010B/7471A)**

The sample was submitted for metals analysis on a 7 day TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for sample DSRA-030405-BA1-CG-01 submitted for metals analysis, with the exception of a 5x dilution for aluminum, iron, potassium, and manganese in order to place the results within the calibration range.

Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for antimony, beryllium, calcium, mercury, and potassium for sample DSRA-030405-BA1-C-01.

**Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The MS/MSD recoveries and RPDs for spiked sample DSRA-030405-BAI-C-01 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that calcium was present.

**Action:** No action required because the associated sample results were greater than 5x the equipment blank results.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 04/14/2005

Checked by: JAH 05/02/05

**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0503519****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Method 8260B.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for volatile organic compounds (VOCs).

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following water and quality control (QC) samples:

DSRA-031505-BA1-G-01	DSRA-031505-TB-02
----------------------	-------------------

These samples were collected on March 15, 2005. An equipment blank (EB), DSRA-031505-EB-01 (located in SDG 0503527), was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

**VOCs (8260B)**

All of the samples within this SDG were submitted for VOC analysis on a 24hr TAT. Level II review was performed on the VOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and trip and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of VOCs by USEPA Method 8260B.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of VOCs by USEPA Method 8260B.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no VOCs were detected.

**Surrogates**

The recoveries for the four method-specified surrogates toluene- $d_8$ , 4-bromofluorobenzene, dibromofluoromethane, and 1,2-dichloroethane- $d_4$  are within QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits, with the exception of a low recovery for bromochloromethane and high recoveries for bromomethane, carbon disulfide, and 1,1-dichloroethane.

**Action:** No action was required since the recovery was within the sporadic marginal failure (SMF) or associated sample results were non-detect for those compounds that exhibited high recoveries.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-031505-BA1-G-02 could not be evaluated due to instrument failure during the acquisition of the MSD data. The MS results indicated high recoveries for seven VOCs.

**Action:** No qualification to the data was required because associated sample results were non-detect for those compounds that exhibited high recoveries. RPD evaluation was performed using the LCS/LCSD data and RPDs were within QC limits.

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-031505-EB-01 (located in SDG 0503527), and trip blank indicate that no VOCs were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 04/13/2005

Checked by: JAH 05/02/2005

SDG# 0503527

5/02/2005

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**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0503527****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8260B, 8270C, 8081A, 8082, 8151A, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, herbicides, polychlorinated biphenyls, and metals plus mercury by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following water and quality control (QC) samples:

DSRA-031505-BA-1-G-02	DSRA-031505-BA-1-C-02	DSRA-031505-BA-1-EB-01
DSRA-031505-BA-1-G-03	DSRA-031505-BA-1-C-03	TB-031505

These samples were collected on March 15, 2005. An equipment blank (EB), DSRA-031505-BA-1-EB-01, was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

**VOCs (8260B)**

All of the samples within this SDG, with the exception of samples DSRA-031505-BA-1-C-02 and DSRA-031505-BA-1-C-03 were submitted for VOC analysis on a 7 day TAT. Level II review was performed on the VOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, rinsate and trip blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of VOCs by USEPA Method 8260B.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of VOCs by USEPA Method 8260B.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no VOCs were detected.

**Surrogates**

The recoveries for the four method-specified surrogates toluene-d<sub>8</sub>, 4-bromofluorobenzene, dibromofluoromethane, and 1,2-dichloroethane-d<sub>4</sub> are within QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-031505-BA-1-G-02 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank and trip blank indicate that no VOCs were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**SVOCs (8270C)**

Samples DSRA-031505-BA-1-C-02, DSRA-031505-BA-1-C-03, and DSRA-031505-BA1-EB-01 were submitted for SVOC analysis on a 7 day TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-031505-BA-1-C-02 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank and trip blank indicate that no SVOCs were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Pesticides (8081A)**

Samples DSRA-031505-BA-1-C-02, DSRA-031505-BA-1-C-03, and DSRA-031505-BA1-EB-01 were submitted for pesticides analysis on a 7 day TAT. Level II review was performed on the pesticides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of pesticides by USEPA Method 8081A.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of pesticides by USEPA Method 8081A, with the exception of samples DSRA-031505-BA-1-C-02 and DSRA-031505-BA-1-C-03, which required a 10x dilution in order to place the results within the calibration range:

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no pesticides were detected.

**Surrogates**

The recoveries for the two method-specified surrogates decachlorobiphenyl (S1) and tetrachloro-m-xylene (S2) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits, with the exception of a low recovery for Delta-BHC and a high recovery for methoxychlor.

**Action:** The Delta-BHC results for samples DSRA-031505-BA-1-C-02 and DSRA-031505-BA-1-C-03 were flagged "J" and qualified as estimated. Methoxychlor was not detected; therefore, no qualification was required.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-031505-BA-1-C-02 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank and trip blank indicate that no pesticides were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Herbicides (8151A)**

Samples DSRA-031505-BA-1-C-02, DSRA-031505-BA-1-C-03, and DSRA-031505-BA1-EB-01 were submitted for herbicides analysis on a 7 day TAT. Level II review was performed on the herbicides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of herbicides by USEPA Method 8151A.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of herbicides by USEPA Method 8151A.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no herbicides were detected.

**Surrogates**

The recoveries for the method-specified surrogate DCAA (S1) were recovered high in sample DSRA-031505-BA1-C-03.

**Action:** No action was required since all of the herbicides results were non-detect.



**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-031505-BA-1-C-02 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank and trip blank indicate that no herbicides were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**PCBs (8082)**

Samples DSRA-031505-BA-1-C-02, DSRA-031505-BA-1-C-03, and DSRA-031505-BA1-EB-01 were submitted for PCB analysis on a 7 day TAT. Level II review was performed on the PCB data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of PCBs by USEPA Method 8082.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of PCBs by USEPA Method 8082.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no PCBs were detected.

**Surrogates**

The recoveries for the two method-specified surrogates decachlorobiphenyl (S1) and tetrachloro-m-xylene (S2) were recovered within the QC requirements.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-031505-BA-1-C-02 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank and trip blank indicate that no PCBs were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Metals (6010B/7471A)**

All of the samples within this SDG, with the exception of the trip blank, were submitted for metals analysis on a 7 day TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for samples submitted for metals analysis, with the exception of the following samples which required a dilution in order to place the results within the calibration range:

DSRA-031505-BA-1-G-02, DSRA-031505-BA-1-C-03 – 10x (aluminum, iron, potassium, manganese)

Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for the following samples:

DSRA-031505-BA-1-G-02 – beryllium, potassium, sodium

DSRA-031505-BA-1-C-03 – beryllium, calcium, potassium

**Action:** The associated results were qualified as estimated and flagged "J", unless overridden due to other QC criteria exceedances.

**Blank Summary**

The analytical results of the calibration blanks indicate that antimony was detected in the method blanks.

**Action:** No action was required since the associated antimony results were non-detect.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-031505-BA-1-G-02 were within the acceptable QC control limits, with the exception of low recoveries for antimony in both the MS/MSD samples.

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**Action:** The antimony results for all samples within this SDG were considered estimated possibly biased low and flagged "J".

#### **Sampling Accuracy**

The analytical results of the equipment blank indicate that calcium was present.

**Action:** No qualification to the data was required because associated samples were either greater than 5x the amount detected in the EB or were either non-detect.

#### **Field Duplicate Samples**

No duplicate samples were collected in this SDG.

#### **Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 04/14/2005

Checked by: JAH 05/02/2005

SDG# 0503568

5/02/2005

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**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0503568****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods SW1311, 8260B, 8270C, 8081A, 8151A, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for Toxicity Characteristic Leaching Procedure (TCLP) volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, herbicides, and metals plus mercury by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following water and quality control (QC) samples:

DSRA-031605-WB/DS31-C-1	DSRA-031605-WB/DS31-C-3	DSRA-031605-WB/DS31-C-5
DSRA-031605-WB/DS31-C-2	DSRA-031605-WB/DS31-C-4	DSRA-031605-WB/DUP2
		DSRA-031605-TB

These samples were collected on March 16, 2005. DSRA-031605-WB/DUP2 is a duplicate sample collected from the location DSRA-031605-WB/DS31-C-3. An equipment blank (EB), DSRA-032505-WB/EB-01 (located in 0503893), was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

**TCLP VOCs (1311/8260B)**

All of the samples within this SDG were submitted for TCLP VOC analysis on a 72 hr TAT with the exception of the trip blank sample. Level II review was performed on the TCLP VOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and trip and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

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**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP VOCs by USEPA Method 8260B.

**Reporting Limits**

The RLs were met for the samples submitted for the analysis of TCLP VOCs by USEPA Method 8260B, with the exception of each sample but the trip blank, which required a 10x dilution in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that chloroform was detected.

**Action:** The chloroform results for the samples within this SDG were flagged "B" and qualified as estimated due to method blank contamination.

**Surrogates**

The recoveries for the four method-specified surrogates toluene- $d_8$ , 4-bromofluorobenzene, dibromofluoromethane, and 1,2-dichloroethane- $d_4$  are within QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-031605-WB/DS31-C-4 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank and trip blank indicate that no VOCs were present.

**Field Duplicate Samples**

The duplicate pair DSRA-031605-WB/DS31-C-3/ DSRA-031605-WB/DUP2 were reviewed and assessed as good.

**TCLP SVOCs (8270C)**

All of the samples within this SDG, except the trip blank were submitted for TCLP SVOC analysis on a 72 hr TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

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**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of TCLP SVOCs by USEPA Method 8270C.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-031605-WB/DS31-C-4 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no SVOCs were present.

**Field Duplicate Samples**

The duplicate pair DSRA-031605-WB/DS31-C-3/DSRA-031605-WB/DUP2 were reviewed and could not be evaluated because both sample results were non-detect.

**TCLP Pesticides (8081A)**

All of the samples within this SDG, except the trip blank were submitted for TCLP pesticides analysis on a 72 hr TAT. Level II review was performed on the TCLP pesticides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP pesticides by USEPA Method 8081A.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of TCLP pesticides by USEPA Method 8081A, with the exception of a 10x dilution for all samples, in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no pesticides were detected.

**Surrogates**

The recoveries for the two method-specified surrogates decachlorobiphenyl (S1) and tetrachloro-m-xylene (S2) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-031605-WB/DS31-C-4 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no pesticides were present.

**Field Duplicate Samples**

The duplicate pair DSRA-031605-WB/DS31-C-3/ DSRA-031605-WB/DUP2 were reviewed and could not be evaluated because both sample results were non-detect.

**TCLP Herbicides (8151A)**

All of the samples within this SDG, except the trip blank were submitted for TCLP herbicides analysis on a 72 hr TAT. Level II review was performed on the herbicides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP herbicides by USEPA Method 8151A.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of TCLP herbicides by USEPA Method 8151A with the exception of a 10x dilution for all samples, in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no herbicides were detected.

**Surrogates**

The recoveries for the method-specified surrogate DCAA (S1) were within applicable QC advisory limits, with the exception of a low recovery for DCAA in sample DSRA-031605-WB/DUP2.

**Action:** The herbicide results in sample DSRA-031605-WB/DUP2 were flagged "J" and qualified as estimated.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-031605-WB/DS31-C-4 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no herbicides were present.

**Field Duplicate Samples**

The duplicate pair DSRA-031605-WB/DS31-C-3/ DSRA-031605-WB/DUP2 were reviewed and could not be evaluated because both sample results were non-detect.

**TCLP Metals (6010B/7471A)**

All of the samples within this SDG, except the trip blank were submitted for TCLP metals analysis on a 72 hr TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for samples submitted for metals analysis.

**Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected.



**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-031605-WB/DS31-C-2 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no pesticides were present.

**Field Duplicate Samples**

The duplicate pair DSRA-031605-WB/DS31-C-3/ DSRA-031605-WB/DUP2 were reviewed and assessed as good, with the exception of an elevated RPD for copper (177%).

Action: The copper results for samples DSRA-031605-WB/DS31-C-3 and DSRA-031605-WB/DUP2 were flagged "J" and qualified as estimated due to poor duplicate precision.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 04/15/2005

Checked by: JAH 05/02/2005

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5/02/2005

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**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0503672****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8270C, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for semi-volatile organic compounds (SVOCs), and RCRA metals plus copper by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following water and quality control (QC) samples:

DSRA-031905-DS10-WL3	DSRA-031905-DS10-FL5
DSRA-031905-DS10-WL4	DSRA-031905-DS10-DUP1

These samples were collected on March 19, 2005. DSRA-031905-DS10-DUP1 is a field duplicate sample collected at the location DSRA-031905-DS10-FL5. An equipment blank (EB), DSRA-032505-EB-01 (located in SDG 0503892), was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

**SVOCs (8270C)**

All of the samples within this SDG were submitted for SVOC analysis on a 24hr TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

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**Reporting Limits**

The RLs were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C. Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for the following samples:

DSRA-031905-DS10-WL3, DSRA-031905-DS10-FL5 – benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene

DSRA-031905-DS10-WL4 – benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, pyrene

DSRA-031905-DS10-DUP1 – benzo(a)anthracene, benzo(b)fluoranthene, chrysene, fluoranthene, pyrene

**Action:** The associated results were flagged “J” and qualified as estimated.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-032005-DS13-G-WL2 (located in SDG 0503694) were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-032505-EB-01 (located in SDG 0503892), indicate that no SVOCs were present.

**Field Duplicate Samples**

The field duplicate pair DSRA DSRA-031905-DS10-DUP1/DSRA-031905-DS10-FL5 were reviewed and assessed as good.

**Metals (6010B/7471A)**

All of the samples within this SDG were submitted for metals analysis on a 24hr TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD

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recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for samples submitted for metals analysis, with the exception of the following samples which required a dilution in order to place the results within the calibration range:

DSRA-031905-DS10-WL4, DSRA-031905-DS10-FL5– 5x (lead)

DSRA-031905-DS10-WL4 – 10x (lead)

Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for mercury in all of the samples within this SDG and cadmium in DSRA-031905-DS10-FL5.

**Action:** The associated results were qualified as estimated and flagged "J", unless overridden due to other QC criteria exceedances.

**Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected in the method blanks.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-032005-DS10-G-WL9 were within the acceptable QC control limits, with the exception of low recoveries for silver.

**Action:** The silver results for each sample collected from disposal site 10 were considered estimated possibly biased low and flagged "J".

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-032505-EB-01 (located in SDG 0503892), indicate that arsenic, barium, cadmium, chromium, copper, and lead were present.

**Action:** No qualification to the data was required because associated samples were either greater than 5x the amount detected in the EB or were either non-detect.

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**Field Duplicate Samples**

The field duplicate pair DSRA-031905-DS10-DUP1/DSRA-031905-DS10-FL5 were reviewed and assessed as good, with the exception of elevated RPDs for chromium (69.8%), lead (119%), and copper (112%). The silver and cadmium results could not be evaluated since the results were positive in the duplicate sample and non-detect in the corresponding parent sample.

Action: The chromium, lead, and copper results for samples DSRA-031905-DS10-DUP1 and DSRA-031905-DS10-FL5 were flagged "J" and qualified as estimated due to poor duplicate precision.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 04/13/2005Checked by: JAH 05/02/2005

**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****DSG: 0503694****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8270C, 6060B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for semi-volatile organic compounds (SVOCs), and RCRA metals plus copper by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following water and quality control (QC) samples:

DSRA-032005-DS13-G-FL1	DSRA-032005-DS13-G-WL4	DSRA-032005-DS10-G-FL2
DSRA-032005-DS13-G-FL2	DSRA-032005-DS13-G-WL5	DSRA-032005-DS10-G-WL1
DSRA-032005-DS13-G-WL1	DSRA-032005-DS13-G-DUP1	DSRA-032005-DS10-G-WL2
DSRA-032005-DS13-G-WL2	DSRA-032005-DS10-G-FL1	DSRA-032005-DS10-G-WL9
DSRA-032005-DS13-G-WL3		

These samples were collected on March 20, 2005. DSRA-032005-DS13-G-DUP1 is a field duplicate sample collected at the location DSRA-032005-DS13-G-WL3. An equipment blank (EB), DSRA-032505-EB-01 (located in SDG 0503892), was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

**SVOCs (8270C)**

All of the samples within this SDG were submitted for SVOC analysis on a 24hr TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

## Reporting Limits

The RLs were met for samples submitted for the analysis of SVOCs by USEPA method 8270C. Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for the following samples:

DSRA-032005-DS10-G-FL1 – anthracene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene

DSRA-032005-DS10-G-FL2 – benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, Di-n-butyl phthalate, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene

DSRA-032005-DS10-G-WL1, DSRA-032005-DS10-G-WL2 – benzo(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene

DSRA-032005-DS10-G-WL9 – anthracene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene

**Action:** The associated results were flagged “J” and qualified as estimated.

## Blank Summary

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

## Surrogates

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits and/or SMF criteria.

## Laboratory Control Sample

The LCS spike recoveries were within applicable QC advisory limits.

## Matrix Spike/Matrix Spike Duplicate

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-032005-DS10-G-WL3 were within the acceptable QC control limits.

## Sampling Accuracy

The analytical results of the equipment blank DSRA-032505-EB-01 (located in SDG 0503892), indicate that no SVOCs were present.

## Field Duplicate Samples

The field duplicate pair DSRA-032005-DS13-G-Dup1/DSRA-032005-DS13-G-WL3 were reviewed and assessed as good.

**Metals (6010B/7471A)**

All of the samples within this SDG were submitted for metals analysis on a 24hr TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for samples submitted for metals analysis, with the exception of the following samples which required a dilution in order to place the results within the calibration range:

DSRA-032005-DS10-G-FL1 – 50x (lead)

DSRA-032005-DS10-G-FL2, DSRA-032005-DS10-G-WL1, DSRA-032005-DS10-G-WL2 – 5x (lead)

DSRA-032005-DS10-G-WL9 – 5x (barium, copper, selenium), 100x (lead)

Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for mercury in all samples except DSRA-032005-DS10-G-WL9, and silver in sample DSRA-032005-DS10-G-FL-1.

**Action:** The associated results were qualified as estimated and flagged “J”, unless overridden due to other QC criteria exceedances.

**Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected in the method blanks.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-032005-DS10-G-WL9 were within the acceptable QC control limits, with the exception of low recoveries for silver.

**Action:** The silver results for each sample collected from disposal site 10 were considered estimated possibly biased low and flagged “J”.

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-032505-EB-01 (located in SDG 0503892), indicate that arsenic, barium, cadmium, chromium, copper, and lead were present.

**Action:** No qualification to the data was required because associated samples were either greater than 5x the amount detected in the EB or were non-detect.



**Field Duplicate Samples**

The field duplicate pair DSRA-032005-DS13-G-Dup1/DSRA-032005-DS13-G-WL3 were reviewed and assessed as good.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 04/12/2005

Checked by: JAH 04/12/2005

SDG# 0503695

5/02/2005

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**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0503695****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8260B, 8270C, 8081A, 8151A, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, herbicides, and metals plus mercury by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following water and quality control (QC) samples:

DSRA-031905-WB/DS10-C-1

DSRA-032005-WB/DS13-C-1

These samples were collected on March 19-20, 2005. An equipment blank (EB), DSRA-032505-EB-01 (located in SDG 0503892), was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

**TCLP VOCs (8260B)**

All of the samples within this SDG were submitted for TCLP VOC analysis on a 72 hr TAT. Level II review was performed on the TCLP VOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and trip and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP VOCs by USEPA Method 8260B.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of TCLP VOCs by USEPA Method 8260B, with the exception of a 10x dilution for all samples, which was required in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that chloroform was detected.

**Action:** The chloroform results for all samples within this SDG were flagged "B" and qualified as estimated due to method blank contamination.

**Surrogates**

The recoveries for the four method-specified surrogates toluene- $d_8$ , 4-bromofluorobenzene, dibromofluoromethane, and 1,2-dichloroethane- $d_4$  are within QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-032905-WB/DS13-C-1 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank and trip blank indicate that no VOCs were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**TCLP SVOCs (8270C)**

All of the samples within this SDG were submitted for TCLP SVOC analysis on a 72 hr TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of TCLP SVOCs by USEPA Method 8270C.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-031905-WB/DS10-C-1 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank and trip blank indicate that no SVOCs were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**TCLP Pesticides (8081A)**

All of the samples within this SDG were submitted for TCLP pesticides analysis on a 72 hr TAT. Level II review was performed on the TCLP pesticides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP pesticides by USEPA Method 8081A.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of TCLP pesticides by USEPA Method 8081A, with the exception of a 10x dilution for all samples in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no pesticides were detected.

**Surrogates**

The recoveries for the two method-specified surrogates decachlorobiphenyl (S1) and tetrachloro-m-xylene (S2) were within the acceptable QC limits and/or SMF criteria.

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**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-031905-WB/DS10-C-1 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank and trip blank indicate that no pesticides were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Herbicides (8151A)**

All of the samples within this SDG were submitted for TCLP herbicides analysis on a 72 hr TAT. Level II review was performed on the herbicides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP herbicides by USEPA Method 8151A.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of TCLP herbicides by USEPA Method 8151A with the exception of a 10x dilution for all samples in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no herbicides were detected.

**Surrogates**

The recoveries for the method-specified surrogate DCAA (S1) were within applicable QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-032005-WB/DS13-C-1 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank and trip blank indicate that no herbicides were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**TCLP Metals (6010B/7471A)**

All of the samples within this SGD were submitted for TCLP metals analysis on a 72 hr TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for samples submitted for metals analysis, with the exception of sample DSRA-031905-WB/DS10-C-1 which required a 5x dilution in order to place the lead results within the calibration range.

**Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-032005-WB/DS13-C-1 and DSRA-032105-DS4.1-C-1 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that calcium was present.

**Action:** No qualification to the data was required because associated samples were either greater than 5x the amount detected in the EB or were either non-detect.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

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**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 04/14/2005Checked by: JAH05/02/2005

**Data Evaluation Narrative**  
**MACTEC Project: DDMT: Dunn Field DSRA**  
**MACTEC Project Number: 6301-05-0004**  
**Matrix: Soil/Sediment**

**SDG: 0503696**

### **Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8260B, 8270C, 8081A, 8082, 8151A, 6010B, and 7471A.

### **Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, herbicides, polychlorinated biphenyls, and metals plus mercury by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

### **Sample Identification**

This SDG contains the following water and quality control (QC) samples:

DSRA-032105-BA1-G-4	DSRA-032105-BA1-C-4	DSRA-032105-BA1-TB-03
DSRA-032105-BA1-G-5	DSRA-032105-BA1-C-5	
DSRA-032105-BA1-G-DUP	DSRA-032105-BA1-C-DUP	

These samples were collected on March 21, 2005. DSRA-032105-BA1-G-DUP is a duplicate sample collected from the location DSRA-032105-BA1-G-4. DSRA-032105-BA1-C-DUP is a duplicate sample collected from the location DSRA-032105-BA1-C-4. An equipment blank (EB), DSRA-031505-BA-EB-01 (located in 0503527), was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

### **VOCs (8260B)**

All of the samples within this SDG were submitted for VOC analysis on a 7 day TAT. Level II review was performed on the TCLP VOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

### **Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of VOCs by USEPA Method 8260B.



**Reporting Limits**

The RLs were met for the sample submitted for the analysis of VOCs by USEPA Method 8260B.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that methylene chloride was detected.

**Action:** The methylene chloride results for the trip blank within this SDG were flagged "B" and qualified as estimated due to method blank contamination.

**Surrogates**

The recoveries for the four method-specified surrogates toluene- $d_8$ , 4-bromofluorobenzene, dibromofluoromethane, and 1,2-dichloroethane- $d_4$  are within QC advisory limits, with exception of a high recovery for 1,2-dichloroethane- $d_4$  in samples DSRA-032105-BA1-G-4 and DSRA-032105-BA1-G-5, and high recoveries for dibromofluoromethane in sample DSRA-032105-BA1-G-5.

**Action:** No qualification was required for high surrogate recovery because associated sample results were ND.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-032105-BA1-G-4 were within the acceptable QC control limits, with the exception of an elevated recovery trans-1,2-dichloroethene.

**Action:** No action was required since the associated results were non-detect.

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-031505-BA-EB-01 (located in 0503527), and trip blank indicate that no VOCs were present.

**Field Duplicate Samples**

The duplicate pair DSRA-032105-BA1-G-DUP/DSRA-032105-BA1-G-4 and DSRA-032105-BA1-C-DUP/DSRA-032105-BA1-C-4 were reviewed and could not be evaluated because both samples were ND.

**SVOCs (8270C)**

All of the samples within this SDG, except the trip blank were submitted for SVOC analysis on a 7 day TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of SVOCs by USEPA Method 8270C.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for laboratory spiked samples were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no SVOCs were present.

**Field Duplicate Samples**

The duplicate pair DSRA-032105-BA1-G-DUP/DSRA-032105-BA1-G-4 and DSRA-032105-BA1-C-DUP/DSRA-032105-BA1-C-4 were reviewed and could not be evaluated because both samples were ND.

**Pesticides (8081A)**

All of the samples within this SDG, except the trip blank were submitted for pesticides analysis on a 7 day TAT. Level II review was performed on the pesticides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of pesticides by USEPA Method 8081A.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of pesticides by USEPA Method 8081A, with the exception of a 10x dilution for all samples, in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no pesticides were detected.

**Surrogates**

The recoveries for the two method-specified surrogates decachlorobiphenyl (S1) and tetrachloro-m-xylene (S2) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-032105-BA1-C-5 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no pesticides were present.

**Field Duplicate Samples**

The duplicate pair DSRA-032105-BA1-G-DUP/DSRA-032105-BA1-G-4 and DSRA-032105-BA1-C-DUP/DSRA-032105-BA1-C-4 were reviewed and could not be evaluated because both samples were ND.

**Herbicides (8151A)**

All of the samples within this SDG, except the trip blank were submitted for herbicides analysis on a 7 day TAT. Level II review was performed on the herbicides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of herbicides by USEPA Method 8151A.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of TCLP herbicides by USEPA Method 8151A.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no herbicides were detected.

**Surrogates**

The recoveries for the method-specified surrogate DCAA (S1) were within applicable QC advisory limits, with the exception of a high recovery for DCAA in sample DSRA-032105-BA1-C-DUP.

Action: No action was required since all of the associated herbicide results were non-detect.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-032105-BA1-C-4 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no herbicides were present.

**Field Duplicate Samples**

The duplicate pair DSRA-032105-BA1-G-DUP/DSRA-032105-BA1-G-4 and DSRA-032105-BA1-C-DUP/DSRA-032105-BA1-C-4 were reviewed and could not be evaluated because both samples were ND.

**PCBs (8082)**

The sample was submitted for PCB analysis on a 7 day TAT. Level II review was performed on the PCB data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of PCBs by USEPA Method 8082.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of PCBs by USEPA Method 8082.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no PCBs were detected.

**Surrogates**

The recoveries for the two method-specified surrogates decachlorobiphenyl (S1) and tetrachloro-m-xylene (S2) were within applicable QC advisory limits, with the exception of a high recovery for decachlorobiphenyl in sample DSRA-032105-BA1-C-DUP.

Action: No action was required since the associated sample results were non-detect

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The MS/MSD recoveries and RPDs for spiked sample DSRA-032105-BA1-C-5 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no PCBs were present.

**Field Duplicate Samples**

The duplicate pair DSRA-032105-BA1-G-DUP/DSRA-032105-BA1-G-4 and DSRA-032105-BA1-C-DUP/DSRA-032105-BA1-C-4 were reviewed and could not be evaluated because both samples were ND.

**Metals (6010B/7471A)**

All of the samples within this SDG, except the trip blank were submitted for TAL metals analysis on a 7 day TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for samples submitted for metals analysis, with the exception of the following samples which required a dilution in order to place the results within the calibration range:

DSRA-032105-BA1-C-4 – 5x (aluminum, iron, potassium, manganese)

DSRA-032105-BA1-C-5; DSRA-032105-BA1-C-DUP – 10x (aluminum, iron, potassium, manganese)

Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for beryllium, mercury, and potassium for samples DSRA-032105-BA1-C-4, DSRA-032105-BA1-C-5, and DSRA-032105-BA1-C-DUP.

Action: The associated results were flagged "J" and considered estimated.

**Blank Summary**

The analytical results of the calibration blanks indicate that aluminum and iron were detected.

Action: No action was required since the associated results were greater than 5x the blank concentration.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The MS/MSD recoveries and RPDs for spiked sample DSRA-032105-BA1-C-4 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no pesticides were present.

**Field Duplicate Samples**

The duplicate pair DSRA-032105-BA1-G-DUP/DSRA-032105-BA1-G-4 and DSRA-032105-BA1-C-DUP/DSRA-032105-BA1-C-4 were reviewed and assessed as good.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 05/16/2005  
Checked by: JAH 05/27/2005

**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0503730****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8270C, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for semi-volatile organic compounds (SVOCs), and RCRA metals plus copper by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following water and quality control (QC) samples:

DSRA-032105-DS4.1-G-FL1	DSRA-032105-DS4.1-G-WL1	DSRA-032105-DS4.1-G-WL4
DSRA-032105-DS4.1-G-FL2	DSRA-032105-DS4.1-G-WL2	DSRA-032105-DS4.1-G-WL5
DSRA-032105-DS4.1-G-FL3	DSRA-032105-DS4.1-G-WL3	DSRA-032105-DS4.1-G-WL6
DSRA-032105-DS4.1-G-DUP1		

These samples were collected on March 21, 2005. DSRA-032105-DS4.1-G-DUP1 is a field duplicate sample collected at the location DSRA-032105-DS4.1-G-WL2. An equipment blank (EB), DSRA-032505-EB-01 (located in SDG 0503892), was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

**SVOCs (8270C)**

All of the samples within this SDG were submitted for SVOC analysis on a 24hr TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C. Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for the following samples:

DSRA-032105-DS4.1-G-WL6 – anthracene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, bis(2-chloroethyl)ether, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene

DSRA-032105-DS4.1-G-WL3 – Di-n-butyl phthalate

**Action:** The associated results were flagged “J” and qualified as estimated.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-032105-DS4.1-G-FL1 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-032505-EB-01 (located in SDG 0503892), indicate that no SVOCs were present.

**Field Duplicate Samples**

The field duplicate pair DSRA-032105-DS14.1-G-DUP1/ DSRA-032105-DS14.1-G-WL2 were reviewed and could not be assessed because both samples were ND.

**Metals (6010B/7471A)**

All of the samples within this SDG were submitted for RCRA metals and copper analysis on a 24hr TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinse blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.



**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for samples submitted for metals analysis, with the exception of the following samples which required a dilution in order to place the results within the calibration range:

DSRA-032105-DS4.1-G-WL1, DSRA-032105-DS4.1-G-WL3– 5x (lead)

DSRA-032105-DS4.1-G-WL6– 5x (barium, copper), 100x (lead)

Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for the following samples:

DSRA-032105-DS4.1-G-FL1, DSRA-032105-DS4.1-G-FL3, DSRA-032105-DS4.1-G-WL3,  
DSRA-032105-DS4.1-G-WL2, DSRA-032105-DS4.1-G-WL4, DSRA-032105-DS4.1-G-DUP1 – cadmium, mercury

DSRA-032105-DS4.1-G-FL2, DSRA-032105-DS4.1-G-WL1, DSRA-032105-DS4.1-G-WL5 – mercury

DSRA-032105-DS4.1-G-WL2 – cadmium

DSRA-032105-DS4.1-G-WL6 – selenium

**Action:** The associated results were qualified as estimated and flagged “J”, unless overridden due to other QC criteria exceedances.

**Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected in the method blanks.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-032105-DS4.1-G-DUP1 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-032505-EB-01 (located in SDG 0503892), indicate that arsenic, barium, cadmium, chromium, copper, and lead were present.

**Action:** No qualification to the data was required because associated samples were either greater than 5x the amount detected in the EB or were either non-detect.

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**Field Duplicate Samples**

The field duplicate pair DSRA-032105-DS4.1-G-DUP1/ DSRA-032105-DS4.1-G-WL2 were reviewed and assessed as good, with the exception of elevated RPDs for barium (53.7%) and mercury (50%).

**Action:** The barium and mercury results for samples DSRA-032105-DS4.1-G-DUP1 and DSRA-032105-DS4.1-G-WL2 were flagged "J" and qualified as estimated due to poor duplicate precision.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 04/13/2005Checked by: JAH 05/31/2005

**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0503731****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) TCLP Methods 1311, 8260B, 8270C, 8081A, 8151A, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for TCLP volatile organic compounds, semi-volatile organic compounds (SVOCs), pesticides, herbicides, and metals plus mercury by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following water and quality control (QC) samples:

DSRA-032105-WB/DS4.1-C-1
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This sample was collected on March 21, 2005. An equipment blank (EB), DSRA-032505-EB-01 (located in SDG 0503893), was analyzed to represent Waste Batch samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

**TCLP VOCs (1311/8260B)**

This sample was submitted for TCLP VOC analysis on a 72 hr TAT. Level II review was performed on the TCLP VOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP VOCs by USEPA Method 8260B.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of TCLP VOCs by USEPA Method 8260B, with the exception of a 10x dilution in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that chloroform was detected.

**Action:** The chloroform results for the samples within this SDG were flagged "B" and qualified as estimated due to method blank contamination.

**Surrogates**

The recoveries for the four method-specified surrogates toluene- $d_8$ , 4-bromofluorobenzene, dibromofluoromethane, and 1,2-dichloroethane- $d_4$  are within QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-032105-DS4.1-C-1 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank and trip blank indicate that no VOCs were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**TCLP SVOCs (1311/8270C)**

The sample was submitted for TCLP SVOC analysis on a 72hr TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of TCLP SVOCs by USEPA Method 8270C.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The MS/MSD recoveries and RPDs for spiked sample DSRA-032105-DS4.1-C-1 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank and trip blank indicate that no SVOCs were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**TCLP Pesticides (1311/8081A)**

The sample was submitted for TCLP pesticides analysis on a 72 hr TAT. Level II review was performed on the TCLP pesticides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP pesticides by USEPA Method 8081A.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of TCLP pesticides by USEPA Method 8081A, with the exception of a 10x dilution in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no pesticides were detected.

**Surrogates**

The recoveries for the two method-specified surrogates decachlorobiphenyl (S1) and tetrachloro-m-xylene (S2) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The MS/MSD recoveries and RPDs for spiked sample DSRA-032105-DS4.1-C-1 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank and trip blank indicate that no pesticides were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**TCLP Herbicides (1311/8151A)**

The samples within this SDG were submitted for TCLP herbicides analysis on a 72hr TAT. Level II review was performed on the herbicides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP herbicides by USEPA Method 8151A.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of TCLP herbicides by USEPA Method 8151A with the exception of a 10x dilution, in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no herbicides were detected.

**Surrogates**

The recoveries for the method-specified surrogate DCAA (S1) were within applicable QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The MS/MSD recoveries and RPDs for spiked sample DSRA-032105-DS4.1-C-1 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank and trip blank indicate that no herbicides were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**TCLP Metals (1311/6010B/7471A)**

The sample was submitted for TCLP metals analysis on a 72hr TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for samples submitted for metals analysis.

**Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The MS/MSD recoveries and RPDs for spiked sample DSRA-032105-DS4.1-C-1 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no metals were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

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**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 04/14/2005

Checked by: JAH 05/20/2005



**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0503892****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8270C, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for semi-volatile organic compounds (SVOCs), and RCRA metals plus copper by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following soil and quality control (QC) samples:

DSRA-032505-DS10-WL5	DSRA-032505-DS10-FL3	DSRA-032505-EB-01
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These samples were collected on March 25, 2005. An equipment blank (EB), DSRA-032505-EB-01, was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

**SVOCs (8270C)**

All of the samples within this SDG were submitted for SVOC analysis on a 24hr TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C. Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for the following samples:

DSRA-032505-DS10-FL3 – benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene

DSRA-032505-DS10-WL5 – benzo(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, pyrene

**Action:** The associated results were flagged “J” and qualified as estimated.

#### **Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

#### **Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits and/or SMF criteria.

#### **Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

#### **Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-032005-DS13-G-WL2 (located in SDG 0503694) were within the acceptable QC control limits.

#### **Sampling Accuracy**

The analytical results of the equipment blank DSRA-032505-EB-01, indicate that no SVOCs were present.

#### **Field Duplicate Samples**

No field duplicate samples were collected in this SDG.

#### **Metals (6010B/7471A)**

All of the samples within this SDG were submitted for metals analysis on a 24hr TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

#### **Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

#### **Reporting Limits**

The RLs were met for samples submitted for metals analysis, with the exception of the following samples which required a dilution in order to place the results within the calibration range:

DSRA-032505-DS10-FL3-- 100x (lead)

DSRA-032505-DS10-WL5 -- 10x (lead)

Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for selenium in sample DSRA-032505-DS10-WL5.

**Action:** The associated selenium results were qualified as estimated and flagged "J", unless overridden due to other QC criteria exceedances.

#### **Blank Summary**

The analytical results of the calibration blanks indicate that copper was detected in the method blanks.

**Action:** No action was required because the associated copper results in the samples were greater than 5x the amount detected in the method blank.

#### **Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

#### **Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-032505-DS10-G-WL5 were within the acceptable QC control limits.

#### **Sampling Accuracy**

The analytical results of the equipment blank DSRA-032505-EB-01, indicate that arsenic, barium, cadmium, chromium, copper, and lead were present.

**Action:** No qualification to the data was required because associated samples were either greater than 5x the amount detected in the EB or were either non-detect.

#### **Field Duplicate Samples**

No duplicate samples were collected in this SDG.

#### **Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 04/13/2005

Checked by: JAH 05/20/2005

**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0503893****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8260B, 8270C, 8081A, 8151A, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for TCLP volatile organic compound (VOCs), semi-volatile organic compounds (SVOCs), pesticides, herbicides, and metals plus mercury by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following quality control (QC) sample:

DSRA-032505-WB/EB-01	DSRA-032505-WB/DS10-C2	DSRA-032505-WB-DUP-1
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These samples were collected on March 25, 2005. The sample DSRA-032505-WB-DUP-1 is a duplicate sample collected at the location DSRA-0325-WB/DS10-C2. An equipment blank (EB) was collected and analyzed to represent samples collected with non-dedicated equipment.

**TCLP VOCs (1311/8260B)**

This sample was submitted for VOC analysis on a 72 hour TAT. Level II review was performed on the TCLP VOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and trip and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was assumed to be within QC limits.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of VOCs by USEPA Method 8260B.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of VOCs by USEPA Method 8260B.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that chloroform was detected.

Action: The chloroform results for samples DSRA-032505-WB-DUP-1 and DSRA-032505-WB/DS10-C2 were flagged "B" and qualified as estimated.

**Surrogates**

The recoveries for the four method-specified surrogates toluene-d<sub>8</sub>, 4-bromofluorobenzene, dibromofluoromethane, and 1,2-dichloroethane-d<sub>4</sub> are within QC advisory limits, with the exception of a low recovery for 1,2-dichloroethane-d<sub>4</sub> in samples DSRA-032505-WB-DUP-1 and DSRA-032505-WB/DS10-C2.

Action: No action was required since the remaining surrogates were within the QC limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) analysis for spiked sample DSRA-0325-WB/DS10-C2, were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no VOCs were present.

**Field Duplicate Samples**

The field duplicate pair DSRA-032505-WB-DUP-1/DSRA-032505-WB/DS10-C2 was reviewed and assessed as good.

**TCLP SVOCs (8270C)**

The sample was submitted for TCLP SVOC analysis on a 72 hour TAT. Level II review was performed on the TCLP SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was assumed to be within QC limits.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of SVOCs by USEPA Method 8270C.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) analysis for spiked sample DSRA-032505-WB/DS10-C2, were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no SVOCs were present.

**Field Duplicate Samples**

The field duplicate pair DSRA-032505-WB-DUP-1/DSRA-0325-WB/DS10-C2 could not be assessed because both samples were non-detect..

**TCLP Pesticides (8081A)**

The sample was submitted for TCLP pesticides analysis on a 72 hour TAT. Level II review was performed on the TCLP pesticides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were assumed to be within QC limits.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP pesticides by USEPA Method 8081A.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of TCLP pesticides by USEPA Method 8081A, with the exception of a 10x dilution in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no pesticides were detected.

**Surrogates**

The recoveries for the two method-specified surrogates decachlorobiphenyl (S1) and tetrachloro-m-xylene (S2) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) analysis for spiked sample DSRA-032505-WB/DS10-C2, were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no pesticides were present.

**Field Duplicate Samples**

The field duplicate pair DSRA-032505-WB-DUP-1/DSRA-032505-WB/DS10-C2 could not be assessed because both samples were non-detect.

**TCLP Herbicides (8151A)**

The samples within this SDG were submitted for TCLP herbicides analysis on a 72 hour TAT. Level II review was performed on the TCLP herbicides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were assumed to be within QC limits.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP herbicides by USEPA Method 8151A.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of TCLP herbicides by USEPA Method 8151A, with the exception of a 10x dilution in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no herbicides were detected.

**Surrogates**

The recoveries for the method-specified surrogate DCAA (S1) were within applicable QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) analysis for spiked sample DSRA-032505-WB/DS10-C2, were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no herbicides were present.

**Field Duplicate Samples**

The field duplicate pair DSRA-032505-WB-DUP-1/DSRA-0325-WB/DS10-C2 could not be assessed because both samples were non-detect.

**TCLP Metals (6010B/7471A)**

The sample was submitted for TCLP metals analysis on a 72 hour TAT. Level II review was performed on the TCLP metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were assumed to be within QC limits

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for the sample submitted for metals analysis, with the exception of a 5x dilution for lead in samples DSRA-032505-WB-DUP-1 and DSRA-0325-WB/DS10-C2, which were required in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) analysis for spiked sample DSRA-032505-WB-DUP-1, were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no VOCs were present.



**Field Duplicate Samples**

The field duplicate pair DSRA-032505-WB-DUP-1/DSRA-0325-WB/DS10-C2 was reviewed and assessed as good, with the exception of elevated RPDs for copper and lead.

Action: The copper and lead results for samples DSRA-032505-WB-DUP-1 and DSRA-0325-WB/DS10-C2 were flagged "J" and qualified as estimated due to poor duplicate precision.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 05/16/2005

Checked by: JAH 05/18/2005

**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0504446****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8270C, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for, semi-volatile organic compounds (SVOCs) and metals plus mercury by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following soil and quality control (QC) sample:

DSRA-041405-DS4.1-G-WL7	DSRA-041405-EB-02
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These samples were collected on April 14, 2005. An equipment blank (EB) was collected and analyzed to represent samples collected with non-dedicated equipment.

**SVOCs (8270C)**

The sample was submitted for SVOC analysis on a 24 hour TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of SVOCs by USEPA Method 8270C.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) analysis for spiked sample DSRA-041405-DS4.1-G-WL7, were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-041405-EB-02, indicate that di-n-butyl phthalate and hexachlorobenzene were detected.

**Action:** No action is required since the associated sample results were non-detect.

**Field Duplicate Samples**

No field duplicate samples were collected for this SDG.

**Metals (6010B/7471A)**

The samples were submitted for RCRA 8 metals plus copper analysis on a 24 hour TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for the samples submitted for metals analysis, with the exception of a 5x dilution for selenium in sample DSRA-041405-DS4.1-G-WL7, which was required in order to place the results within the calibration range.

Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for the following samples:

DSRA-041405-EB-02 – selenium, mercury

DSRA-041405-DS4.1-G-WL7 – cadmium, mercury

**Blank Summary**

The analytical results of the calibration blanks indicate that arsenic was detected.

**Action:** No action was required since the associated arsenic results were greater than 10x the blank contamination.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) analysis for spiked sample DSRA-041405-DS4.1-G-WL7, were within the acceptable QC control limits or the SMF.

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-041905-EB-03, indicate that arsenic, barium, cadmium, chromium, copper, mercury, selenium, and lead were present.

**Action:** No qualification to the data was required because associated samples were either greater than 5x the amount detected in the EB or were either non-detect.

**Field Duplicate Samples**

No field duplicate samples were collected for this SDG.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 05/16/2005

Checked by: JAH 5-23-2005

SDG# 0504541

5/20/2005

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**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0504541****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8270C, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for semi-volatile organic compounds (SVOCs), and RCRA metals plus copper by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following water and quality control (QC) samples:

DSRA-041705-DS-31-G-WL5	DSRA-041705-DS-31-G-FL7	DSRA-041705-DS-10-G-WL7
DSRA-041705-DS-31-G-WL6	DSRA-041705-DS-31-G-DUP1	DSRA-041705-DS-10-G-WL8
DSRA-041705-DS-31-G-FL5	DSRA-041705-DS-10-G-FL4	DSRA-041805-DS-31-G-FL1
DSRA-041705-DS-31-G-FL6	DSRA-041705-DS-10-G-WL6	DSRA-041805-DS-31-G-FL3
		DSRA-041805-DS-31-G-FL4

These samples were collected on April 17-18, 2005. DSRA-041705-DS31-G-DUP1 is a field duplicate sample collected at the location DSRA-041705-DS-31-G-FL7. An equipment blank (EB), DSRA-041405-EB-02 (located in SDG 0504446) was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

**SVOCs (8270C)**

All of the samples within this SDG were submitted for SVOC analysis on a 24hr TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

## Reporting Limits

The RLs were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C. Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for the following samples:

DSRA-041705-DS31-G-WL6, DSRA-041805-DS31-G-FL1 – benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene

DSRA-041705-DS31-G-WL5 – acenaphthene, anthracene, dibenz(a,h)anthracene, dibenzofuran, fluorene, naphthalene

DSRA-041705-DS31-G-FL5 – benzo(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene

DSRA-041705-DS31-G-FL6 – benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, hexachlorobenzene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene

DSRA-041705-DS10-G-FL4 – benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene

DSRA-041705-DS10-G-WL6 – benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, di-n-butyl phthalate, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene

DSRA-041705-DS10-G-WL7 – benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, di-n-butyl phthalate, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene

DSRA-041705-DS10-G-WL8 – benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, pyrene

DSRA-041805-DS31-G-FL3 – acenaphthene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, fluorene, indeno(1,2,3-cd)pyrene

DSRA-041805-DS31-G-FL4 – acenaphthene, anthracene, benzo(k)fluoranthene, benzo(g,h,i)perylene, dibenzofuran, di-n-butyl phthalate, fluorene, indeno(1,2,3-cd)pyrene, naphthalene

**Action:** The associated results were flagged "J" and qualified as estimated.

## Blank Summary

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

## Surrogates

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked samples DSRA-041705-DS10-WL6 and DSRA-041805-DS31-FL4 were out low for anthracene and fluoranthene in DSRA-041805-DS31-FL4.

**Action:** The anthracene and fluoranthene results for disposal 31 samples in this SDG will be considered estimated.

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-041405-EB-02, indicate that di-n-butylphthalate and hexachlorobenzene were present.

**Action:** No action was required because the associated sample results were either greater than 5x the blank amount or were non-detect.

**Field Duplicate Samples**

The field duplicate pair DSRA-041705-DS31-DUP1/DSRA-041705-DS31-G-FL7 were reviewed and assessed as good, with the exception of an elevated RPD for di-n-butyl phthalate.

**Action:** The results for both the duplicate and parent sample were flagged "J" and qualified as estimated due to poor duplicate precision.

**Metals (6010B/7471A)**

All of the samples within this SDG were submitted for metals analysis on a 24hr TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for samples submitted for metals analysis, with the exception of the following samples which required a dilution in order to place the results within the calibration range:

DSRA-041705-DS31-G-FL6 – 20x (lead)

DSRA-041705-DS31-G-FL4 – 5x (lead)

Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for mercury in all of the samples within this SDG, cadmium in DSRA-041705-DS31-G-FL1, DSRA-041705-DS31-G-FL3, DSRA-041705-DS31-G-FL7, DSRA-041705-DS31-DUP-1 and

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DSRA-041805-DS10-G-WL8, as well as silver in samples DSRA-041705-DS31-G-FL5 and DSRA-041805-DS10-G-WL7.

**Action:** The associated results were qualified as estimated and flagged "J", unless overridden due to other QC criteria exceedances.

#### **Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected in the method blanks.

#### **Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits, with the exception of a low recovery for selenium and a high recovery for barium.

**Action:** All Selenium results associated with this SDG were flagged "J" and qualified as estimated.

#### **Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked samples DSRA-041705-DS10-WL6 and DSRA-041805-DS31-FL4 were within QC limits with the exception of a low recovery for selenium in both samples and a high recovery for cadmium in sample DSRA-041805-DS31-FL4.

**Action:** All Selenium results associated with this SDG and positive cadmium results in Disposal Site 31 samples were flagged "J" and qualified as estimated.

#### **Sampling Accuracy**

The analytical results of the equipment blank DSRA-041405-EB-02, indicate that arsenic, barium, cadmium, chromium, copper, lead, mercury, and selenium were present.

**Action:** No qualification to the data was required because associated samples were either greater than 5x the amount detected in the EB or were either non-detect.

#### **Field Duplicate Samples**

The field duplicate pair DSRA-041705-DS31-G-FL7/DSRA-041705-DS31-DUP1 were reviewed and assessed as good, with the exception of an elevated RPD for mercury.

**Action:** The mercury results for samples DSRA-041705-DS31-DUP1 and DSRA-041705-DS31-G-FL7 were flagged "J" and qualified as estimated due to poor duplicate precision.

#### **Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 04/13/2005

Checked by: JAH 05/20/2005



**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0504571****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8270C, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for semi-volatile organic compounds (SVOCs), and RCRA metals plus copper by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following water and quality control (QC) samples:

DSRA-041905-DS-31-G-FL2	DSRA-041905-DS-31-G-WL4	DSRA-041905-DS-31-G-DUP2
DSRA-041905-DS-31-G-WL1	DSRA-041905-DS-31-G-WL7	DSRA-041905-EB-03
DSRA-041905-DS-31-G-WL2	DSRA-041905-DS-31-G-WL8	
DSRA-041905-DS-31-G-WL3	DSRA-041905-DS-31-G-WL9	

These samples were collected on April 19, 2005. DSRA-041705-DS31-G-DUP2 is a field duplicate sample collected at the location DSRA-041905-DS-31-G-WL9. An equipment blank (EB), DSRA-041905-EB-03 was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

**SVOCs (8270C)**

All of the samples within this SDG were submitted for SVOC analysis on a 24hr TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C, with the exception of the following samples which required a dilution in order to place the results within the calibration range:

DSRA-041905-DS31-G-FL2, DSRA-041905-DS31-G-WL2 – 10x

Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for the following samples:

DSRA-041905-DS31-G-WL1, DSRA-041905-DS31-G-WL4, DSRA-041905-DS31-G-WL7,  
DSRA-041905-DS31-G-WL8, DSRA-041905-DS31-G-DUP2 – benzo(a)anthracene, benzo(b)fluoranthene,  
benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene,  
phenanthrene, pyrene

DSRA-041905-DS31-G-WL2 – 2-methylnaphthlene

DSRA-041905-DS31-G-WL3 – acenaphthene, anthracene, dibenz(a,h)anthracene, fluorene

DSRA-041905-DS31-G-WL9 – acenaphthene, anthracene, dibenz(a,h)anthracene, dibenzofuran, fluorene, naphthalene

DSRA-041905-EB-03 – dibenz(a,h)anthracene, fluorene – benzo(a)anthracene, benzo(b)fluoranthene,  
benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, di-n-butylphthalate, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene

**Action:** The associated results were flagged “J” and qualified as estimated.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked laboratory samples were not evaluated.

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-041905-EB-03, indicate that dibenz(a,h)anthracene, fluorene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, di-n-butylphthalate, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene were present.

**Action:** No action was required because samples concentrations were greater than 5x the equipment blank concentration.

**Field Duplicate Samples**

The field duplicate pair DSRA-041905-DS31-G-DUP2/DSRA-041905-DS31-WL9 were reviewed and assessed as good, with the exception of, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene.

**Action:** The results for both the duplicate and parent sample were flagged "J" and qualified as estimated due to poor duplicate precision.

**Metals (6010B/7471A)**

All of the samples within this SDG were submitted for metals analysis on a 24hr TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for samples submitted for metals analysis, with the exception of the following samples which required a dilution in order to place the results within the calibration range:

DSRA-041905-DS31-G-WL1, DSRA-041905-DS31-G-WL2, DSRA-041905-DS31-G-WL4, DSRA-031905-DS10-WL9, DSRA-041905-DS31-G-DIP2 – 5x (lead)

Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for mercury in all of the samples within this SDG and cadmium in DSRA-041905-DS31-G-FL2, DSRA-041905-DS31-G-WL3, DSRA-041905-DS31-G-WL7, DSRA-041905-DS31-G-WL8, and DSRA-041905-DS31-G-WL9.

**Action:** The associated results were qualified as estimated and flagged "J", unless overridden due to other QC criteria exceedances.

**Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected in the method blanks.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-041905-DS31-G-WL9 were within the acceptable QC control limits, with the exception of low recoveries for selenium.

**Action:** The selenium results for each sample collected from disposal site 31 were considered estimated possibly biased low and flagged "J".

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-041905-EB-03, indicate that arsenic, barium, cadmium, chromium, copper, and lead were present.

**Action:** No qualification to the data was required because associated samples were either greater than 5x the amount detected in the EB or were either non-detect.

**Field Duplicate Samples**

The field duplicate pair DSRA-041905-DS31-G-DUP2/DSRA-041905-DS31-WL9 were reviewed and assessed as good, with the exception of elevated RPDs for arsenic, cadmium, copper, and mercury.

**Action:** The results for samples DSRA-041905-DS31-DUP2 and DSRA-041905-DS31-WL9 were flagged "J" and qualified as estimated due to poor duplicate precision.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 04/13/2005

Checked by: JAH 05/27/05

**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0503212****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8260B, 8270C, 8081A, 8151A, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for TCLP volatile organic compound (VOCs), semi-volatile organic compounds (SVOCs), pesticides, herbicides, and metals plus mercury by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following water and quality control (QC) samples:

DSRA-041905-WB/DS10-C-03
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This sample was collected on April 19, 2005. An equipment blank (EB), DSRA-042005-WB/EB-02 (located in SDG 0503893), was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

**TCLP VOCs (8260B)**

This sample was submitted for TCLP VOC analysis on a 72 hour TAT. Level II review was performed on the VOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and trip and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of VOCs by USEPA Method 8260B.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of VOCs by USEPA Method 8260B.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that 2-butanone was detected.

**Action:** The 2-butanone results for DSRA-041905-WB/DS10-C-03 were flagged "B" and qualified as estimated due to method blank contamination.

**Surrogates**

The recoveries for the four method-specified surrogates toluene- $d_8$ , 4-bromofluorobenzene, dibromofluoromethane, and 1,2-dichloroethane- $d_4$  are within QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) analysis could not be performed due to instrument failure.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no VOCs were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**TCLP SVOCs (8270C)**

The sample was submitted for TCLP SVOC analysis on a 72 hour TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of SVOCs by USEPA Method 8270C.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

A matrix spike/matrix spike duplicate (MS/MSD) was not submitted for analysis for this method.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no SVOCs were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**TCLP Pesticides (8081A)**

The sample was submitted for TCLP pesticides analysis on a 72 hour TAT. Level II review was performed on the TCLP pesticides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP pesticides by USEPA Method 8081A.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of TCLP pesticides by USEPA Method 8081A, with the exception of a 10x dilution in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no pesticides were detected.

**Surrogates**

The recoveries for the two method-specified surrogates decachlorobiphenyl (S1) and tetrachloro-m-xylene (S2) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

A matrix spike/matrix spike duplicate (MS/MSD) was not submitted for analysis for this method.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no pesticides were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**TCLP Herbicides (8151A)**

The samples within this SDG were submitted for TCLP herbicides analysis on a 72 hour TAT. Level II review was performed on the herbicides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP herbicides by USEPA Method 8151A.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of TCLP herbicides by USEPA Method 8151A, with the exception of a 10x dilution in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no herbicides were detected.

**Surrogates**

The recoveries for the method-specified surrogate DCAA (S1) were within applicable QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

A matrix spike/matrix spike duplicate (MS/MSD) was not submitted for analysis for this method.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no herbicides were present.



**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**TCLP Metals (6010B/7471A)**

The sample was submitted for TCLP metals analysis on a 72 hour TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for the sample submitted for metals analysis.

**Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

A matrix spike/matrix spike duplicate (MS/MSD) was not submitted for analysis for this method

**Sampling Accuracy**

The analytical results of the equipment blank indicate that calcium was present.

Action: No action required because the associated sample results were greater than 5x the equipment blank results.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 04/14/2005

Checked by: JAH 05/27/2005

**Data Evaluation Narrative**  
**MACTEC Project: DDMT: Dunn Field DSRA**  
**MACTEC Project Number: 6301-05-0004**  
**Matrix: Soil/Sediment**

**SDG: 0504673**

### **Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8260B, 8270C, 8081A, 8151A, 6010B, and 7471A.

### **Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for volatile organic compound (VOCs), semi-volatile organic compounds (SVOCs), pesticides, herbicides, and metals plus mercury by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

### **Sample Identification**

This SDG contains the following quality control (QC) sample:

DSRA-042005-WB/EB-02	DSRA-042005-TB-01
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This sample was collected on April 20, 2005 and was analyzed to represent samples collected with non-dedicated equipment.

### **VOCs (8260B)**

This sample was submitted for VOC analysis on a 72 hour TAT. Level II review was performed on the VOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and trip and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

### **Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of VOCs by USEPA Method 8260B.

### **Reporting Limits**

The RLs were met for samples submitted for the analysis of VOCs by USEPA Method 8260B.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that 2-butanone was detected.

**Action:** no action was required since the associated results were reported as non-detect.

**Surrogates**

The recoveries for the four method-specified surrogates toluene-d<sub>8</sub>, 4-bromofluorobenzene, dibromofluoromethane, and 1,2-dichloroethane-d<sub>4</sub> are within QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) analysis was not performed.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**SVOCs (8270C)**

The sample was submitted for SVOC analysis on a 72 hour TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of SVOCs by USEPA Method 8270C.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) analysis was not performed.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Pesticides (8081A)**

The sample was submitted for pesticides analysis on a 72 hour TAT. Level II review was performed on the TCLP pesticides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of pesticides by USEPA Method 8081A.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of TCLP pesticides by USEPA Method 8081A, with the exception of a 10x dilution in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no pesticides were detected.

**Surrogates**

The recoveries for the two method-specified surrogates decachlorobiphenyl (S1) and tetrachloro-m-xylene (S2) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

A matrix spike/matrix spike duplicate (MS/MSD) was not submitted for analysis for this method.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Herbicides (8151A)**

The samples within this SDG were submitted for herbicides analysis on a 72 hour TAT. Level II review was performed on the herbicides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of herbicides by USEPA Method 8151A.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of herbicides by USEPA Method 8151A, with the exception of a 10x dilution in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no herbicides were detected.

**Surrogates**

The recoveries for the method-specified surrogate DCAA (S1) were within applicable QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) analysis was not performed.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Metals (6010B/7471A)**

The sample was submitted for metals analysis on a 72 hour TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for the sample submitted for metals analysis, with the exception of potassium. The potassium results were reported below the reporting limit, but above the method detection limit and flagged "J" for estimated.

**Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

A matrix spike/matrix spike duplicate (MS/MSD) was not submitted for analysis for this method

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 04/14/2005  
Checked by: JAH 05/31/2005

SDG# 0504681

05/31/2005

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**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0504681****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8270C, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for semi-volatile organic compounds (SVOCs), and RCRA metals plus copper by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following soil sample:

DSRA-042105-DS10-G-WL10	DSRA-042105-DS10-G-FL6	DSRA-042105-DS31-G-WL10
DSRA-042105-DS10-G-WL11	DSRA-042105-DS31-G-FL8	

The sample was collected on April 21, 2005. An equipment blank (EB), DSRA-041905-EB-03 (located in SDG 0504571) was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

**SVOCs (8270C)**

All of the samples within this SDG were submitted for SVOC analysis on a 24hr TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C. Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for the following:

DSRA-042105-DS31-G-WL10 – acenaphthene, dibenz(a,h)anthracene, dibenzofuran, di-n-butyl phthalate, fluorene, naphthalene, pentachlorophenol

DSRA-042105-DS10-G-WL10 – benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene

DSRA-042105-DS10-G-W111 – anthracene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene

DSRA-042105-DS10-G-FL6 – benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, fluoranthene, , indeno(1,2,3-cd)pyrene, phenanthrene, pyrene

DSRA-042105-DS31-FL8 – acenaphthylene, di-n-butyl phthalate

**Action:** The associated results were flagged “J” and qualified as estimated.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits, with the exception of low recoveries for 2-fluorophenol and phenol-d<sub>5</sub> in sample DSRA-042105-DS10-G-FL6.

**Action:** The acid SVOC results for sample DSRA-042105-DS10-G-FL6 were flagged “J” and qualified as estimated due to poor surrogate recovery.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-042105-DS31-G-FL8 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-041905-EB-03, indicate that dibenz(a,h)anthracene, fluorene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, di-n-butylphthalate, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene were present.



SDG# 0504681

05/31/2005

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**Action:** No action was required since the associated sample results were flagged either greater than 5 times the blank amount or where non-detect.

### **Field Duplicate Samples**

No duplicate sample was collected for this SDG.

### **Metals (6010B/7471A)**

All of the samples within this SDG were submitted for RCRA 8 metals plus copper analysis on a 24hr TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

### **Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

### **Reporting Limits**

The RLs were met for samples submitted for metals analysis, with the exception of a 5x dilution for lead in samples DSRA-042105-DS31-G-FL8 and DSRA-042105-DS31-G-WL10, and a 5x dilution for barium and copper as well as a 100x dilution for lead in samples DSRA-042105-DS10-G-WL11 and DSRA-042105-DS10-G-FL6.

Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for mercury in samples DSRA-042105-DS31-G-FL8, DSRA-042105-DS31-G-WL10, and DSRA-042105-DS10-G-WL10, as well as cadmium in samples DSRA-042105-DS31-G-WL10, and DSRA-042105-DS10-G-WL10.

**Action:** The associated results were qualified as estimated and flagged "J", unless overridden due to other QC criteria exceedances.

### **Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected in the method blanks.

### **Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

### **Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-042105-DS31-G-FL6 were within the acceptable QC control limits.

### **Sampling Accuracy**

The analytical results of the equipment blank DSRA-041905-EB-03, indicate that arsenic, barium, cadmium, chromium, copper, and lead were present.

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05/31/2005

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**Action:** No qualification to the data was required because associated samples were either greater than 5x the amount detected in the EB or were either non-detect.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 05/16/2005Checked by: JAH 05/31/2005

SDG# 0504746

5/20/2005

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**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0504746****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8270C, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for semi-volatile organic compounds (SVOCs), and RCRA metals plus copper by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following water and quality control (QC) samples:

DSRA-042305-DS10-G-FL7	DSRA-042305-DS31-G-FL9
DSRA-042305-DS10-G-WL12	

These samples were collected on March 23, 2005. An equipment blank (EB), DSRA-041905-EB-03 (located in SDG 0504571) was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG. This EB is associated with each sample in this SDG.

**SVOCs (8270C)**

All of the samples within this SDG were submitted for SVOC analysis on a 24hr TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

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5/20/2005

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**Reporting Limits**

The RLs were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C, with the exception of 10x and 100x dilutions for sample DSRA-042305-DS31-G-FL9, which were required in order to place the results within the calibration range.

Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for the following samples:

DSRA-042305-DS10-G-FL7 – anthracene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, bis(2-chloroethyl)ether, chrysene, di-n-butyl phthalate, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene

DSRA-042305-DS10-G-WL12 – acenaphthene, anthracene, dibenz(ah)anthracene, di-n-butylphthalate, fluorene, naphthlene

DSRA-042305-DS10-G-FL9 – acenaphthylene, 3&4-methylphenol, 4-nitroaniline

**Action:** The associated results were flagged “J” and qualified as estimated.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-042305-DS10-G-FL7 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-041905-EB-03, (located in SDG 0504571) indicate that dibenz(a,h)anthracene, fluorene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, di-n-butylphthalate, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene were present below the RL but above the MDL.

**Action:** No action is required since the associated sample results were greater than 5 times the blank amount or were non-detect. In addition, no qualification was required if any compound detected in the blank was below the RL but above the MDL.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Metals (6010B/7471A)**

All of the samples within this SDG were submitted for RCRA 8 metals plus copper analysis on a 24hr TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for samples submitted for metals analysis, with the exception of the following samples which required a dilution in order to place the results within the calibration range:

DSRA-042305-DS31-G-FL9– 5x (lead)  
DSRA-042305-DS10-G-FL7– 20x (lead)  
DSRA-042305-DS10-G-WL12 – 200x (lead, copper), 5x (barium)

Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for mercury in samples DSRA-042305-DS10-G-FL7 and DSRA-042305-DS31-G-FL9, as well as silver and selenium in sample DSRA-042305-DS10-G-FL7.

**Action:** The associated results were qualified as estimated and flagged “J”, unless overridden due to other QC criteria exceedances.

**Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected in the method blanks.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-042305-DS31-G-FL9 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-041905-EB-03, indicate that arsenic, barium, cadmium, chromium, copper, and lead were present.

SDG# 0504746

5/20/2005

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**Action:** No qualification to the data was required because associated samples were either greater than 5x the amount detected in the EB or were either non-detect.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 04/13/2005Checked by: JAH 05/20/05

SDG# 0504833

5/31/2005

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**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0504833****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8270C, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for semi-volatile organic compounds (SVOCs), and RCRA metals plus copper by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following soil sample:

DSRA-042705-DS31-G-FL10
-------------------------

The sample was collected on April 27, 2005. An equipment blank (EB), DSRA-041905-EB-03 (located in SDG 0504571) was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

**SVOCs (8270C)**

All of the samples within this SDG were submitted for SVOC analysis on a 24hr TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C, with the exception of a 10x dilution which was required for fluoranthene, phenanthrene, and pyrene in order to place the results within the calibration range. Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for dibenzofuran, di-n-butylphthalate, and naphthalene.

**Action:** The associated results were flagged "J" and qualified as estimated.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-042705-DS31-G-FL10 were within QC limits, with the exception of low diethyl phthalate and high benzo(b) fluoranthene results.

**Action:** The diethyl phthalate and benzo(b) fluoranthene results for sample DSRA-042705-DS31-G-FL10 were flagged "J".

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-041905-EB-03, indicate that dibenz(a,h)anthracene, fluorene benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, di-n-butylphthalate, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene were present below the RL but above the MDL.

**Action:** No action is required since the associated sample results were greater than 5 times the blank amount or were non-detect. In addition, no qualification was required if any compound detected in the blank was below the RL but above the MDL.

**Field Duplicate Samples**

No duplicate sample was collected for this SDG.

**Metals (6010B/7471A)**

All of the samples within this SDG were submitted for RCRA 8 metals plus copper analysis on a 24hr TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and



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MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for samples submitted for metals analysis. Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for cadmium and mercury in the sample within this SDG.

**Action:** The associated results were qualified as estimated and flagged "J", unless overridden due to other QC criteria exceedances.

**Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected in the method blanks.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked laboratory samples were not evaluated

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-041905-EB-03, indicate that arsenic, barium, cadmium, chromium, copper, and lead were present.

**Action:** No qualification to the data was required because associated samples were either greater than 5x the amount detected in the EB or were either non-detect.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 04/13/2005Checked by: JAH 05/31/05

**Data Evaluation Narrative**  
**MACTEC Project: DDMT: Dunn Field DSRA**  
**MACTEC Project Number: 6301-05-0004**  
**Matrix: Soil/Sediment**

**SDG: 0504868**

### **Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8270C, 6010B, and 7471A.

### **Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for semi-volatile organic compounds (SVOCs), and RCRA metals plus copper by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

### **Sample Identification**

This SDG contains the following soil sample:

DSRA-042705-DS31-G-FL11
-------------------------

The sample was collected on April 27, 2005. An equipment blank (EB), DSRA-041905-EB-03 (located in SDG 0504571) was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

### **SVOCs (8270C)**

All of the samples within this SDG were submitted for SVOC analysis on a 24hr TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

### **Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

### **Reporting Limits**

The RLs were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C. Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene,

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benzo(a)pyrene, chrysene, fluoranthene, , indeno(1,2,3-cd)pyrene , phenanthrene, and pyrene in sample DSRA-042705-DS31-FL11.

**Action:** The associated results were flagged "J" and qualified as estimated.

#### **Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

#### **Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits.

#### **Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

#### **Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-042705-DS31-G-FL11 were within the acceptable QC control limits.

#### **Sampling Accuracy**

The analytical results of the equipment blank DSRA-041905-EB-03, indicate that dibenz(a,h)anthracene, fluorene benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, di-n-butylphthalate, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene were present below the RL but above the MDL.

**Action:** No action is required since the associated sample results were greater than 5 times the blank amount or were non-detect. In addition, no qualification was required if any compound detected in the blank was below the RL but above the MDL.

#### **Field Duplicate Samples**

No duplicate sample was collected for this SDG.

#### **Metals (6010B/7471A)**

All of the samples within this SDG were submitted for RCRA 8 metals plus copper analysis on a 24hr TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

#### **Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for samples submitted for metals analysis. Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for mercury.

**Action:** The associated results were qualified as estimated and flagged "J", unless overridden due to other QC criteria exceedances.

**Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected in the method blanks.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-042705-DS31-G-FL11 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-041905-EB-03, indicate that arsenic, barium, cadmium, chromium, copper, and lead were present.

**Action:** No qualification to the data was required because associated samples were either greater than 5x the amount detected in the EB or were either non-detect.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 05/16/2005  
Checked by: JAH 05/31/05

**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0504928****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 1311, 8260B, 8270C, 8081A, 8151A, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for TCLP volatile organic compound (VOCs), semi-volatile organic compounds (SVOCs), pesticides, herbicides, and metals plus mercury by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following quality control (QC) sample:

DSRA-042905-WB-OVER-C-1
-------------------------

This sample was collected on April 29, 2005. An equipment blank (EB) was collected (located in SDG 0504673) and analyzed to represent Waste Batch samples collected with non-dedicated equipment.

**TCLP VOCs (1311/8260B)**

This sample was submitted for TCLP VOC analysis on a 72 hour TAT. Level II review was performed on the VOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and trip and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of VOCs by USEPA Method 8260B.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of VOCs by USEPA Method 8260B.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no VOCs were detected.

**Surrogates**

The recoveries for the four method-specified surrogates toluene-d<sub>8</sub>, 4-bromofluorobenzene, dibromofluoromethane, and 1,2-dichloroethane-d<sub>4</sub> are within QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) analysis for spiked sample DSRA-042905-WB-OVER-C-1, were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no VOCs were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**TCLP SVOCs (1311/8270C)**

The sample was submitted for TCLP SVOC analysis on a 72 hour TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of SVOCs by USEPA Method 8270C.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) analysis for spiked sample DSRA-042905-WB-OVER-C-1, were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no SVOCs were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**TCLP Pesticides (1311/8081A)**

The sample was submitted for TCLP pesticides analysis on a 72 hour TAT. Level II review was performed on the TCLP pesticides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP pesticides by USEPA Method 8081A.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of TCLP pesticides by USEPA Method 8081A, with the exception of a 10x dilution in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no pesticides were detected.

**Surrogates**

The recoveries for the two method-specified surrogates decachlorobiphenyl (S1) and tetrachloro-m-xylene (S2) were within the acceptable QC limits and/or SMF criteria.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) analysis for spiked sample DSRA-042905-WB-OVER-C-1, were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no pesticides were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**TCLP Herbicides (1311/8151A)**

The samples within this SDG were submitted for TCLP herbicides analysis on a 72 hour TAT. Level II review was performed on the herbicides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP herbicides by USEPA Method 8151A.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of TCLP herbicides by USEPA Method 8151A, with the exception of a 10x dilution in order to place the results within the calibration range.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no herbicides were detected.

**Surrogates**

The recoveries for the method-specified surrogate DCAA (S1) were within applicable QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) analysis for spiked sample DSRA-042905-WB-OVER-C-1, were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no herbicides were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.



**TCLP Metals (1311/6010B/7471A)**

The sample was submitted for TCLP metals analysis on a 72 hour TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for the sample submitted for metals analysis.

**Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) analysis for spiked sample DSRA-042905-WB-OVER-C-1, were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank indicate that no metals were present.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 05/16/2005

Checked by: JAH 05/20/2005

SDG# 0504505

5/20/2005

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**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Storm Water****SDG: 0504505****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for metals plus mercury by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following storm water sample:

DSRA-041505-SW-G-01
---------------------

The sample was collected on March 15, 2005 from rain water within the excavation at Disposal Site 10.

**Metals (6010B/7471A)**

The sample was submitted for metals analysis on a 24 hour TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinse blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for samples submitted for metals analysis. Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for the antimony, barium, beryllium, nickel, and sodium results.

**Action:** The associated results were qualified as estimated and flagged "J", unless overridden due to other QC criteria exceedances.

SDG# 0504505

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**Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected in the method blanks.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for a laboratory spiked sample were not evaluated.

**Sampling Accuracy**

There is no associated equipment blank for this sample.

**Field Duplicate Samples**

No duplicate samples were collected in this SDG.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 05/16/2005Checked by: JAH 05/20/2005

**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0512162****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8260B, 8270C, 8081A, 8082, 8151A, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for Target Compound List (TCL) volatile organic compounds (VOC), TCL semi-volatile organic compounds (SVOCs), TCL pesticides, herbicides, polychlorinated biphenyls, and Target Analyte List (TAL) metals by inductively coupled plasma (ICP) and cold vapor (mercury).

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following soil and quality control (QC) samples:

DSRA-1205-BA2-C-1	DSRA-1205-BA1-G-1	DSRA-1205-TB
DSRA-1205-BA2-C-2	DSRA-1205-BA1-G-2	

These samples were collected on December 6, 2005.

**TCL VOCs (8260B)**

Samples DSRA-1205-BA2-G-01, DSRA-1205-BA2-G-02, and DSRA-1205-TB were submitted for TCL VOC analysis on a 7 day TAT. Level II review was performed on the TCL VOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCL VOCs by USEPA Method 8260B.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of TCL VOCs by USEPA Method 8260B. Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for the following samples:

DSRA-1205-BA1-G-1 and DSRA-1205-BA1-G-2 - trichloroethene

**Action:** The trichloroethene results for samples DSRA-1205-BA1-G-1 and DSRA-1205-BA1-G-2 were flagged "J" and qualified as estimated.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that VOCs were not present.

**Surrogates**

The recoveries for the four method-specified surrogates toluene-d<sub>8</sub>, 4-bromofluorobenzene, dibromofluoromethane, and 1,2-dichloroethane-d<sub>4</sub> are within QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits and/or sporadic marginal (SMF) failure limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for non-project laboratory spiked samples were not reviewed.

**Sampling Accuracy**

The analytical results of the trip blank indicate that no VOCs were present.

**Field Duplicate Samples**

No duplicate samples were submitted for analysis in this SDG.

**TCL SVOCs (8270C)**

Samples DSRA-1205-BA1-C-1 and DSRA-1205-BA1-C-2 were submitted for TCL SVOC analysis on a 7 day TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCL SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of TCL SVOCs by USEPA Method 8270C.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The MS/MSD recoveries and RPDs for spiked sample DSRA-1205-BA2-C-1 were within the acceptable QC control limits and/or SMF limits.

**Field Duplicate Samples**

No duplicate samples were submitted for analysis in this SDG.

**TCL Pesticides (8081A)**

Samples DSRA-1205-BA1-C-1 and DSRA-1205-BA1-C-2 were submitted for TCL pesticides analysis on a 7 day TAT. Level II review was performed on the TCLP pesticides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCL pesticides by USEPA Method 8081A.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of TCL pesticides by USEPA Method 8081A, with the exception of a 10x dilution for all samples, in order to minimize matrix interferences.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no pesticides were detected.

**Surrogates**

The recoveries for the two method-specified surrogates decachlorobiphenyl (DCB) and tetrachloro-m-xylene (TCMX) were within the acceptable QC limits with the exception of low recoveries of TCMX in the LCS and both soil samples

and both surrogates in the MS/MSD.

**Action:** No qualification was necessary for the LCS because all pesticide spikes were within QC limits despite low TCMX recovery. No qualification was necessary for soil samples DSRA-1205-BA2-C-1 and DSRA-1205-BA2-C-2 because each sample was diluted 10 x due to matrix interferences. Qualification of the MS/MSD results performed on sample DSRA-1205-BA2-C-1 consist of analyte-specific failures (refer to MS/MSD section).

#### **Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

#### **Matrix Spike/Matrix Spike Duplicate**

The MS/MSD recoveries and RPDs for spiked sample DSRA-1205-BA2-C-1 were within the acceptable QC control limits, with the exception of low recoveries for beta-BHC, 4,4'-DDD, and high recoveries for methoxychlor.

**Action:** The beta-BHC, 4,4'-DDD, and methoxychlor results for sample DSRA-1205-BA2-C-1 were flagged "J" and qualified as estimated.

#### **Field Duplicate Samples**

No duplicate samples were submitted for analysis in this SDG.

#### **Herbicides (8151A)**

Samples DSRA-1205-BA1-C-1 and DSRA-1205-BA1-C-2 were submitted for herbicides analysis on a 7 day TAT. Level II review was performed on the pesticides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

#### **Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of herbicides by USEPA Method 8151A.

#### **Reporting Limits**

The RLs were met for the sample submitted for the analysis of herbicides by USEPA Method 8151A.

#### **Blank Summary**

The analytical results of the laboratory method blanks indicate that no herbicides were detected.

**Surrogates**

The recoveries for the method-specified surrogate DCAA (S1) were within applicable QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

A batch specific MS/MSD was not performed. A LCS/LCSD was performed to assess batch precision and accuracy and recoveries and RPDs were within laboratory QC limits.

**Field Duplicate Samples**

No duplicate samples were submitted for analysis in this SDG.

**PCBs (8082)**

Samples DSRA-1205-BA1-C-1 and DSRA-1205-BA1-C-2 were submitted for PCB analysis on a 7 day TAT. Level II review was performed on the PCB data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of PCBs by USEPA Method 8082.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of PCBs by USEPA Method 8082.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no PCBs were detected.

**Surrogates**

The recoveries for the two method-specified surrogates decachlorobiphenyl (DCB) and tetrachloro-m-xylene (TCMX) were within applicable QC advisory limits, with the exception of a low recovery for TCMX in sample DSRA-1205-BA2-C-1 and DSRA-1205-BA2-C-2 MSD.

**Action:** PCB sample results for DSRA-1205-BA2-C-1 were considered estimated and flagged "J". No action was required for DSRA-1205-BA2-C-2 MSD since the analyte recoveries were within QC limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.



**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-1205-BA2-C-2 were within the acceptable QC control limits.

**Field Duplicate Samples**

No duplicate samples were submitted for analysis in this SDG.

**TAL Metals (6010B/7471A)**

Samples DSRA-1205-BA1-C-1 and DSRA-1205-BA1-C-2 were submitted for metals analysis on a 7 day TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for samples submitted for metals analysis, with the exception of a 10x dilution in order to place the aluminum, iron, and potassium results within the calibration range for samples DSRA-1205-BA1-C-1 and DSRA-1205-BA1-C-2. Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for beryllium, cadmium, cobalt, potassium, sodium, thallium, and mercury for samples DSRA-1205-BA1-C-1 and DSRA-1205-BA1-C-2.

**Action:** The associated beryllium, cadmium, cobalt, potassium, sodium, thallium, and mercury results were flagged "J" and considered estimated.

**Blank Summary**

The analytical results of the calibration blanks indicate that aluminum was detected below the RL but above the MDL at 9.59 J mg/kg.

**Action:** No action was required since the associated results were greater than 5x the blank concentration.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The MS/MSD recoveries and RPDs for non-project laboratory spiked samples were not reviewed.

**Field Duplicate Samples**

No duplicate samples were submitted for analysis in this SDG.

SDG# 0512162

1/20/2006

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**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: BAK 01/11/2006

Checked by: JAH 1/20/2006

**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil****SDG: 0602044****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 1311/8260B, 1311/8270C, 1311/8081A, 1311/8151A, 1311/6010B/7470A, 8082, SW Chapter 7.3.3.2, SW Chapter 7.3.4, 9045C, 1010, and Screening for Radiation.

**Sample History and Preparation**

A composite sample was prepared in order to characterize the waste for disposal generated from the excavation of Disposal Site 3 at the Defense Depot Memphis, Tennessee (DDMT) Dunn Field site. Sample DSRA-0206-WBDS3-1 was the composite sample of representative waste material that will be generated during the excavation of Disposal Site 3. The sample was a mixture of excavated soil, vermiculite, and liquid from the containers generated from the following mixture ratio: soil = 31 pounds (lbs)/vermiculite = 0.24 lbs/ liquid waste = 1 lb. The liquid waste was previously analyzed and consisted of 0.0106% 3,3'-Dimethylbenzidine (the acid derivative of o-toluidine).

In order to meet the disposal requirements, characterization of the sample consisted of the following tests: Full Toxicity Characterization Leaching Procedure (TCLP) volatile organic compounds (VOC), TCLP semi-volatile organic compounds (SVOCs), TCLP pesticides, TCLP herbicides, and TCLP metals by inductively coupled plasma (ICP) and cold vapor (mercury), total polychlorinated biphenyls (PCBs), corrosivity, reactive cyanide (CN), reactive sulfide, ignitability/flashpoint, and a screen for radiation.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for Full TCLP VOC, SVOCs, pesticides, herbicides, and metals by inductively coupled plasma (ICP) and cold vapor (mercury), total PCBs, corrosivity, reactive CN, reactive sulfide, ignitability/flashpoint and a screen for radiation.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following soil samples:

DSRA-0206-WBDS3-1	DSRA-0106-BA3-C-01	
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These samples were collected on January 31, 2006. Background sample DSRA-0106-BA3-C-01 was analyzed for radiation screen only.

**TCLP VOCs (8260B)**

Sample DSRA-0206-WBDS3-1 was submitted for TCLP VOC analysis on a 3 day TAT. Level II review was performed on the TCL VOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any quality affecting issues identified in the review is discussed in the following sections.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP VOCs by USEPA Method 8260B.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of TCLP VOCs by USEPA Method 8260B. Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was not necessary.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that VOCs were not present.

**Surrogates**

The recoveries for the four method-specified surrogates toluene-d<sub>8</sub>, 4-bromofluorobenzene, dibromofluoromethane, and 1,2-dichloroethane-d<sub>4</sub> are within QC advisory limits except for dibromofluoromethane for Blank Fluid 1 which had a recovery of 74%. No qualification was required for the blank since there were no other QC problems.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits and/or sporadic marginal (SMF) failure limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for non-project laboratory spiked samples were not reviewed.

**Sampling Accuracy**

The analytical results of the trip blank indicate that no VOCs were present.

**Field Duplicate Samples**

No duplicate samples were submitted for analysis in this SDG.

**TCLP SVOCs (8270C)**

Sample DSRA-0206-WBDS3-1 was submitted for TCLP SVOC analysis on a 3 day TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any quality affecting issues identified in the review is discussed in the following sections.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of TCLP SVOCs by USEPA Method 8270C.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The MS/MSD recoveries and RPDs for spiked sample 0602044-001MS/MSD were within the acceptable QC control limits and/or SMF limits.

**Field Duplicate Samples**

No duplicate samples were submitted for analysis in this SDG.

**TCLP Pesticides (8081A)**

Sample DSRA-0206-WBDS3-1 was submitted for TCLP pesticides analysis on a 3- day TAT. Level II review was performed on the TCLP pesticides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any quality affecting issues identified in the review is discussed in the following sections.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP pesticides by USEPA Method 8081A.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of TCLP pesticides by USEPA Method 8081A.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no pesticides were detected.

**Surrogates**

The recoveries for the two method-specified surrogates decachlorobiphenyl (DCB) and tetrachloro-m-xylene (TCMX) were within the acceptable QC limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The MS/MSD recoveries and RPDs for spiked sample 0602044-001AMS/MSD were within the acceptable QC control limits, with the exception of high recoveries for methoxychlor. No action was required since the sample was a batch QC sample and not a project-specific sample.

**Field Duplicate Samples**

No duplicate samples were submitted for analysis in this SDG.

**TCLP Herbicides (8151A)**

Sample DSRA-0206-WBDS-1 was submitted for TCLP herbicides analysis on a 3 day TAT. Level II review was performed on the pesticides data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any quality affecting issues identified in the review is discussed in the following sections.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of TCLP herbicides by USEPA Method 8151A.

**Reporting Limits**

The RLs were met for the sample submitted for the analysis of TCLP herbicides by USEPA Method 8151A.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no herbicides were detected.

**Surrogates**

The recoveries for the method-specified surrogate DCAA (S1) were outside applicable QC advisory limits of 20-150 for sample DSRA-0206-WBDS3-1 (17%).

**Action:** Herbicides sample results for sample DSRA-0206-WBDS3-1 were qualified as estimated J/UJ.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The MS/MSD recoveries and RPDs for spiked sample 0602044-001AMS/MSD were within the acceptable QC control limits.

**Field Duplicate Samples**

No duplicate samples were submitted for analysis in this SDG.

**PCBs (8082)**

Sample DSRA-0206-WBDS3-1 were submitted for PCB analysis on a 3 day TAT. Level II review was performed on the TCLP PCB data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any quality affecting issues identified in the review is discussed in the following sections.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of PCBs by USEPA Method 8082.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of PCBs by USEPA Method 8082.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no PCBs were detected.

**Surrogates**

The recoveries for the two method-specified surrogates decachlorobiphenyl (DCB) and tetrachloro-m-xylene (TCMX) were within applicable QC advisory limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample 0602044-001CMS/MSD were within the acceptable QC control limits.

**Field Duplicate Samples**

No duplicate samples were submitted for analysis in this SDG.

**TCLP Metals (6010B/7471A)**

Sample DSRA-0206-WBDS3-1 was submitted for TCLP metals analysis on a 3 day TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any quality affecting issues identified in the review is discussed in the following sections.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for samples submitted for metals analysis. Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was not necessary.

**Blank Summary**

The analytical results of the calibration blanks indicate that all analytes were non-detect.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The MS/MSD recoveries and RPDs for non-project laboratory spiked samples were not reviewed.

**Field Duplicate Samples**

No duplicate samples were submitted for analysis in this SDG.

**RCI and Radiation Screen (SW Ch. 7.3.3 & 7.3.4, 9045C, 1010)**

Sample DSRA-0206-WBDS3-1 was submitted for reactivity, corrosivity, and ignitability (RCI) and radiation screen analyses on a 3 day TAT. Sample DSRA-0106-BA3-C-01 was analyzed for radiation screen only. Level II review was performed on the RCI and radiation screen data and consisted of the review of holding times, method blanks, LCS recoveries, field duplicate precision, and rinsate blanks. Any quality affecting issues identified in the review is discussed in the following sections.



**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for RCI and radiation screen analyses.

**Reporting Limits**

The RLs were met for samples submitted for RCI and radiation screen analyses. Results were reported to the RL and evaluated down to the MDL. Flagging of results less than the RL but above the MDL was not necessary.

**Blank Summary**

The analytical results of the calibration blanks indicate that all analytes were non-detect.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits. However, even though the reactive cyanide LCS recovered within lab limits of 0-48%, the recovery was below 10% (8%). CLP Data validation guidelines recommend qualification of results for recoveries below 10%.

**Action:** The reactive cyanide results for sample DSRA-0206-WBDS3-1 were qualified as estimated and flagged "UJ".

**Laboratory Duplicate Samples**

Laboratory duplicates for ignitability was within QC limits.

**Field Duplicate Samples**

No duplicate samples were submitted for analysis in this SDG.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG can be used for the purposes of comparison to waste disposal action levels and edits to the DQE flags were not required based on professional judgment.

Prepared by: DLH 2/20/2006

Checked by: JAH 2/20/2006

SDG# 0603082

4/10/2006

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**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0603082****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8270C, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for semi-volatile organic compounds (SVOCs), and RCRA metals plus copper by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following soil and QC samples:

DSRA-0306-DS10A-G-DUP1	DSRA-0306-DS10A-G-WL1	DSRA-0306-DS10A-G-WL3
DSRA-0306-DS10A-G-FL1	DSRA-0306-DS10A-G-WL2	

The samples were collected on March 2, 2006. Sample DSRA-0306-DS10A-G-DUP1 is the duplicate sample of DSRA-0306-DS10A-G-FL1. An equipment blank (EB), DSRA-0306-EB-01 (located in SDG 0603125) was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

**SVOCs (8270C)**

All of the samples within this SDG were submitted for SVOC analysis on a 24hr TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C. Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for the following:

DSRA-0306-DS10A-G-DUP1 – benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, phenanthrene, pyrene

DSRA-0306-DS10A-G-FL1 – benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, fluoranthene, phenanthrene, pyrene

DSRA-0306-DS10A-G-WL2 – di-n-butyl phthalate

**Action:** The associated results were flagged “J” and qualified as estimated.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>5</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample non-project sample 0602894-002 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-0306-EB-01, indicate that SVOCs were not present.

**Field Duplicate Samples**

Duplicate sample pair DSRA-0306-DS10A-G-FL1/DSRA-0306-DS10A-G-DUP1 was collected and analyzed for SVOCs. RPDs were within acceptable QC limits for results detected above the RL.

**Metals (6010B/7471A)**

All of the samples within this SDG were submitted for RCRA 8 metals plus copper analysis on a 24hr TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinse blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for samples submitted for metals analysis, with the exception of a 10x dilution for lead in samples DSRA-0306-DS10A-G-FL1 and DSRA-0306-DS10A-G-DUP1, and a 10x dilution for cadmium in samples DSRA-0306-DS10A-G-WL1, DSRA-0306-DS10A-G-WL2, and DSRA-0306-DS10A-G-WL3.

Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for mercury in samples DSRA-0306-DS10A-G-FL1, DSRA-0306-DS10A-G-WL1, DSRA-0306-DS10A-G-WL2, DSRA-0306-DS10A-G-WL3, and DSRA-0306-DS10A-G-DUP1, as well as silver in samples DSRA-0306-DS10A-G-FL1.

**Action:** The associated results were qualified as estimated and flagged "J", unless overridden due to other QC criteria exceedances.

**Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected in the method blanks.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-0306-DS10A-G-DUP1 were within the acceptable QC control limits with the exception of lead, barium and copper.

**Action:** The lead results were present at concentrations greater than 4x the spike amount; therefore, qualification was not necessary. The barium and copper results in samples DSRA-0306-DS10A-G-DUP1 and parent sample DSRA-0306-DS10A-FL1 was qualified as estimated and flagged "J".

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-041905-EB-03, indicate that barium, chromium, copper, and lead were present.

**Action:** No qualification to the data was required for barium and copper because results in the EB were less than the RL but greater than the MDL and associated sample results for chromium and lead were either greater than 5x the amount detected in the EB or were either non-detect.

**Field Duplicate Samples**

Duplicate sample pair DSRA-0306-DS10A-G-FL1/DSRA-0306-DS10A-G-DUP1 was collected and analyzed for SVOCs. RPDs were within acceptable QC limits for results detected above the RL with the exception of copper and lead.

**Action:** The barium and copper results in samples DSRA-0306-DS10A-G-DUP1 and parent sample DSRA-0306-DS10A-FL1 were qualified as estimated and flagged "J" due to poor sampling precision.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment.

Prepared by: JAH 4/10/2006

Checked by: WPB 4/11/06

SDG# 0603125

05/17/2005

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**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0603125****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8270C, 6010B, and 7471A.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Mc. (ETC), in Memphis, Tennessee for semi-volatile organic compounds (SVOCs), and RCRA metals plus copper by inductively coupled plasma (ICP) and cold vapor.

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following soil and QC samples:

DSRA-0306-DS3-G-DUP1	DSRA-0306-DS3-G-WL1	DSRA-0306-DS3-G-WL5
DSRA-0306-DS3-G-FL1	DSRA-0306-DS3-G-WL2	DSRA-0306-DS3-G-WL6
DSRA-0306-DS3-G-FL2	DSRA-0306-DS3-G-WL3	DSRA-0306-EB-01
DSRA-0306-DS3-G-FL3	DSRA-0306-DS3-GWL4	

The samples were collected on March 3, 2006. Sample DSRA-0306-0306-G-DUPI is the duplicate sample of DSRA-0306-DS3-G-FL3. An equipment blank (EB), DSRA-0306-EB-01 was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

**SVOCs (8270C)**

All of the samples within this SDG were submitted for SVOC analysis on a 24hr TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C. A 10x dilution was required on samples DSRA-0306-DS3-G-WL6 and FL1 due to matrix interferences resulting in acid surrogate failures. MACTEC requested that a 4x dilution be performed to obtain an acceptable RL/MDL for 2,4,6-trichlorophenol. These samples were reanalyzed at a 4x dilution and reported. Acid surrogates failed and these samples were recollected on March 7, 2006. Analysis of the recollected samples was successful.

Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for the following:

DSRA-0306-DS3-G-FL2 - 2-methylnaphthalene, naphthalene, phenanthrene

DSRA-0306-DS3-G-WL1 - benzo(a)anthracene, chrysene, pyrene DSRA-

0306-DS3-G-WL3 - di-n-butyl phthalate

DSRA-0306-DS3-G-WL3 - naphthalene

**Action:** The associated results were flagged "J" and qualified as estimated.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>6</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits with the exception of phenol-d<sub>6</sub> and 2-fluorophenol in samples DSRA-0306-DS3-G-WL6 and DSRA-0306-DS3-GFL1. These samples required a 4x dilution due to matrix interferences.

**Action:** The acid results for samples DSRA-0306-DS3-G-WL6 and DSRA-0306-DS3-G-FL1 were qualified as unusable and flagged "R". MACTEC recollected these soil samples on March 7, 2006 and the recollected SVOC analyses were successful; therefore the recollected results (presented in SDG # 0603224) were used for remedial decisions.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MSIMSD) recoveries and RPDs for spiked sample DSRA-0306-DS3-G-FL3 and DSRA-0306-DS3-G-WL3 were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-0306-EB-01, indicate that SVOCs were not present.

**Field Duplicate Samples**

Duplicate sample pair DSRA-0306-DS3-G-FL3/DSRA-0306-DS3-G-DM was collected and analyzed for SVOCs. RPDs could not be calculated because SVOCs were not detected in either sample.

**Metals (6010B17471A)**

All of the samples within this SDG were submitted for RCRA 8 metals plus copper analysis on a 24hr TAT. Level II review was performed on the metals data and consisted of the review of holding times, method blanks, LCS, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information were not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for ICP metals and mercury analysis.

**Reporting Limits**

The RLs were met for samples submitted for metals analysis, with the exception of a 5x dilution for all metals (except mercury) in each soil sample.

Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was necessary for mercury in samples DSRA-0306-DS3-G-FL2, DSRA-0306-DS3-G-FL3, DSRA-0306-DS3-G-WL1, DSRA-0306-DS3-G-WL2, DSRA-0306-DS3-G-WL3, DSRA-0306-DS3-G-WL4, DSRA-0306-DS3-G-WL5, DSRA-0306-DS3-G-WL6, and DSRA-0306-DS3-G-DUPL, as well as barium in sample DSRA-0306-DS3-G-D1.

**Action:** The associated results were qualified as estimated and flagged "J", unless overridden due to other QC criteria exceedances.

**Blank Summary**

The analytical results of the calibration blanks indicate that no metals were detected in the method blanks.

**Laboratory Control Sample**

The LCS spike recoveries are within the applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-0306-DS3-G-FL3 and DSRA-0306-DS3-G-WL3 were within the acceptable QC control limits with the exception of lead in DSRA-0306-DS3-WL3 and mercury in DSRA-0306-DS3-G-FL3.

**Action:** The lead results in samples DSRA-0306-DS3-G-WL3 and mercury results in DSRA-0306-DS3-G-FL3 were qualified as estimated and flagged "J".



SDG# 0603125  
05/17/2005  
Page 4 of 4

### **Sampling Accuracy**

The analytical results of the equipment blank DSRA-041905-EB-03, indicate that barium, chromium, copper, and lead were present.

**Action:** No qualification to the data was required for barium and copper because results in the EB were less than the RL but greater than the MDL and associated sample results for chromium and lead were either greater than 5x the amount detected in the EB or were either non-detect.

### **Field Duplicate Samples**

Duplicate sample pair DSRA-0306-DS3-G-FL3/DSRA-0306-DS3-G-DUP1 was collected and analyzed for SVOCs. RPDs were within acceptable QC limits for results detected above the RL with the exception of arsenic.

**Action:** The arsenic results in samples DSRA-0306-DS3-G-DI and parent sample DSRA-0306-DS3-FL3 were qualified as estimated and flagged "J" due to poor sampling precision.

### **Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment. However, two samples were recollected because matrix interferences caused low recovery of internal standards and surrogate standards in the initial SVOC analysis of confirmation samples DSAA-0306-DS3-WL6 and - FL 1. Dilutions were performed on the samples to minimize matrix effects and internal standard recovery was acceptable; however, the acid surrogate recoveries were below acceptable QC limits. The SVOC analysis of the recollected samples, DSRA-0306-DS3-WL6A and - FL1A, was successful. Therefore, the SVOC data from the recollected samples were used for remedial decisions.

Prepared by: JAH 4/10/2006  
Checked by: WPB 4/11/06

SDG# 0603224

4/10/2006

Page 1 of 2

**Data Evaluation Narrative****MACTEC Project: DDMT: Dunn Field DSRA****MACTEC Project Number: 6301-05-0004****Matrix: Soil/Sediment****SDG: 0603224****Deliverables**

The data packages as submitted to MACTEC Engineering and Consulting, Inc. (MACTEC) are complete as stipulated in the Generic Quality Assurance Project Plan as submitted by CH2M Hill for United States Environmental Protection Agency (USEPA) Methods 8270C.

**Sample Integrity**

Samples within this SDG were submitted to Environmental Testing and Consulting, Inc. (ETC), in Memphis, Tennessee for semi-volatile organic compounds (SVOCs).

Based on the information provided on the cooler receipt forms, the field samples arrived at the laboratory intact and within the temperature guidance criteria. Completed chain-of-custody documents and cooler receipt forms are included in the data package.

**Sample Identification**

This SDG contains the following soil samples:

DSRA-0306-DS3-G-FL1A	DSRA-0306-DS3-G-WL6A	
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The samples were collected on March 7, 2006. These samples were recollected because matrix interferences caused low recovery of internal standards and surrogate standards in the initial SVOC analysis of confirmation samples DSRA-0306-DS3-WL6 and - FL1. Dilutions were performed on the samples to minimize matrix effects and internal standard recovery was acceptable; however, the acid surrogate recoveries were below acceptable QC limits. The SVOC analysis of the recollected samples, DSRA-0306-DS3-WL6A and - FL1A, was successful. Therefore, the SVOC data from the recollected samples were used for remedial decisions. An equipment blank (EB), DSRA-0306-EB-01 was analyzed to represent samples collected with non-dedicated equipment. This EB is associated with each sample in this SDG.

**SVOCs (8270C)**

All of the samples within this SDG were submitted for SVOC analysis on a 24hr TAT. Level II review was performed on the SVOC data and consisted of the review of holding times, method blanks, LCS, surrogate, and MS/MSD recoveries and RPDs, field duplicate precision, and rinsate blanks. Any failures among the method listed are discussed below. Calibration information was not reviewed.

**Holding Times**

The extraction and analytical logs indicate that applicable holding times were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C.

**Reporting Limits**

The RLs were met for samples submitted for the analysis of SVOCs by USEPA Method 8270C. Results were reported to the RL and evaluated down to the method detection limit (MDL). Flagging of results less than the RL but above the MDL was not necessary because SVOCs were not detected in either sample.

**Blank Summary**

The analytical results of the laboratory method blanks indicate that no SVOCs were detected.

**Surrogates**

The recoveries for the six method-specified surrogates 2,4,5-tribromophenol (S1), 2-fluorobiphenyl (S2), 2-fluorophenol (S3), nitrobenzene-d<sub>5</sub> (S4), phenol-d<sub>6</sub> (S5), and terphenyl-d<sub>14</sub> (S6) were within the acceptable QC limits.

**Laboratory Control Sample**

The LCS spike recoveries were within applicable QC advisory limits.

**Matrix Spike/Matrix Spike Duplicate**

The matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs for spiked sample DSRA-0306-DS3-G-FL1A were within the acceptable QC control limits.

**Sampling Accuracy**

The analytical results of the equipment blank DSRA-0306-EB-01, indicate that SVOCs were not present.

**Field Duplicate Samples**

No duplicate pairs were submitted for this SDG.

**Overall Site Evaluation and Professional Judgment Flagging Changes**

The data within this SDG were compared to site data and edits to the DQE flags were not required based on professional judgment. These samples were recollected because matrix interferences caused low recovery of internal standards and surrogate standards in the initial SVOC analysis of confirmation samples DSRA-0306-DS3-WL6 and - FL1. Dilutions were performed on the samples to minimize matrix effects and internal standard recovery was acceptable; however, the acid surrogate recoveries were below acceptable QC limits. The SVOC analysis of the recollected samples, DSRA-0306-DS3-WL6A and - FL1A, was successful. Therefore, the SVOC data from the recollected samples were used for remedial decisions.

Prepared by: JAH 4/10/2006

Checked by: WPB 4/11/06

**ESAT REVIEW 1**

May 26, 2006

Mr. Charlie Appleby  
United States Environmental Protection Agency  
Science and Ecosystem Division  
980 College Station Road  
Athens, GA 30605-2720

**Subject: Data Review and Validation**

Site Name: Dunn Field Disposal Sites, Defense Depot, Memphis, TN

Case: Dunn Field Disposal Sites Project No.: CA-0519

R4LIMS Nos. : NA

Inorganic Analysis: Environmental Testing & Consulting, Memphis, TN

Third Party Data Review: MACTEC Engineering & Consulting, Inc., Kennesaw, GA

Date(s) Sampled: March 2005 through February 2006

Date Received from Lab: 03/28/06

EWAD No. 04-0101-05

TDF No. 06-1259

Dear Mr. Appleby:

The ESAT Work Team has reviewed the above-captioned SPR data package consisting of a partial CLP-like data package for nine soil samples for the eight RCRA metals plus copper according to EPA guidelines. This package presents acceptable contractual and technical performance with qualifications. Further details are provided below and in the attached review summary form.

**General Comments**

ESAT was asked to comment on the third party review of this case, provided by MACTEC Engineering & Consulting, Inc., for the appropriateness of the flags and their evaluation of the QA/QC. The following comments were observed about the third party review of the data.

1. ESAT agrees with the blanks as reported by MACTEC, but they considered them contamination and applied the 5X rule to these blanks whereas ESAT considered all positives to be baseline instability and used lower reporting levels. Overall, this did not affect the results of the report or conclusions drawn by MACTEC.
2. The flagging for matrix duplicate relative percent differences are appropriate.
3. The flags assigned for matrix spike/matrix spike duplicate percent recoveries are also appropriate for the majority of the elements. ESAT however disagreed with the low spike recoveries for silver in two SDGs. The "J" flags were appropriate, but the non-detected results for these silver results should have been rejected and flagged "R".

Examination of blank samples revealed apparent low-level contamination with several elements listed in Table 1. Reported detection limits should be adjusted as high as five times blank levels to discount possible false positives due to contamination.

**ICP-AES EPA SW-846 6010B**

There were no deviations observed from the method in the sample analyses for the samples in all SDGs. All quality control/quality assurance measures were within control limits except as noted below.

Matrix spiked/matrix spiked duplicate recoveries were outside control limits for barium, copper, and lead in SDGs 0503672 and 0503694 and lead in SDGs 050549 and 050471. The spikes added for these samples were all less than four times the amount

measured in the samples. Therefore, the spike recoveries are not considered valid and no data qualifiers should be applied.

Matrix spike duplicate recoveries for arsenic, cadmium, and copper in SDG 050459 were 64, 135, and 233% respectively. All sample results and all positive cadmium and copper sample results in the above SDG should be considered estimated and flagged "J".

Matrix spike/matrix spiked duplicate recoveries for barium and selenium in SDG 0504549 were outside control limits. All positive sample results for barium and all sample results for selenium in the above SDG should be considered estimated and flagged "J".

Matrix spiked duplicate recoveries for arsenic, barium, and cadmium in SDG 0504571 were 73, 52, and 74% respectively. All sample results for arsenic, barium, and cadmium in the above SDG should be considered estimated and flagged "J".

Matrix spike/matrix spiked duplicate recoveries for selenium in SDG 0504571 were 51 and 71% respectively. All sample results for selenium in the above SDG should be considered estimated and flagged "J".

Matrix duplicate relative percent difference for barium and copper in SDG 0503892 was 29 and 48% respectively. All sample results for barium and copper in the above SDG should be considered estimated and flagged "J".

Matrix spiked sample recoveries for chromium, selenium, and silver in SDG 0503892 were 38, 71, and 52% respectively. All sample results for chromium, selenium, and silver in the above SDG should be considered estimated and flagged "J".

Matrix spiked sample recoveries for arsenic and lead in SDG 0603128 were 137 and 331% respectively. In addition, the matrix duplicate relative percent difference for lead was 42%. All positive arsenic and all lead sample results should be considered estimated and flagged "J".

Matrix spiked duplicate recoveries for cadmium and chromium in SDG 0503672 were 59 and 40% respectively. All sample results for cadmium and chromium in the above SDG should be considered estimated and flagged "J".

Matrix spike/matrix spiked duplicate recoveries for silver in SDG 0503672 were 21 and 19% respectively. All positive sample results for silver in the above SDG should be considered estimated and flagged "J". All non-detected sample results for silver in the above SDG should be considered unusable and flagged "R".

Matrix spike/matrix spiked duplicate recoveries for silver in SDG 0503672 were 21 and 19% respectively. All positive sample results for silver in the above SDG should be considered estimated and flagged "J". All non-detected sample results for silver in the above SDG should be considered unusable and flagged "R".

Matrix duplicate relative percent difference for copper in SDG 0503672 was 29%. All sample results for copper in the above SDG should be considered estimated and flagged "J".

Matrix duplicate relative percent difference for copper in SDG 0503694 was 29%. All sample results for copper in the above SDG should be considered estimated and flagged "J".

Matrix spiked sample recoveries for cadmium and chromium in SDG 0503694 were 59 and 40% respectively. All sample results for cadmium and chromium in the above SDG should be considered estimated and flagged "J".

Matrix spike/matrix spiked duplicate recoveries for silver in SDG 0503694 were 27 and 19% respectively. All positive sample results for silver in the above SDG should be considered estimated and flagged "J". All non-detected sample results for silver in the above SDG should be considered unusable and flagged "R".

#### **Mercury Analysis EPA SW-846 7471A**

Matrix spiked sample recovery for mercury in SDG 0504549 was 139%. All positive sample results for mercury in the above SDG should be considered estimated and flagged "J".

Matrix spiked sample recovery for mercury in SDG 0603128 was 126%. All positive sample results for mercury in the above SDG should be considered estimated and flagged "J".

Matrix spiked sample recovery for mercury in SDG 0503694 was 539%. All positive sample results for mercury in the above SDG should be considered estimated and flagged "J".

Further details are provided in the attached review summary form. Please feel free to contact this office if we can be of further service.

Very truly yours,

jhc

James H. Chandler III  
Sr. Inorganic Data Reviewer  
Integrated Laboratory Systems

Approved:

Stephen L. Pilcher  
Region IV ESAT Team Manager  
Integrated Laboratory Systems

May 26, 2006

Table 1. Comparison of blind and laboratory Blanks

Case : Dunn Field DisposalLaboratory: Environmental Testing & ConsultingMatrix: Soil

SDG 0503672

Element	Method Blank (mg/kg)	Cal. Blanks (ug/L)
Aluminum		
Antimony		
Arsenic		5.45
Barium		
Beryllium		
Cadmium		
Calcium		
Chromium		
Cobalt		
Copper		1.79
Iron		
Lead		7.13
Magnesium		
Manganese		
Mercury		
Nickel		
Potassium		
Selenium		
Silver		
Sodium		
Thallium		
Vanadium		
Zinc		



Table 1. Comparison of blind and laboratory Blanks (Continued)

May 26, 2006

Case : Dunn Field DisposalLaboratory: Environmental Testing & ConsultingMatrix: Soil

SDG 0503694

Element	Method Blank (mg/kg)	Cal. Blanks (ug/L)
Aluminum		
Antimony		
Arsenic		5.45
Barium		
Beryllium		
Cadmium		
Calcium		
Chromium		
Cobalt		
Copper		7.13
Iron		
Lead		
Magnesium		
Manganese		
Mercury		
Nickel		
Potassium		
Selenium		
Silver		
Sodium		
Thallium		
Vanadium		
Zinc		

Table 1. Comparison of blind and laboratory Blanks (Continued)

May 26, 2006

Case : Dunn Field DisposalLaboratory: Environmental Testing & ConsultingMatrix: Soil

SDG 0503892

Element	Method Blank (mg/kg)	Cal. Blanks (ug/L)
Aluminum		
Antimony		
Arsenic		
Barium		
Beryllium		
Cadmium		
Calcium		
Chromium		
Cobalt		
Copper	0.591	
Iron		
Lead		2.32
Magnesium		
Manganese		
Mercury		
Nickel		
Potassium		
Selenium		3.7
Silver		
Sodium		
Thallium		
Vanadium		
Zinc		

Table 1. Comparison of blind and laboratory Blanks (Continued)

May 26, 2006

Case : Dunn Field DisposalLaboratory: Environmental Testing & ConsultingMatrix: Soil

SDG 0603125

No positives were reported in the blanks

Element	Method Blank (mg/kg)	Cal. Blanks (ug/L)
Aluminum		
Antimony		
Arsenic		
Barium		
Beryllium		
Cadmium		
Calcium		
Chromium		
Cobalt		
Copper		
Iron		
Lead		
Magnesium		
Manganese		
Mercury		
Nickel		
Potassium		
Selenium		
Silver		
Sodium		
Thallium		
Vanadium		
Zinc		

Table 1. Comparison of blind and laboratory Blanks (Continued)

May 26, 2006

Case : Dunn Field DisposalLaboratory: Environmental Testing & ConsultingMatrix: Soil

SDG 0504446

No positives were reported in the blanks

Element	Method Blank (mg/kg)	Cal. Blanks (ug/L)
Aluminum		
Antimony		
Arsenic		
Barium		
Beryllium		
Cadmium		
Calcium		
Chromium		
Cobalt		
Copper		
Iron		
Lead		
Magnesium		
Manganese		
Mercury		
Nickel		
Potassium		
Selenium		
Silver		
Sodium		
Thallium		
Vanadium		
Zinc		

Table 1. Comparison of blind and laboratory Blanks (Continued)

May 26, 2006

Case : Dunn Field DisposalLaboratory: Environmental Testing & ConsultingMatrix: Soil

SDG 0504541

No positives were reported in the blanks

Element	Method Blank (mg/kg)	Cal. Blanks (ug/L)
Aluminum		
Antimony		
Arsenic		
Barium		
Beryllium		
Cadmium		
Calcium		
Chromium		
Cobalt		
Copper		
Iron		
Lead		
Magnesium		
Manganese		
Mercury		
Nickel		
Potassium		
Selenium		
Silver		
Sodium		
Thallium		
Vanadium		
Zinc		

Table 1. Comparison of blind and laboratory Blanks (Continued)

May 26, 2006

Case : Dunn Field DisposalLaboratory: Environmental Testing & ConsultingMatrix: Soil

SDG 0504571

No positives were reported in the blanks

Element	Method Blank (mg/kg)	Cal. Blanks (ug/L)
Aluminum		
Antimony		
Arsenic		
Barium		
Beryllium		
Cadmium		
Calcium		
Chromium		
Cobalt		
Copper		
Iron		
Lead		
Magnesium		
Manganese		
Mercury		
Nickel		
Potassium		
Selenium		
Silver		
Sodium		
Thallium		
Vanadium		
Zinc		

Table 1. Comparison of blind and laboratory Blanks (Continued)

May 26, 2006

Case : Dunn Field DisposalLaboratory: Environmental Testing & ConsultingMatrix: Soil

SDG 060382

No positives were reported in the blanks

Element	Method Blank (mg/kg)	Cal. Blanks (ug/L)
Aluminum		
Antimony		
Arsenic		
Barium		
Beryllium		
Cadmium		
Calcium		
Chromium		
Cobalt		
Copper		
Iron		
Lead		
Magnesium		
Manganese		
Mercury		
Nickel		
Potassium		
Selenium		
Silver		
Sodium		
Thallium		
Vanadium		
Zinc		

## Inorganic Data Quality Assessment Record (DQAR)

Review Date:	5/26/06	Analyses:	Total Metals	Matrix:	Soil	Project #:	CA-0519
SDG /Lab File:	0504571, 0504541, 0504446, 060312, 0503892, 0503694, 0503672, 0603082						
Laboratory :	Environmental Testing & Consulting, Memphis, TN						
Site Name:	Dunn Field Disposal Sites, Defense Depot, Memphis, TN						
Check One:	EPA		ESAT		CLP		Other (specify) Non-CLP

Signatures: jhc

Reviewer

Review Codes: M- Metals, H- Mercury, C- Cyanide, O- Others

## Sample Numbers:

DSRA-031905-DS10-WL3	DSRA-032005-DS13-G-FL2	DSRA-032505-DS10-FL3	DSRA-0306-S3FL-3
DSRA-041405-DS4.1-G-WL	DSRA041705-DS31-GFL6	DSRA041905-DS31-G-WL8	DSRA-0306-DS10A-G-FL1
DSRA-0306-DS10A-G-WL1			

## I. SUMMARY OF PROBLEMS AND COMMENTS:

A summary of deficiencies noted for the method used to generate data for this project is presented below. Please refer to the Data Quality Assessment Record (DQAR) for each data file and the data flag summary table at the end of this review document. For the purposes of this review, the QC limits specified in the analytical method have been applied to the data. Data qualifiers recommendations are made in accordance with the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic and Organic Data Review (Functional Guidelines), and the Region 4 SOP, Data Validation Standard Operating Procedures for Contract Laboratory Program Routine Analytical Services (R4DVSOP).

## Data Review Comments:

1. There were no deviations observed from the ICP-AES or mercury methods in the sample analyses for the samples in all SDGs. All quality control/quality assurance measures were within control limits except as noted below.
2. Matrix spiked/matrix spiked duplicate recoveries were outside control limits for barium, copper, and lead in SDGs 0503672 and 0503694 and lead in SDGs 050549 and 050471. The spikes added for these samples were all less than four times the amount measured in the samples. Therefore, the spike recoveries are not considered valid and no data qualifiers should be applied.
3. Matrix spike duplicate recoveries for arsenic, cadmium, and copper in SDG 050459 were 64, 135, and 233% respectively.



4. Matrix spike/matrix spiked duplicate recoveries for barium and selenium in SDG 0504549 were outside control limits.
5. Matrix spiked sample recovery for mercury in SDG 0504549 was 139%.
6. Matrix spiked duplicate recoveries for arsenic, barium, and cadmium in SDG 0504571 were 73, 52, and 74% respectively.
7. Matrix spike/matrix spiked duplicate recoveries for selenium in SDG 0504571 were 51 and 71% respectively.
8. Matrix duplicate relative percent difference for barium and copper in SDG 0503892 was 29 and 48 % respectively.
9. Matrix spiked sample recoveries for chromium, selenium, and silver in SDG 0503892 were 38, 71, and 52% respectively.
10. Matrix spiked sample recovery for mercury in SDG 0603128 was 126%.
11. Matrix spiked sample recoveries for arsenic and lead in SDG 0603128 were 137 and 331% respectively. In addition, the matrix duplicate relative percent difference for lead was 42%.
12. Matrix spiked duplicate recoveries for cadmium and chromium in SDG 0503672 were 59 and 40% respectively.
13. Matrix spike/matrix spiked duplicate recoveries for silver in SDG 0503672 were 21 and 19% respectively.
14. Matrix spiked sample recovery for mercury in SDG 0503694 was 539%.
15. Matrix duplicate relative percent difference for copper in SDG 0503694 was 29%.
16. Matrix spiked sample recoveries for cadmium and chromium in SDG 0503694 were 59 and 40% respectively.
17. Matrix spike/matrix spiked duplicate recoveries for silver in SDG 0503694 were 27 and 19% respectively.

II. Data Quality Assessment (An explanation for any "no" answer must be provided)				
1	Summary:	Yes	N/A	No
	Were all requested analyses performed?	MH		
	Were all required QC checks performed?	MH		
	Were all required documents present?	MH		
	Were requested detection limits met?	MH		
Remark:				
2	Holding Times:(Holding times are not applicable for non-aqueous samples)	Yes	N/A	No
	Were water samples properly preserved?		MH	
	Were water holding time requirements met?		MH	
Remark: There were no 40 CFR 136 mandated holding times since all samples were soils.				

3	Calibrations:		Yes	N/A	No
	A. Initial Calibration:				
	Were acceptable correlation coefficients obtained?		MH		
	Were acceptable % Recoveries for analytes obtained?		MH		
	B. Continuing Calibration :				
	Were acceptable % Recoveries for analytes obtained?		MH		
Remark:					
4	Blanks:		Yes	N/A	No
	Were any contaminants noted in the blanks?		M		H
	If yes, were blank rules applied to the data?		M	H	
Remark:					
5	ICP Interference Check Sample:		Yes	N/A	No
	Were results within 20% of the true value?		M		
	Were False positives Reported?				M
	Were False negatives reported?				M
Remark:					
6	Matrix spikes:		Yes	N/A	No
	Was a matrix spike analysis performed?		MH		
	Were matrix spike/matrix spike duplicate analyses performed?		MH		
	Were acceptable recoveries obtained?				MH
	Was acceptable precision obtained?		MH		
<p>Remark: MS/MSD recoveries were outside control limits for barium, copper, and lead in SDGs 0503672 and 0503694 and lead in SDGs 050549 and 050471. The spikes added for these samples were all less than four times the amount measured in the samples. Therefore, the spike recoveries are not considered valid and no data qualifiers should be applied.</p> <p>MS and MS/MSD recoveries as listed above were outside control limits.</p>					
7	Matrix duplicate:		Yes	N/A	No
	Was a matrix duplicate analysis performed?		MH		
	Was duplicate precision in control?		H		M

Remark: Matrix duplicate relative percent difference for barium and copper in SDG 0503892 was 29 and 48% respectively. Matrix duplicate relative percent difference for lead in SDG 0603128 was 42%. Matrix duplicate relative percent difference for copper in SDG 0503694 was 29%.					
8	Performance Evaluation Sample:		Yes	N/A	No
	Was a P.E. Sample analyzed with the samples?				MH
	If yes, were acceptable results obtained?			MH	
Remark:					
9	Method Standard / Laboratory Control Sample:		Yes	N/A	No
	Were acceptable recoveries obtained?		MH		
	Was acceptable precision obtained?		MH		
Remark:					
10	ICP Serial Dilution Sample:		Yes	N/A	No
	Was ICP serial dilution analysis performed?		M		
	Were diluted results within 10% of undiluted sample result?		M		
Remark:					
11	Compound Identification / Quantification:		Yes	N/A	No
	Was supporting documentation included?		MH		
	Were results of calculation checks acceptable?		MH		
Remark:					
12	Completeness:		Yes	N/A	No
	Were all requested analyses performed?		MH		
	Were all required documents present? If yes, were results provided?		MH		
Remark:					

## III. Data Qualifiers Summary

Based on a review of the quality control information, the following is a table summarizing the data qualifiers used by Region IV for this data review report.

Recommended Data Qualifiers					
Case :	Dunn Disposal Site	Project Number:	CA-0519	SAS Number	N/A
Site :	Dunn Field Disposal Sites, Defense Depot, Memphis, TN			Date:	5/26/06
Affected Samples	Analytes	Recommended Qualifiers		Reason	
All positives > MDL, but < MRQL in SDG 503694	As, Pb	U		Baseline instability in cal blanks	
All positives > MDL, but < MRQL in SDG 503892	Pb, Se	U		Baseline instability in cal blanks	
All positives > MDL, but < MRQL in SDG 503892	Cu	U		Baseline instability in method blank	
All positives > MDL, but < MRQL in SDG 503672	As, Cu, Pb	U		Baseline instability in cal blanks	
All in SDG 050459	As	J		MSD recovery = 64%	
All positives in SDG 050459	Cd	J		MSD recovery = 136%	
All positives in SDG 050459	Cu	J		MSD recovery = 233%	
All positives in SDG 050459	Hg	J		MS recovery = 139%	
All positives in SDG 050459	Ba	J		MS Recovery = 172% MSD Recovery = 450%	
All in SDG 050459	Se	J		MS recovery = 51% MSD recovery = 36%	
All in SDG 050454	As, Ba, Cd	J		MSD Recoveries 73, 52, & 74% respectively	
All in SDG 050454	Se	J		MS Recovery = 51% MSD recovery = 71%	
All in SDG 0503892	Ba, Cu	J		MD RPD = 29 and 48% Respectively	

Recommended Data Qualifiers					
Case :	Dunn Disposal Site	Project Number:	CA-0519	SAS Number	N/A
Site :	Dunn Field Disposal Sites, Defense Depot, Memphis, TN			Date:	5/26/06
Affected Samples	Analytes	Recommended Qualifiers		Reason	
All in SDG 0503892	Cr, Se, Ag	J		Matrix spiked sample recoveries were 38, 71, & 52% respectively	
All in SDG 0603125	Pb	J		MS recovery = 331% MD RPD = 42%	
All positives in SDG 0603125	As	J		MS recovery = 137%	
All positives in SDG 0603125	Hg	J		MS recovery = 126%	
All in SDG 0503672	Cu	J		Matrix duplicate RPD = 29%	
All in SDG 0503672	Cd	J		MSD recovery = 59%	
All in SDG 0503672	Cr	J		MSD Recovery = 40%	
All positives in SDG 0503672	Ag	J		MS recovery = 27% MSD Recovery = 19%	
All non-detects in SDG 0503672	Ag	R		MS recovery = 27% MSD Recovery = 19%	
All positives in SDG 0503694	Hg	J		MS recovery = 539%	
All in SDG 0503694	Cd	J		MSD recovery = 39%	
All in SDG 0503694	Cr	J		MSD Recovery = 40%	
All positives in SDG 0503694	Ag	J		MS Recovery = 27% MSD Recovery = 19%	
All non-detects in SDG 0503694	Ag	R		MS Recovery = 27% MSD Recovery = 19%	
All in SDG 0503694	Cu	J		Matrix duplicate RPD = 29%	

**ESAT REVIEW 2**

June 14, 2006

Mr. Charlie Appleby  
Environmental Protection Agency, Region 4  
Science and Ecosystem Division  
980 College Station Road  
Athens, GA 30605-2720

SUBJECT: Data Review and Validation  
Case No. N/A  
EPA Sample Nos.  
Sampling dates:  
Organic Analyses:  
Data for Site:

Project No. CA-0519  
ESAT TDF No. 06-1259  
See Table  
March 2005 through February 2006  
Environmental Testing and Consulting Inc. Memphis, TN  
Dunn Field Disposal Sites, Defense Depot, Memphis, TN

Dear Mr. Appleby:

The ESAT Work Team reviewed data for ten soil samples for semivolatiles. The samples were collected between March 2005 and February 2006, and were analyzed using USEPA SW846 method 8270C.

Please refer to the attached Data Quality Assessment Record for further details. If you have any questions, please contact this office.

Very Truly Yours

Approved:

Dr. Venkata R. Mudium, MS. PhD.  
Organic Data Reviewer  
Integrated Laboratory Systems

Stephen L. Pilcher  
Region 4 ESAT Team Manager  
Integrated Laboratory Systems

## Organic Data Quality Assessment Record (DQAR)

<b>Review Date:</b>	05/24/06	<b>Analyses:</b>	SW-846 Method 8270C	<b>Matrix:</b>	Soil	<b>Project #:</b>	CA-0519
<b>SDG /Lab File:</b>	NA						
<b>Laboratory :</b>	Environmental Testing and Consulting Inc, Memphis, TN						
<b>Site Name:</b>	Dunn Field Disposal Sites, Defense Depot, Memphis, TN						
<b>Check One:</b>	EPA		ESAT		CLP		Other (specify) Non-CLP

Signatures: Venkata R Mudium  
Reviewer

## Sample Numbers:

Semivolatiles (soil):	
DSRA-031905-DS10-WL3	DSRA-0306-DS3-G-FL3
DSRA-032005-DS13-G-FL2	DSRA-0306-DS3-G-FL1A
DSRA-032505-DS10-FL3	
DSRA-041405-DS4.1-G-WL7	
DSRA-041705-DS31-G-GL6	
DSRA-041805-DS31-G-FL3	
DSRA-041905-DS31-G-WL8	
DSRA-0306-DS10A-G-WL1	

## I. SUMMARY OF PROBLEMS AND COMMENTS:

*A summary of deficiencies noted for the method used to generate data for this project is presented below. Please refer to the Data Quality Assessment Record (DQAR) for each data file and the data flag summary table at the end of this review document. For the purposes of this review, the QC limits specified in the analytical method have been applied to the data. Data qualifiers recommendations are made in accordance with the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic and Organic Data Review (Functional Guidelines), and the Region 4 SOP, Data Validation Standard Operating Procedures for Contract Laboratory Program Routine Analytical Services (R4DVSOP).*

## Data Review Comments:

1. The laboratory did not submit the GC/MS chromatograms with this data package.
2. ESAT qualified (J) the analytical data based on the two factors: analyte detected below reported detection limit and low internal standard recovery. MACTEC qualified (J) data only on analyte detected below reported detection limit.



3. MACTEC did not qualify the analytical results of the parent sample based on MS/MSD low % recovery.

4. ESAT reviewer elevated reporting limit for the analytes which were reported below  $< 1/10$  of Method Quantitation Limit (MQL).

5. The laboratory complied with SW846 methods 8000B, 8270C requirements.

**II. Data Quality Assessment** (An explanation for any "no" answer must be provided)

<b>1</b>	<b>Summary:</b>	Yes	N/A	No
	Were all requested analyses performed?	X		
	Were all required QC checks performed?	X		
	Were all required documents present?			X
	Were requested detection limits met?	?		
<b>Remark:</b> Requested detection limits were unknown.				

<b>2</b>	<b>Holding Times:</b>	Yes	N/A	No
	VOA/BNA prepared within 14 days of sampling (7 days for VOA aromatics in non-preserved samples)?	X		
	PCDD/PCDF extracted within 30 days of sampling?		X	
	Extracts analyzed within 40 days of extraction?		X	
	Were all samples/extracts properly preserved?	X		
	<b>For TCLP:</b> Were RCRA TCLP holding times met?		X	
<b>Remark:</b>				

<b>3</b>	<b>GC/MS Tuning:</b>	Yes	N/A	No
	Were PFK/DFTPP/BFB criteria met?	X		
	<b>Pesticides:</b> Were standards run in proper sequence?		X	
	Combined DDT/Endrin Breakdown acceptable?		X	
	Retention time windows defined?		X	
<b>Remark:</b>				

4.	<b>Initial Calibration:</b>	<b>Yes</b>	<b>N/A</b>	<b>No</b>
	Were %RSDs acceptable?	X		
	Were RRFs acceptable?	X		
	Was S/N acceptable?		X	
	Were PCDD/PCDF ion ratios acceptable?		X	
<b>Remark:</b>				

5	<b>Continuing Calibration:</b>	<b>Yes</b>	<b>N/A</b>	<b>No</b>
	Were %RSDs acceptable?	X		
	Were RRFs acceptable?	X		
	Were PEST cont. calib. factors met?		X	
	Was PCDD/PCDF S/N acceptable		X	
	Were PCDD/PCDF ion ratios acceptable?		X	
<b>Remark:</b>				

6	<b>Spikes:</b>	<b>Yes</b>	<b>N/A</b>	<b>No</b>
	Was a method spike analysis performed?	X		
	Were matrix spike/m.s. duplicate analyses performed?	X		
	Were acceptable recoveries obtained?			X
	Was acceptable precision obtained?	X		
<b>Remark:</b> Low MS/MSD recoveries were reported for several compounds in samples: DSRA-0306-DS3-G-FL-3 and DSRA-0306-DS3-G-FL1A. The affected compound results were "J" qualified in the native samples (see attachment).				

7	Blanks:	Yes	N/A	No
	Were blank analyses performed?	X		
	Were any contaminants noted?			X
	If yes, were blank rules applied to the data?		X	
<b>Remark:</b> Low Internal Standard area counts were reported in two method blanks: 4435LB and 9086LB. Data qualification was not performed based on this issue.				

8	Performance Evaluation Sample:	Yes	N/A	No
	Was a P.E. Sample analyzed with the samples?			X
	If yes, were acceptable results obtained?		X	
<b>Remark:</b> Laboratory was not submitted a PE Sample.				

9	Internal Standard / PCDD/PCDF Recovery Standards:	Yes	N/A	No
	Were peak areas acceptable?			X
<b>Remark:</b> Low Internal Standard area counts were reported in two samples: DSRA-032505-DS10-FL3 and DSRA-041905-DS31-G-WL8. All results were "J" qualified for the compounds associated with these Internal Standards in the affected samples.				

10	Surrogates / PCDD/PCDF Internal Standards:	Yes	N/A	No
	Were peak areas acceptable?	X		
<b>Remark:</b>				

11	Compound Identification / Quantification:	Yes	N/A	No
	Were all positive results confirmed?			X
	Was supporting documentation included?			X
	Was a check of the calculations performed?			X
	If yes, were results acceptable?		X	
	PCDD/PCDF ion ratios acceptable?		X	

	<b>Remark:</b> The reviewer was not able to check the calculations and confirm the laboratory results due to lack of raw GC/MS data.
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12	<b>Tentatively Identified Compounds?:</b>	<b>Yes</b>	<b>N/A</b>	<b>No</b>
	Were TICs requested for these analyses?		X	
	If yes, were results provided?	?		
	<b>Remark:</b> The laboratory reported the TIC results for the samples which were detected and the results were not reviewed due to lack of raw data.			

### III. Data Qualifiers Summary

Based on a review of the quality control information, the following is a table summarizing the data qualifiers used by Region IV for this data review report.

Recommended Data Qualifiers					
Case :	NA	Project Number:	CA-0519	SAS Number	N/A
Site :	Dunn Field Disposal Sites, Defense Depot, Memphis, TN			Date:	06/14/06
<u>Affected Samples</u>	<u>Analytes</u>		<u>ESAT</u>	<u>MACTEC</u>	<u>Reason</u>
DSRA-031905-DS10-WL3	benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, pyrene		J	J	< quantitation limit
DSRA-032505-DS10-FL3	acenaphthene, acenaphthylene, bis(2-chloroethyl)ether, bis(2-chloroethoxy)methane, bis(2-chloroisopropyl)ether, bis(2-ethylhexyl)phthalate, butylbenzylphthalate, 4-chloroaniline, 4-chloro-3-methylphenol, 2-chloronaphthalene, 2-chlorophenol, 4-chlorophenylphenylether, dibenzofuran, 3,3'-dichlorobenzidine, 2,4-dichlorophenol, diethylphthalate, 2,4-dimethylphenol, dimethylphthalate, 2,4-dinitrophenol, 2,4-dinitrotoluene, 2,6-dinitrotoluene, di-n-octylphthalate, fluorine, hexachlorobutadiene, hexachlorocyclopentadiene, hexachloroethane, isophorone, 2-methylnaphthalene, 2-methylphenol, 3 and 4-methyl phenol, naphthalene, 2-nitronailine, 3-nitroaniline, 4-nitroaniline, nitrobenzene, 2-nitrophenol, 4-nitrophenol, N-nitrosodi-n-propylamine, phenol, 2,4,5-trichlorophenol, 2,4,6-trichlorophenol		J	N/A	low ISTD % recovery

Recommended Data Qualifiers					
Case :	NA	Project Number:	CA-0519	SAS Number	N/A
Site .	Dunn Field Disposal Sites, Defense Depot, Memphis, TN			Date:	06/14/06
<u>Affected Samples</u>	<u>Analytes</u>	<u>ESAT</u>	<u>MACTEC</u>	<u>Reason</u>	
DSRA-032505-DS10-FL3 (contd)	benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, pyrene	J	N/A	< quantitation limit and low ISTD % recovery	
DSRA-041705-DS31-G-FL6	benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, hexachlorobenzene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene	J	J	< quantitation limit	
DSRA-041805-DS31-G-FL3	Acenaphthene, anthracene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, fluorene, indeno(1,2,3-cd)pyrene,	J	J	< quantitation limit	
DSRA-041905-DS31-G-WL8	benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, indeno(1,2,3-cd)pyrene, pyrene	J	N/A	< quantitation limit and low ISTD % recovery	
	bis(2-ethylhexyl)phthalate, butylbenzylphthalate, dibenz(a,h)anthracene, 3,3'-dichlorobenzidine, di-n-octylphthalate	J	N/A	low ISTD % recovery	
	fluoranthene	J	J	< quantitation limit	
DSRA-0306-DS3-G-FL3	acenaphthene, 2-chloronaphthalene, isophorone	J	N/A	low MS % recovery	

Recommended Data Qualifiers					
Case :	NA	Project Number:	CA-0519	SAS Number	N/A
Site .	Dunn Field Disposal Sites, Defense Depot, Memphis, TN			Date:	06/14/06
<u>Affected Samples</u>	<u>Analytes</u>		<u>ESAT</u>	<u>MACTEC</u>	<u>Reason</u>
DSRA-0306-DS3-G-FL1A	acenaphthene, 2-chloronaphthalene, isophorone, naphthalene		J	N/A	low MSD % recovery



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**ADMINISTRATIVE RECORD**

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