

# STL

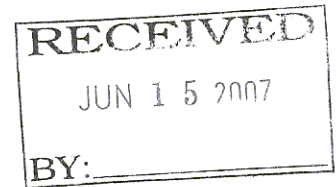
STL Denver  
4955 Yarrow Street  
Arvada, CO 80002

Tel: 303 736 0100 Fax: 303 431 7171  
www.stl-inc.com

## ANALYTICAL REPORT

SSFL / Boeing Group 8

Lot D7E170358



Lisa Tucker  
MWH Americas  
9444 Farnham Street, Suite 300  
San Diego, CA 92123

Severn Trent Laboratories, Inc. / STL Denver

A handwritten signature in cursive script that reads "Michael P. Phillips".

Michael P. Phillips  
Project Manager

June 14, 2007

## Case Narrative

Enclosed is the report for one sample received at STL Denver on May 17, 2007. The results included in this report have been reviewed for compliance with STL's Laboratory Quality Manual. The test results shown in this report meet all requirements of NELAC and any exceptions are noted below.

This report may include reporting limits (RLs) less than STL Denver's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

Dilution factors and footnotes have been provided to assist in the interpretation of the results. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at concentrations above the linear calibration curve, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

STL utilizes USEPA approved methods in all analytical work. The sample presented in this report was analyzed for the parameters listed on the analytical methods summary page in accordance with the methods indicated. A summary of quality control parameters is provided below.

This report shall not be reproduced except in full, without the written approval of the laboratory.

## Quality Control Summary for Lot D7E170358

### Sample Receiving

The cooler temperature for the samples received on May 17, 2007 at the Denver laboratory was 4.2°C.

All sample containers were received in acceptable condition.

### GC/MS Volatile Organics – SW846 8260B

No MS/MSD was analyzed for QC batch 7142157; however, a LCS/LCSD was performed to demonstrate method precision and accuracy.

No other anomalies were encountered.

### GC/MS Semivolatile Organics – SW846 8270C-SIM

Eight target compounds were found in the method blank associated with QC batch 7141110. However, because the concentrations in the method blank were not present at levels greater than the reporting limits, corrective action was deemed unnecessary.

The LCS associated with QC batch 7141110 exhibited a percent recovery outside the QC control limits for 1,4-Dioxane, biased low. This is an indicator that data may be biased low. However, since 1,4-Dioxane is not a target analyte for this project, no corrective action was deemed necessary.

D7E170358

The MS/MSD associated with QC batch 7141110 was performed using sample L0BS0012S01SP and exhibited percent recoveries and/or RPDs outside the QC control limits for seven compounds. The lab noted that there was matrix interference present for the sample. Also, 1,4-Dioxane is not a target analyte for this project. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action was deemed unnecessary.

No other anomalies were encountered.

**TPH – SW846 8015B**

No anomalies were encountered.

**PCBs – SW846 8082**

No anomalies were encountered.

**Total Metals – SW846 6010B/6020/7471A**

The serial dilutions performed using sample L0BS0012S01SP in QC batches 7142590 and 7142591 indicate that physical and chemical interferences are present for Aluminum, Arsenic, Chromium, Cobalt, Copper, Nickel, Vanadium, and Zinc. Results in the analytical report have been flagged with an "L".

Low levels of Chromium and Zinc were present in the method blank associated with QC batch 7142590. Because the concentrations in the method blank were not present at levels greater than the reporting limits, corrective action was deemed unnecessary.

Lead was detected in the method blank associated with QC batch 7142590 at a level above the project established reporting limit. However, because the associated sample contained Lead at a concentration greater than 10X the level found in the method blank, no corrective action was required.

The MS/MSD performed using sample L0BS0012S01SP for QC batch 7142591 exhibited a percent recovery outside the QC control limits for Sodium. In addition, percent recoveries and RPD data could not be calculated for Aluminum due to the sample concentration reading greater than four times the spike amount. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action was deemed unnecessary.

The MS/MSD performed using sample L0BS0012S01SP for QC batch 7142590 exhibited a percent recovery outside the QC control limits for Antimony, Arsenic, Cadmium, Cobalt, Copper, Lead, Molybdenum, Nickel, Selenium, Silver, and Thallium. In addition, percent recoveries and RPD data could not be calculated for Barium, Chromium, Vanadium, and Zinc due to the sample concentrations reading greater than four times the spike amounts. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action was deemed unnecessary.

The MS/MSD performed using sample L0BS0012S01SP for QC batch 7141529 exhibited a percent recovery and RPD outside the QC control limits for Mercury. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action was deemed unnecessary.

D7E170358

The Post Digestion Spike (PDS) performed on sample L0BS0012S01SP exhibited a percent recovery outside the QC control limits for Barium, Chromium, Copper, Nickel, Vanadium, and Zinc. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action was deemed unnecessary.

No other anomalies were encountered.

**Fluoride – SW846 9056**

The MS/MSD performed using a sample from another client and/or lot for QC batch 7144342 exhibited a percent recovery outside the QC control limits. The acceptable LCS and method blank data indicated that the analytical system was operating within control; therefore, corrective action was deemed unnecessary.

No other anomalies were encountered.

**Total Solids – EPA 160.3**

No anomalies were encountered.



# METHODS SUMMARY

D7E170358

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Extractable Petroleum Hydrocarbons	SW846 8015B	
Fluoride	SW846 9056	SW846 9056
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3050B
ICP-MS (6020)	SW846 6020	SW846 3050B
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A	SW846 7471A
PCBs by SW-846 8082	SW846 8082	SW846 3550B/366
Semivolatile Organic Compounds by GC/MS SIM	SW846 8270C-SIM	SW846 3550B
Total Residue as Percent Solids	MCAWW 160.3 MOD	MCAWW 160.3 MOD
Volatile Organics by GC/MS	SW846 8260B	SW846 5035

## References:

- MCAWW "Methods for Chemical Analysis of Water and Wastes",  
EPA-600/4-79-020, March 1983 and subsequent revisions.
- SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical  
Methods", Third Edition, November 1986 and its updates.

# METHOD / ANALYST SUMMARY

D7E170358

<u>ANALYTICAL METHOD</u>	<u>ANALYST</u>	<u>ANALYST ID</u>
MCAWW 160.3 MOD	Kevin Bloom	006134
SW846 6010B	Lynn-Anne Trudell	006645
SW846 6020	Thomas Lill	006929
SW846 7471A	David Wells	5099
SW846 8015B	Heather Dybas	038161
SW846 8082	Teresa L. Williams	002510
SW846 8260B	Dan Appelhans	001008
SW846 8270C-SIM	Steve Jetter	011748
SW846 9056	Grant Henshaw	004878

## References:

MCAWW "Methods for Chemical Analysis of Water and Wastes",  
EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical  
Methods", Third Edition, November 1986 and its updates.

# SAMPLE SUMMARY

D7E170358

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT SAMPLE ID</u>	<u>SAMPLED DATE</u>	<u>SAMP TIME</u>
JW7D7	001	L0BS0012S01SP	05/15/07	12:30

**NOTE (S) :**

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

# QC DATA ASSOCIATION SUMMARY

D7E170358

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	SO	SW846 9056		7144342	7144213
	SO	SW846 8270C-SIM		7141110	7141063
	SO	SW846 8015B		7138134	7138095
	SO	SW846 6020		7142590	7142326
	SO	SW846 7471A		7141529	7141331
	SO	SW846 8082		7138114	7138081
	SO	SW846 8260B		7142157	
	SO	SW846 6010B		7142591	7142327
	SO	MCAWW 160.3 MOD		7141589	7145113

STL Denver  
Sample Receiving Checklist

Lot # D7E170 358

Login Checks:

Initials

N/A Yes No

LA

- 18. Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DEN-QA-0003) If no, document on CUR, and contact PM before proceeding.
- 19. Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and contact PM before proceeding.
- 20. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?
- 21. Were special log in instructions read and followed?
- 22. Were AFCEE metals logged for refrigerated storage?
- 23. Were tests logged checked against the COC? Which samples were confirmed? 1
- 24. Was a Rush form completed for quick TAT?
- 25. Was a Short Hold form completed for any short holds?
- 26. Were special archiving instructions indicated in the General Comments? If so, what were they?

S nowt

Labeling and Storage Checks:

Initials

AB

- 28. Was the subcontract COC signed and sent with samples to bottle prep?
- 29. Were sample labels double-checked by a second person?
- 30. Were sample bottles and COC double checked for dissolved/filtered metals by a second person?
- 31. Did the sample ID, Date, and Time from label match what was logged?
- 32. Were stickers for special archiving instructions affixed to each box and to the ICOC? See #27
- 33. Were AFCEE metals stored refrigerated?

Document any problems or discrepancies and the actions taken to resolve them on a Condition Upon Receipt Anomaly Report (CUR).





## CHAIN OF CUSTODY RECORD

COC #:

MWH SV20070515\_03  
Page: 1 of 1

QAB 5/17/07 IRI

Customer Information		Project Information			Project Information					Instructions/TAT														
Site:	SSFL	Client Name:	DOE	Collector:	Shelby Valenzuela	Boeing PM:																		
Company:	MWH	Sampling Event:	Group 8 Hastings Data Gaps-Sc	Contact #:																				
Report to:	Lisa Tucker	Project Number:	1891307-B009	Requested Analyses																				
Address:	9444 Farham Street	Project Manager:	Diana Buchanan									Legend: Numerical values for analyses equate to turn around time in days H - Hold EH - Extract Hold												
	Suite 300	PM Phone #:	(626) 568-6897																					
	San Diego	Field Contact:																						
	CA	Field Contact #:																						
	92123	Lab Name:	STL-Denver																					
Email:	lisa.tucker@mwhglobal.com	Lab Contact:	Michael Phillips																					
	boeingedms@ch2m.com	Lab Address:	4955 Yarrow Arvada, CO 80002																					
		Lab Phone:	(303) 738-0100																					
Sample Name	Matrix	Date	Time	No. of Containers								Comments												
LOBSD012SD1SP	Soil	5/15/2007	12:30	6	% Solids - Soil	5	Fluoride by 300 - Soil	5	Metals 6010B/6020 Soil Group 8	5	Metals 7471A Soil Mercury	5	PCB by SW8082 - Soil	5	SVOCs by SW8270C SIM - Soil	5	TPH 8015B Soil Terphenyls	5	TPH by SW8015BM - Soil	5	VOC by SW8260B - Soil	5		

Cancel  
MPP  
5/17/07

1. Relinquished by:		Date:	5/15/2007	2. Received by:		Date:	5/13/07	3. Relinquished by:		Date:		4. Received by:		Date:	
Company: MWH		Time:	10:30	Company: STL		Time:	6:50	Company:		Time:		Company:		Time:	
Comments: Geotracker EDF <input type="checkbox"/> Data Validation Package <input checked="" type="checkbox"/> Level IV															

# **Case Narrative**

**Case Narrative  
for  
Boeing - Santa Susanna Field Laboratory  
Work Order: 186245 and 186246  
SDG: 186245S and 186245W**

May 22, 2007

**Laboratory Identification:**

GEL Laboratories LLC  
2040 Savage Road  
Charleston, South Carolina 29407  
(843) 556-8171

**Summary:**

**Sample Receipt**

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 17, 2007 for analysis.

The laboratory received the following samples:

<b>Laboratory Identification</b>	<b>Sample Description</b>
186245001	LOBS0014S01
186245002	LOBS0014S02
186245003	LOBS0015S02
186245004	LOBS0017S01
186245005	LOBS0017S02
186245006	LOBS0011D01
186245007	LOBS0011S01
186245008	LOBS0010S01
186246001	LQW0004E01
186246002	LQW0004T02

**Items of Note**

Boeing - Santa Susanna Field Laboratory Technical Representative was contacted seeking resolution to any analytical and/or receipt issues. Please see the enclosed e-mails.

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package:**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: FID Flame Ionization Detector, General Chemistry, Metals, PCB, Radiochemistry, Semi-Volatile and Volatile.

I certify that this data package is in compliance with the terms and conditions of the subcontract and task order, both technically and for the completeness, for other than the conditions detailed in the attached case narratives.



Martha Harrison

Project Manager

**Subject:** Re: SSFL Group 8 hastings, 186245 Sample Receipt  
**From:** Martha Harrison <Martha.Harrison@gel.com>  
**Date:** Fri, 18 May 2007 16:10:50 -0400  
**To:** lisa.j.tucker@us.mwhglobal.com  
**CC:** Benjamin Finley <Benjamin.Finley@gel.com>, Elizabeth Wessling <elizabeth.wessling@mecx.net>, kim.schultz@mecx.net, Sarah E VonRaesfeld <Sarah.E.VonRaesfeld@us.mwhglobal.com>, boeingdms@ch2m.com, Nancy Mattern <nan00774@gel.com>, Christy keenan <christy.keenan@gel.com>

Lisa,

Just a reminder, the issue with sample ID L0BS0010S01 is still pending. I've logged the sample with the COC ID.

Thanks!  
Martha

~~~~~  
Martha Harrison  
Federal Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC 29407  
(843) 769-7376 x4475  
(843) 769-7384 Direct Line  
(843) 766-1178 Fax  
Martha.Harrison@gel.com

Benjamin Finley wrote:

Elizabeth,

For sample L0BS0010S01 the sample container reads L0BS0110S01 and chain of custody MWHSV20070516\_02 indicates L0BS0010S01. Which client sample ID is correct?

Also, sample L0QW0004T02 had one 40 mL vial broken within the shipping container. There was no sample left in this container to analysis.

Thanks,  
Ben Finley





# SAMPLE RECEIPT & REVIEW FORM

PM use only

|                                |                                                                           |
|--------------------------------|---------------------------------------------------------------------------|
| Client: <u>SSFL</u>            | SDG/ARCOC/Work Order: <u>186246</u>                                       |
| Date Received: <u>5/17/07</u>  | PM(A) Review (ensure non-conforming items are resolved prior to signing): |
| Received By: <u>Ben Finley</u> | <u>MJK</u>                                                                |

| Sample Receipt Criteria                                                               | Yes                                 | NA | No                                  | Comments/Qualifiers (Required for Non-Conforming Items)                                                                            |
|---------------------------------------------------------------------------------------|-------------------------------------|----|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| 1 Shipping containers received intact and sealed?                                     | <input checked="" type="checkbox"/> |    |                                     | Circle Applicable: seals broken damaged container leaking container other (describe)                                               |
| 2 Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method. | <input checked="" type="checkbox"/> |    |                                     | Circle Coolant # <u>ice bags</u> blue ice dry ice none other describe<br><u>3c</u>                                                 |
| 3 Chain of custody documents included with shipment?                                  | <input checked="" type="checkbox"/> |    |                                     |                                                                                                                                    |
| 4 Sample containers intact and sealed?                                                |                                     |    | <input checked="" type="checkbox"/> | Circle Applicable: seals broken damaged container leaking container other (describe)<br><u>40ml vial (BLQW0019T01) 1 container</u> |
| 5 Samples requiring chemical preservation at proper pH?                               | <input checked="" type="checkbox"/> |    |                                     | Sample ID's, containers affected and observed pH:                                                                                  |
| 6 VOA vials free of headspace (defined as < 6mm bubble)?                              | <input checked="" type="checkbox"/> |    |                                     | Sample ID's and containers affected:                                                                                               |
| 7 Are Encore containers present? (If yes, immediately deliver to VOA laboratory)      |                                     |    | <input checked="" type="checkbox"/> |                                                                                                                                    |
| 8 Samples received within holding time?                                               | <input checked="" type="checkbox"/> |    |                                     | Id's and tests affected:                                                                                                           |
| 9 Sample ID's on COC match ID's on bottles?                                           | <input checked="" type="checkbox"/> |    |                                     | Sample ID's and containers affected:                                                                                               |
| 10 Date & time on COC match date & time on bottles?                                   | <input checked="" type="checkbox"/> |    |                                     | Sample ID's affected:                                                                                                              |
| 11 Number of containers received match number indicated on COC?                       | <input checked="" type="checkbox"/> |    |                                     | Sample ID's affected:                                                                                                              |
| 12 COC form is properly signed in relinquished/received sections?                     | <input checked="" type="checkbox"/> |    |                                     | <u>COC# MNH-SV20070516-02</u><br><u>MNH-SV20070516-00</u>                                                                          |
| 14 Air Bill ,Tracking #'s, & Additional Comments                                      |                                     |    |                                     | <u>Fed Ex #s 8612 6056 8369 - 3c</u><br><u>LOQW0004E01/BLQW0019T01 - containers - water</u>                                        |

| Suspected Hazard Information                                                       | Non-Regulated                       | Regulated | High Level | RSO RAD Receipt #<br>*If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation. |
|------------------------------------------------------------------------------------|-------------------------------------|-----------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A Radiological Classification?                                                     | <input checked="" type="checkbox"/> |           |            | Maximum Counts Observed*: <u>CPM 40</u>                                                                                                                                           |
| B PCB Regulated?                                                                   | <input checked="" type="checkbox"/> |           |            |                                                                                                                                                                                   |
| C Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager. | <input checked="" type="checkbox"/> |           |            | Hazard Class Shipped:<br>UN#:                                                                                                                                                     |
| D Regulated as a Foreign Soil?                                                     | <input checked="" type="checkbox"/> |           |            |                                                                                                                                                                                   |

PM (or PMA) review of Hazard classification: MJK Initials 05/17/07 Date:

# **Data Qualifiers Definitions**

## Data Review Qualifier Definitions

| Qualifier | Explanation                                                                                                                                                                                           |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| *         | A quality control analyte recovery is outside of specified acceptance criteria                                                                                                                        |
| **        | Analyte is a surrogate compound                                                                                                                                                                       |
| <         | Result is less than value reported                                                                                                                                                                    |
| >         | Result is greater than value reported                                                                                                                                                                 |
| ^         | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL                                                                                                                      |
| A         | The TIC is a suspected aldol-condensation product                                                                                                                                                     |
| B         | Target analyte was detected in the associated blank                                                                                                                                                   |
| B         | Metals-Either presence of analyte detected in the associated blank, or<br>MDL/IDL < sample value < PQL                                                                                                |
| BD        | Results are either below the MDC or tracer recovery is low                                                                                                                                            |
| C         | Analyte has been confirmed by GC/MS analysis                                                                                                                                                          |
| D         | Results are reported from a diluted aliquot of the sample                                                                                                                                             |
| d         | 5-day BOD-The 2:1 depletion requirement was not met for this sample                                                                                                                                   |
| E         | Organics-Concentration of the target analyte exceeds the instrument calibration range                                                                                                                 |
| E         | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria                                                                                                         |
| H         | Analytical holding time was exceeded                                                                                                                                                                  |
| h         | Preparation or preservation holding time was exceeded                                                                                                                                                 |
| J         | Value is estimated                                                                                                                                                                                    |
| N         | Metals-The Matrix spike sample recovery is not within specified control limits                                                                                                                        |
| N         | Organics-Presumptive evidence based on mass spectral library search to make a tentative<br>identification of the analyte (TIC). Quantitation is based on nearest internal standard<br>response factor |
| N/A       | Spike recovery limits do not apply. Sample concentration exceeds spike concentration<br>by 4X or more                                                                                                 |
| ND        | Analyte concentration is not detected above the reporting limit                                                                                                                                       |
| UI        | Gamma Spectroscopy-Uncertain identification                                                                                                                                                           |
| X         | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier                                                                                                            |
| Y         | QC Samples were not spiked with this compound                                                                                                                                                         |
| Z         | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.                                                                                                      |

# **Laboratory Certifications**

**List of current GEL Certifications as of 22 May 2007**

| <b>State</b>              | <b>Certification</b>       |
|---------------------------|----------------------------|
| Alaska                    | UST-062                    |
| Arizona                   | AZ0668                     |
| Arkansas                  | 88-0651                    |
| CLIA                      | 42D0904046                 |
| California                | 01151CA                    |
| Colorado                  | GenEngLabs                 |
| Connecticut               | PH-0169                    |
| Dept. of Navy             | NFESC 413                  |
| EPA                       | WG-15J                     |
| Florida/NELAP             | E87156                     |
| Georgia                   | E87156 (FL/NELAP)          |
| Hawaii                    | N/A                        |
| Idaho                     | N/A                        |
| Illinois                  | 200029                     |
| Indiana                   | C-SC-01                    |
| Kansas                    | E-10332                    |
| Kentucky                  | 90129                      |
| Louisiana                 | 03046                      |
| Maryland                  | 270                        |
| Massachusetts             | M-SC012                    |
| Michigan                  | 9903                       |
| Nevada                    | SC12                       |
| New Jersey                | SC002                      |
| New Mexico                | FL NELAP E87156            |
| New York                  | 11501                      |
| North Carolina            | 233                        |
| North Carolina Drinking W | 45709                      |
| North Dakota              | R-158                      |
| Oklahoma                  | 9904                       |
| Pennsylvania              | 68-00485                   |
| South Carolina            | 10120001/10585001/10120002 |
| Tennessee                 | 02934                      |
| Texas NELAP               | T104704235-06-TX           |
| U.S. Dept. of Agriculture | S-52597                    |
| US Army Corps of Engineer | N/A                        |
| Utah                      | 8037697376 GEL             |
| Vermont                   | VT87156                    |
| Virginia                  | 00151                      |
| Washington                | C1641                      |



# **Chain of Custody and Supporting Documentation**

184242



**CHAIN OF CUSTODY RECORD**

COC # MWH/SV20070516\_02  
Page: 1 of 1

| Customer Information |                                                              |                  |                                                | Project Information |                                 |                  |          |
|----------------------|--------------------------------------------------------------|------------------|------------------------------------------------|---------------------|---------------------------------|------------------|----------|
| Site                 | SFL                                                          | Client Name      | DOE                                            | Collector           | Boeing PM                       |                  |          |
| Company:             | MWH                                                          | Sampling Event   | Group 8 Hastings Data Gaps-S                   | Contact #:          |                                 |                  |          |
| Report to:           | Lisa Tucker                                                  | Project Number:  | 1891307                                        |                     |                                 |                  |          |
| Address:             | 9444 Farmham Street<br>Suite 300<br>San Diego<br>CA<br>92123 | Project Manager: | Diana Buchanan<br>(626) 568-6887               |                     |                                 |                  |          |
|                      |                                                              | Field Contact:   |                                                |                     |                                 |                  |          |
|                      |                                                              | Field Contact #: |                                                |                     |                                 |                  |          |
|                      |                                                              | Lab Name:        | GEL Laboratories, LLC                          |                     |                                 |                  |          |
|                      |                                                              | Lab Contact:     | Martha Harrison                                |                     |                                 |                  |          |
|                      |                                                              | Lab Address:     | 2040 Savage Road<br>Charleston, SC 29407       |                     |                                 |                  |          |
|                      |                                                              | Lab Phone:       | (843) 566-6171                                 |                     |                                 |                  |          |
|                      |                                                              | Email:           | lisa.tucker@mwhglobal.com<br>boeingdms@n2m.com |                     |                                 |                  |          |
| Sample Name          | Matrix                                                       | Date             | Time                                           | No. of Containers   | Requester/Analyses              | Instructions/PAT | Comments |
| LBS0014S01           | Soil                                                         | 5/16/2007        | 7:37                                           | 4                   |                                 |                  |          |
| LBS0014S02           | Soil                                                         | 5/16/2007        | 8:21                                           | 4                   |                                 |                  |          |
| LBS0015S02           | Soil                                                         | 5/16/2007        | 8:39                                           | 4                   |                                 |                  |          |
| LBS0017S01           | Soil                                                         | 5/18/2007        | 9:12                                           | 6                   |                                 |                  |          |
| LBS0017S02           | Soil                                                         | 5/18/2007        | 9:18                                           | 6                   |                                 |                  |          |
| LBS0011D01           | Soil                                                         | 5/18/2007        | 10:31                                          | 1                   |                                 |                  |          |
| LBS0011S01           | Soil                                                         | 5/18/2007        | 10:31                                          | 1                   |                                 |                  |          |
| LOGW0004ED1          | Water                                                        | 5/18/2007        | 12:19                                          | 15                  |                                 |                  |          |
| LBS0010S01           | Soil                                                         | 5/18/2007        | 12:45                                          | 1                   |                                 |                  |          |
| LOGW0004T02          | Water                                                        | 5/18/2007        | 15:00                                          | 3                   |                                 |                  |          |
|                      |                                                              |                  |                                                |                     | % Solids - Soil                 |                  |          |
|                      |                                                              |                  |                                                |                     | Fluoride by 300 - Soil          |                  |          |
|                      |                                                              |                  |                                                |                     | Fluoride by 300 - Water         |                  |          |
|                      |                                                              |                  |                                                |                     | Metals 6010B Water Boron        |                  |          |
|                      |                                                              |                  |                                                |                     | Metals 6010B Soil Boron         |                  |          |
|                      |                                                              |                  |                                                |                     | Metals 6010B/6020 Water Group 8 |                  |          |
|                      |                                                              |                  |                                                |                     | Metals 6010B/6020 Soil Group 8  |                  |          |
|                      |                                                              |                  |                                                |                     | Metals 7470A Water Mercury      |                  |          |
|                      |                                                              |                  |                                                |                     | Metals 7471A Soil Mercury       |                  |          |
|                      |                                                              |                  |                                                |                     | PCB by SW8082 - Soil            |                  |          |
|                      |                                                              |                  |                                                |                     | PCB by SW8082 - Water           |                  |          |
|                      |                                                              |                  |                                                |                     | SVOCs by SW8270C SIM - Water    |                  |          |
|                      |                                                              |                  |                                                |                     | SVOCs by SW8270C SIM - Soil     |                  |          |
|                      |                                                              |                  |                                                |                     | TPH 8015B Soil Terphenyls       |                  |          |
|                      |                                                              |                  |                                                |                     | TPH 8015B Water Terphenyls      |                  |          |
|                      |                                                              |                  |                                                |                     | TPH by SW8015BM - Soil          |                  |          |
|                      |                                                              |                  |                                                |                     | TPH by SW8015BM - Water         |                  |          |
|                      |                                                              |                  |                                                |                     | VOC by SW8260B - Soil           |                  |          |
|                      |                                                              |                  |                                                |                     | VOC by SW8260B - Water          |                  |          |

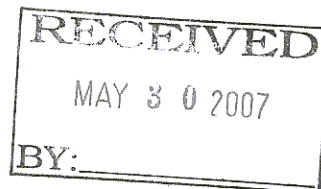
|                     |          |       |           |                 |         |       |         |
|---------------------|----------|-------|-----------|-----------------|---------|-------|---------|
| 1. Relinquished by: | CA Soria | Date: | 5/16/2007 | 2. Received by: | Bentley | Date: | 5/17/07 |
| Company:            | MWH      | Time: | 7:00      | Company:        | GEL     | Time: | 9:30    |
| 3. Relinquished by: |          | Date: |           | 4. Received by: |         | Date: |         |
| Company:            |          | Time: |           | Company:        |         | Time: |         |

Geotracker EDF   
Data Validation Package  Level IV



May 29, 2007

Ms. Elizabeth Wessling, MECx  
MECx, LLC  
12269 East Vassar Drive  
Aurora, Colorado 80014



Re: SSFL  
Project Number: 1891307-B009  
Project Name: Group 8 Hastings Data Gaps-S  
Work Order: 186137 and 186140  
SDG: 186137S and 186137W

Dear Ms. Wessling,

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on May 16, 2007. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4475.

Sincerely,

Martha Harrison  
Project Manager

Purchase Order: Task Order 002  
Chain of Custody: MWHSV20070515\_02  
Enclosures

## Table of Contents

|                                                            |            |
|------------------------------------------------------------|------------|
| <b>Case Narrative</b> .....                                | <b>1</b>   |
| <b>Chain of Custody and Supporting Documentation</b> ..... | <b>8</b>   |
| <b>Data Qualifiers Definitions</b> .....                   | <b>13</b>  |
| <b>Laboratory Certifications</b> .....                     | <b>15</b>  |
| <b>Percent Moisture</b> .....                              | <b>17</b>  |
| <b>GC/MS Volatile Analysis</b> .....                       | <b>22</b>  |
| Sample Data Summary .....                                  | 28         |
| Quality Control Summary.....                               | 41         |
| Sample Data .....                                          | 49         |
| Standards Data.....                                        | 74         |
| Quality Control Data .....                                 | 159        |
| Miscellaneous Data .....                                   | 188        |
| <b>GC/MS Volatile Analysis</b> .....                       | <b>192</b> |
| Sample Data Summary .....                                  | 198        |
| Quality Control Summary.....                               | 203        |
| Sample Data .....                                          | 210        |
| Standards Data.....                                        | 219        |
| Quality Control Data .....                                 | 304        |
| Miscellaneous Data .....                                   | 326        |
| <b>GC/MS Semivolatile Analysis</b> .....                   | <b>329</b> |
| Sample Data Summary .....                                  | 336        |
| Quality Control Summary.....                               | 339        |
| Sample Data .....                                          | 348        |
| Standards Data.....                                        | 365        |
| Quality Control Data .....                                 | 434        |
| Miscellaneous Data .....                                   | 455        |
| <b>GC Semivolatile DRO Analysis</b> .....                  | <b>469</b> |
| Sample Data Summary .....                                  | 474        |
| Quality Control Summary.....                               | 477        |
| Sample Data .....                                          | 483        |
| Standards Data.....                                        | 496        |
| Quality Control Data .....                                 | 529        |
| Miscellaneous Data .....                                   | 538        |

|                                           |             |
|-------------------------------------------|-------------|
| <b>GC Semivolatile PCB Analysis .....</b> | <b>551</b>  |
| Sample Data Summary .....                 | 557         |
| Quality Control Summary.....              | 560         |
| Sample Data .....                         | 566         |
| Standards Data.....                       | 577         |
| Quality Control Data .....                | 680         |
| Miscellaneous Data .....                  | 707         |
| <b>Metals Analysis .....</b>              | <b>715</b>  |
| Case Narrative.....                       | 716         |
| Sample Data Summary .....                 | 722         |
| Quality Control Summary.....              | 726         |
| Standards .....                           | 776         |
| Raw Data.....                             | 790         |
| Miscellaneous .....                       | 1297        |
| <b>General Chemistry Analysis .....</b>   | <b>1363</b> |
| Case Narrative.....                       | 1364        |
| Sample Data Summary .....                 | 1369        |
| Quality Control Summary.....              | 1373        |
| Instrument QC Data Summary .....          | 1376        |
| Ion Chromatography .....                  | 1378        |
| Miscellaneous .....                       | 1410        |

# **Case Narrative**

**Case Narrative  
for  
Boeing - Santa Susanna Field Laboratory  
Work Order: 186137 and 186140  
SDG: 186137S and 186137W**

**May 29, 2007**

**Laboratory Identification:**

GEL Laboratories LLC  
2040 Savage Road  
Charleston, South Carolina 29407  
(843) 556-8171

**Summary:**

**Sample Receipt**

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 16, 2007 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage.

The laboratory received the following samples:

| <b>Laboratory<br/>Identification</b> | <b>Sample<br/>Description</b> |
|--------------------------------------|-------------------------------|
| <b>186137001</b>                     | L0BS0012S01                   |
| 186137002                            | L0BS0012S02                   |
| 186137003                            | L0BS0015S01                   |
| <b>186140001</b>                     | L0QW0004T01                   |

**Items of Note**

Boeing - Santa Susanna Field Laboratory Technical Representative was contacted seeking resolution to any analytical and/or receipt issues. Please see the enclosed e-mails.

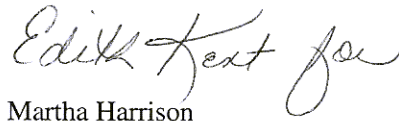
**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package:**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: FID Flame Ionization Detector, General Chemistry, Metals, PCB, Semi-Volatile and Volatile

I certify that this data package is in compliance with the terms and conditions of the subcontract and task order, both technically and for the completeness, for other than the conditions detailed in the attached case narratives.

A handwritten signature in cursive script that reads "Edith Kent for".

Martha Harrison

Project Manager



**Subject:** RE: TAT Extension due to Memorial Day Holiday

**From:** "Elizabeth Wessling" <elizabeth.wessling@mecx.net>

**Date:** Tue, 22 May 2007 11:32:01 -0500

**To:** "Martha Harrison" <Martha.Harrison@gel.com>, "Sarah E VonRaesfeld" <Sarah.E.VonRaesfeld@us.mwhglobal.com>, "Lisa J Tucker" <Lisa.J.Tucker@us.mwhglobal.com>

Yes, of course

Elizabeth A. Wessling  
Senior Environmental Chemist

Phone: 720.535.5502

Cell: 303. 881.6816

Fax: 720.535.7555

[elizabeth.wessling@mecx.net](mailto:elizabeth.wessling@mecx.net)

MECX, LLC

12269 East Vassar Drive

Aurora, Colorado 80014

[www.mecx.net](http://www.mecx.net)

A Service-Disabled Veteran-Owned Small Business

CONFIDENTIALITY NOTICE: This electronic mail transmission (message and any included attachments) may be confidential and are intended for the use of the addressee(s) only. It may contain information that is confidential, privileged, proprietary, or otherwise legally exempt from disclosure. If you are not the intended recipient, you are hereby notified that you are not authorized to read, print, retain, copy or disseminate this message, any part of it, or any attachments. If you have received this message in error, please delete this message and any attachments from your system without reading the content and notify the sender immediately of the inadvertent transmission.

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

From: Martha Harrison [<mailto:Martha.Harrison@gel.com>]

Sent: Tuesday, May 22, 2007 11:17 AM

To: Elizabeth Wessling; Sarah E VonRaesfeld; Lisa J Tucker

Subject: TAT Extension due to Memorial Day Holiday

Elizabeth, Sarah, and Lisa,

Is it acceptable to extend the due dates one working day for all SDGs due on or after Monday, May 28th?

Thanks,  
Martha

~~~~~  
Martha Harrison  
Federal Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC 29407  
(843) 769-7376 x4475  
(843) 769-7384 Direct Line  
(843) 766-1178 Fax  
[Martha.Harrison@gel.com](mailto:Martha.Harrison@gel.com)

The information contained in this message is confidential and is intended only for the use of the individual or firm of record. If you are not the intended recipient and have received this message in error, you are asked not to copy or distribute any of the pages that follow. Please notify the sender immediately by telephone or email if you have received this communication in error

RE: TAT Extension due to Memorial Day Holiday

and destroy  
the contents that do not pertain to your business with The GEL Group,  
INC.

Re: TAT Extension due to Memorial Day Holiday

**Subject:** Re: TAT Extension due to Memorial Day Holiday  
**From:** Lisa J Tucker <Lisa.J.Tucker@us.mwhglobal.com>  
**Date:** Tue, 22 May 2007 09:36:45 -0700  
**To:** Martha Harrison <Martha.Harrison@gel.com>  
**CC:** Elizabeth Wessling <elizabeth.wessling@mecx.net>, Sarah E VonRaesfeld <Sarah.E.VonRaesfeld@us.mwhglobal.com>

As long as Liz is fine with the schedule I'm good too.

**Martha Harrison**  
<Martha.Harrison@gel.com>

05/22/2007 09:16 AM

**To:** Elizabeth Wessling <elizabeth.wessling@mecx.net>, Sarah E VonRaesfeld  
<Sarah.E.VonRaesfeld@us.mwhglobal.com>, Lisa J Tucker <Lisa.J.Tucker@us.mwhglobal.com>  
**cc:**  
**Subject:** TAT Extension due to Memorial Day Holiday

Elizabeth, Sarah, and Lisa,

Is it acceptable to extend the due dates one working day for all SDGs  
due on or after Monday, May 28th?

Thanks,  
Martha

~~~~~  
Martha Harrison  
Federal Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC 29407  
(843) 769-7376 x4475  
(843) 769-7384 Direct Line  
(843) 766-1178 Fax  
Martha.Harrison@gel.com

The information contained in this message is confidential and is intended  
only for the use of the individual or firm of record. If you are not the intended  
recipient and have received this message in error, you are asked not to copy  
or distribute any of the pages that follow. Please notify the sender immediately  
by telephone or email if you have received this communication in error and destroy  
the contents that do not pertain to your business with The GEL Group, INC.

Re: TAT Extension due to Memorial Day Holiday

**Subject:** Re: TAT Extension due to Memorial Day Holiday  
**From:** Sarah E VonRaesfeld <Sarah.E.VonRaesfeld@us.mwhglobal.com>  
**Date:** Tue, 22 May 2007 09:22:03 -0700  
**To:** Martha Harrison <Martha.Harrison@gel.com>  
**CC:** Elizabeth Wessling <elizabeth.wessling@mecx.net>, Lisa J Tucker <Lisa.J.Tucker@us.mwhglobal.com>

It is fine for my data.



**Martha Harrison** <Martha.Harrison@gel.com>

05/22/2007 09:16 AM

To Elizabeth Wessling <elizabeth.wessling@mecx.net>, Sarah E VonRaesfeld  
<Sarah.E.VonRaesfeld@us.mwhglobal.com>, Lisa J Tucker  
<Lisa.J.Tucker@us.mwhglobal.com>

cc

Subject TAT Extension due to Memorial Day Holiday

Elizabeth, Sarah, and Lisa,

Is it acceptable to extend the due dates one working day for all SDGs  
due on or after Monday, May 28th?

Thanks,  
Martha

~~~~~  
Martha Harrison  
Federal Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC 29407  
(843) 769-7376 x4475  
(843) 769-7384 Direct Line  
(843) 766-1178 Fax  
Martha.Harrison@gel.com

The information contained in this message is confidential and is intended  
only for the use of the individual or firm of record. If you are not the intended  
recipient and have received this message in error, you are asked not to copy  
or distribute any of the pages that follow. Please notify the sender immediately  
by telephone or email if you have received this communication in error and destroy  
the contents that do not pertain to your business with The GEL Group, INC.



# SAMPLE RECEIPT & REVIEW FORM

PM use only

Client: <u>SSFL</u>	SDG/ARCOC/Work Order: <u>186137, 186140</u>
Date Received: <u>5/16/07</u>	PM(A) Review (ensure non-conforming items are resolved prior to signing):
Received By: <u>Ben Farley</u>	<u>MHT</u>

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken damaged container leaking container other (describe)
2 Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.	<input checked="" type="checkbox"/>			Circle Coolant # <u>ice bags</u> <u>blue ice</u> dry ice none other (describe) <u>3°C</u>
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken damaged container leaking container other (describe)
5 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's, containers affected and observed pH:
6 VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
7 Are Encore containers present? (If yes, immediately deliver to VOA laboratory)	<input checked="" type="checkbox"/>			<u>Encores set to freezer immediately after receipt. 4/5/16/07</u>
8 Samples received within holding time?	<input checked="" type="checkbox"/>			Id's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
12 COC form is properly signed in relinquished/received sections?				
14 Air Bill, Tracking #'s, & Additional Comments				<u>Fed Ex # 8612 6056 8314</u>

Suspected Hazard Information	Non-Regulated	Regulated	High Level	RSO RAD Receipt # _____ *If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation.
A Radiological Classification?	<input checked="" type="checkbox"/>			Maximum Counts Observed*: <u>CPM 60</u>
B PCB Regulated?	<input checked="" type="checkbox"/>			
C Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	<input checked="" type="checkbox"/>			Hazard Class Shipped: UN#:
D Regulated as a Foreign Soil?	<input checked="" type="checkbox"/>			

PM (or PMA) review of Hazard classification: MHT Initials 05/16/07 Date:

## LABORATORY TASK ORDER (LTO) FORM

*INSTRUCTIONS: To be completed by Environmental Contractor & Emailed to Laboratory Project Manager, CH2M HILL (boeingdms@ch2m.com) & the Data Validator at Least 48 hrs prior to need for sample containers. Project Analytical Laboratory will confirm receipt via E-Mail.*

**Event Name:** Group 8 May 2007

**Start:** 5/14/2007      **End:** \_\_\_\_\_

**LTO DATE:**

**LTO NUMBER:**

<p><b>Consultant Name:</b> <u>MWH</u>  <b>Address:</b> <u>9444 Farnham Suite 300</u>  <u>San Diego, CA 92123</u></p> <p><b>Contact Name:</b> <u>Lisa Tucker</u>  <b>Phone Number:</b> <u>858-751-1240</u>  <b>Fax Number:</b> <u>858-751-1204</u>  <b>E-mail Address:</b> <u>Lisa.Tucker@mwhglobal.com</u></p>	<p><b>Contract Laboratory:</b> <u>GEL</u>  <b>Address:</b> <u>2040 Savage Rd.</u>  <u>Charleston, SC 29407</u></p> <p><b>Lab Contact Name:</b> <u>Martha Harrison</u>  <b>Phone Number:</b> <u>843-769-7384</u>  <b>Fax Number:</b> <u>843-766-1178</u>  <b>E-mail Address:</b> <u>Martha.Harrison@gel.com</u></p>
--	--

### SAMPLE CONTAINER ORDER FORM

**Date Required:** \_\_\_\_\_

**Requested Analyses:** (Specify # of Samples)

**Date Sample Pickup:** NA

**Ship Containers To:**  
 Project Site \_\_\_\_\_ (enter "X")  
 Consultant Office \_\_\_\_\_ (enter "X")  
 Other Location (specify in comments) \_\_\_\_\_ (enter "X")

	Water	Soil	Contingent
EPA 8015M (GRO)			
EPA 8015M (DRO)			
EPA 8015M (JET FUEL)			
EPA 8015M (CC)	3	17	14
EPA 8260B (VOC)	5	9	13
EPA 8270C SIM (SVOC)	1	17	22
EPA 8310 (PAH)			
EPA 8082 (PCB)	3	21	25
EPA TO-15 VOCs (Scan)			
EPA TO-15 VOCs (SIM)			
CCR Title 22 Metals	4	16	29
Total Chromium			
EPA 7196A (Hexavalent Chromium)	0	0	10
Total Lead			
Wet Chemistry (pH, etc.)			
General Minerals			
Fish Bioassay			
EPA TO-14 (VOCs)			

**Container Information:**  
 Trip Blank (VOA only) No (Yes/No)  
 Temp Blank (VOA Only) No (Yes/No)  
 DI Water Required? No (Yes/No)  
 MS/MSD Extra Bottles? No (Yes/No)

**Sample Matrix:**  
 Soil X (select all applicable)  
 Water X (select all applicable)  
 Vapor \_\_\_\_\_ (select all applicable)

Est. Total # of Samples: 115      Est. Total # of EDDs 15

### LABORATORY REPORTING REQUIREMENTS

**Project TAT:**  
 Normal: X (10 Business days)  
 RUSH: 5 day (Specify- 24 / 48 / 72HRS)  
 Other: \_\_\_\_\_ (Specify # of Days)  
 Report Due Date: \_\_\_\_\_

**Laboratory Results/Reports Deliverables:**  
 Draft Results Fax?: \_\_\_\_\_ (Yes/No)  
 Draft Results E-mail?: Yes (Yes/No)  
 Specify Fax/E-mail Contact Name, #, E-mail Address: Lisa.Tucker@mwhglobal.com  
 Send Original Reports To:  
 Project Site \_\_\_\_\_ (enter "X")  
 Consultant Office \_\_\_\_\_ (enter "X")  
 Other Location (specify in comments) X (enter "X")  
 # of Copies Reports Req.: 1

**Special Reporting Requirements:**  
 Contingent Analysis? Yes (Yes/No)  
 TIC (VOC) Required? Yes (Yes/No)  
 TIC (SVOC) Required? Yes (Yes/No)  
 Data Validation Pckge.: Tier III (Boeing Tier I, II or III)

### SPECIAL INSTRUCTIONS/LTO NOTES

1. Contingent samples for SVOCs, PCBs, and TPH will be extracted and then placed on hold. Encores will be extruded and then frozen.
2. Hardcopy data will be sent to Patti Meeks at MECX 12269 East Vassar Dr. Aurora, CO 80014
3. Hardcopy result and EDDs on 10 day TAT unless specified otherwise

### CONFIRMATION OF TRANSMITTAL & RECEIPT

**LTO Sent By:**  
 Name: Lisa Tucker  
 Date: 05/14/07

**LTO Received By:**  
 Name: \_\_\_\_\_  
 Date: \_\_\_\_\_



## LABORATORY TASK ORDER (LTO) FORM (PAGE 2)

### ADDITIONAL REQUIRED ANALYSES

LTO DATE:

LTO NUMBER:

**Consultant Name:** MWH  
**Address:** 9444 Farnham Suite 300  
San Diego, CA 92123

**Contract Laboratory:** GEL  
**Address:** 2040 Savage Rd.  
Charleston, SC 29407

**Contact Name:** Lisa Tucker  
**Phone Number:** 858-751-1240  
**Fax Number:** 858-751-1204  
**E-mail Address:** Lisa.Tucker@mwhglobal.com

**Lab Contact Name:** Martha Harrison  
**Phone Number:** 843-769-7384  
**Fax Number:** 843-766-1178  
**E-mail Address:** Martha.Harrison@gel.com

### SAMPLE CONTAINER ORDER FORM (CONTINUED)

Requested Analyses: (Specify # of Samples)

	Water	Soil	Contingent
1613B (Dioxins)	3	5	16
% Solids (160.3)	0	71	28
Fluoride (300.0)	4	49	24
SVOCs w. TICs (8270C)	3	35	17
Aluminum (6010B)	1	12	0
Boron (6010B)	1	8	6
Mercury (7470A/7471A)	2	16	30
Sodium (6010B)	1	12	0
Zirconium (6010B)	0	14	0
Perchlorate (314.0 DI WET)	0	0	8
Terphenyls (8015B)	4	47	24

12

# **Data Qualifiers Definitions**



## Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

# **Laboratory Certifications**

**List of current GEL Certifications as of 23 May 2007**

<b>State</b>	<b>Certification</b>
Alaska	UST-062
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California	01151CA
Colorado	GenEngLabs
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA	WG-15J
Florida/NELAP	E87156
Georgia	E87156 (FL/NELAP)
Hawaii	N/A
Idaho	N/A
Illinois	200029
Indiana	C-SC-01
Kansas	E-10332
Kentucky	90129
Louisiana	03046
Maryland	270
Massachusetts	M-SC012
Michigan	9903
Nevada	SC12
New Jersey	SC002
New Mexico	FL NELAP E87156
New York	11501
North Carolina	233
North Carolina Drinking W	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania	68-00485
South Carolina	10120001/10585001/10120002
Tennessee	02934
Texas NELAP	T104704235-06-TX
U.S. Dept. of Agriculture	S-52597
US Army Corps of Engineer	N/A
Utah	8037697376 GEL
Vermont	VT87156
Virginia	00151
Washington	C1641

# **Chain of Custody and Supporting Documentation**

186137

COC #:

**CHAIN OF CUSTODY RECORD**



Customer Information		Project Information		Project Information	
Site:	SSFL	Client Name:	DOE	Collector:	Shelby Valenzuela
Company:	MWH	Sampling Event:	Group 8 Hastings Data Caps-Sc	Contact #:	
Report to:	Lisa Tucker	Project Number:	1891307-B009	Requested Analyses	
Address:	9444 Farnham Street Suite 300 San Diego CA 92123	Project Manager:		Legend: Numerical values for analyses equate to turn around time in days H - Hold EH - Extract Hold	
Email:	lisa.tucker@mwhglobal.com	PM Phone #:		VOC by SW8260B - Water	
	boeingdms@ch2m.com	Field Contact:		VOC by SW8260B - Soil	
		Field Contact #:		TPH by SW8015BM - Soil	
		Lab Name:	GEL Laboratories, LLC	TPH 8015B Soil Terphenyls	
		Lab Contact:	Martha Harrison	SVOCs by SW8270C SIM - Soil	
		Lab Address:	2040 Savage Road	PCB by SW8082 - Soil	
		Lab Phone:	Charleston, SC 29407 (843) 556-8171	Metals 7471A Soil Mercury	
				Metals 6010B/6020 Soil Group 8	
				Fluoride by 300 - Soil	
				% Solids - Soil	
Sample Name	Matrix	Date	Time	No. of Containers	Comments
LOBS0012S01	Soil	5/15/2007	12:30	6	
LOBS0012S02	Soil	5/15/2007	12:45	6	
LOBS0015S01	Soil	5/15/2007	13:16	4	
LOQW0004T01	Water	5/15/2007	15:30	3	

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
<i>Col Garcia</i>	5/15/2007	<i>Bentley</i>		<i>Shelby</i>			
Company:	Time:	Company:	Time:	Company:	Time:	Company:	Time:
MWH	10:30	GEL					
Comments:	<input type="checkbox"/> Geotracker EDF <input checked="" type="checkbox"/> Data Validation Package						

9

## **SOIL VALIDATION REPORTS**



550 South Wadsworth Boulevard, Suite 500, Lakewood, CO 80026  
303.935.6505, Fax 303.935.6575

## DATA ASSESSMENT FORM

Project Title: Rocketdyne SSFL RFI  
Project Manager: D. Hambrick  
Analysis/Method: PCBs by EPA Method 8082  
QC Level: V<sup>1</sup>  
SDG: IMI1288  
Matrix: Soil  
No. of Samples: 6  
No. of Reanalyses/Dilutions: 0  
Date Reviewed: March 26, 2004  
Reviewer: H. Chang  
Reference: National Functional Guidelines for Organic Data Review (2/94)  
Samples Reviewed: MT832, MT833, MT834, MT835, MT836, and MT837

### Data Validation Findings

	Findings	Qualifications
1. <u>Sample Management</u>	<p>The COC was signed by field and laboratory personnel and accounted for the samples in this SDG. The samples were received intact but with a cooler temperature below the limits of <math>4^{\circ}\text{C} \pm 2^{\circ}\text{C}</math> at <math>0^{\circ}\text{C}</math>. No custody seals were present on the shipping container.</p> <p>According to the Form Is, the samples were extracted within fourteen days of collection, and the analyses were performed within 40 days of extraction.</p>	No qualifications were required.
4. <u>Method Blanks</u>	One soil method blank was extracted and analyzed with this SDG. There were no target compound detects reported in the method blank.	No qualifications were required.
5. <u>LCS/BS</u>	One soil blank spike was extracted and analyzed with this SDG. The recoveries for Aroclor 1016 and Aroclor 1260 were within the laboratory-established QC limits.	No qualifications were required.

	Findings	Qualifications
6. <u>Surrogates</u>	The surrogate recoveries were within the laboratory-established QC limits.	No qualifications were required.
7. <u>MS/MSDs</u>	MS/MSD analyses were performed on sample MT835. The recoveries for Aroclor 1016 and Aroclor 1260 and the RPDs were within the laboratory-established QC limits.	No qualifications were required.
8. <u>Field QC Samples</u> FB: None ER: None FD: None	There were no detects reported in either the field blank or the equipment rinsate.	No qualifications were required.
11. <u>Other</u>	Soil samples were reported on a dry-weight basis.	None.
<u>Comments</u>	None.	None.

<sup>1</sup> Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.



MWH-San Diego  
 1230 Columbia Street, Suite 750  
 San Diego, CA 92101  
 Attention: Lisa J. Tucker

Project ID: SSFL Transformer Sampling  
 Boeing SSFL  
 Report Number: IMI1288

Sampled: 09/19/03-09/22/03  
 Received: 09/22/03

### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IMI1288-01 (MT832 - Soil)</b>				<b>Sampled: 09/19/03</b>				
Reporting Units: ug/kg dry								Rev Qual
Aroclor 1016	EPA 3545/8082	3I24046	58	ND	1	9/24/2003	9/25/2003	u
Aroclor 1221	EPA 3545/8082	3I24046	58	ND	1	9/24/2003	9/25/2003	↓
Aroclor 1232	EPA 3545/8082	3I24046	58	ND	1	9/24/2003	9/25/2003	
Aroclor 1242	EPA 3545/8082	3I24046	58	ND	1	9/24/2003	9/25/2003	
Aroclor 1248	EPA 3545/8082	3I24046	58	ND	1	9/24/2003	9/25/2003	
Aroclor 1254	EPA 3545/8082	3I24046	58	ND	1	9/24/2003	9/25/2003	
Aroclor 1260	EPA 3545/8082	3I24046	58	ND	1	9/24/2003	9/25/2003	
Surrogate: Decachlorobiphenyl (45-125%)				80 %				
<b>Sample ID: IMI1288-02 (MT833 - Soil)</b>				<b>Sampled: 09/19/03</b>				
Reporting Units: ug/kg dry								Qual Code
Aroclor 1016	EPA 3545/8082	3I24046	58	ND	1	9/24/2003	9/25/2003	u
Aroclor 1221	EPA 3545/8082	3I24046	58	ND	1	9/24/2003	9/25/2003	↓
Aroclor 1232	EPA 3545/8082	3I24046	58	ND	1	9/24/2003	9/25/2003	
Aroclor 1242	EPA 3545/8082	3I24046	58	ND	1	9/24/2003	9/25/2003	
Aroclor 1248	EPA 3545/8082	3I24046	58	ND	1	9/24/2003	9/25/2003	
Aroclor 1254	EPA 3545/8082	3I24046	58	ND	1	9/24/2003	9/25/2003	
Aroclor 1260	EPA 3545/8082	3I24046	58	ND	1	9/24/2003	9/25/2003	
Surrogate: Decachlorobiphenyl (45-125%)				82 %				
<b>Sample ID: IMI1288-03 (MT834 - Soil)</b>				<b>Sampled: 09/19/03</b>				
Reporting Units: ug/kg dry								Qual Code
Aroclor 1016	EPA 3545/8082	3I24046	55	ND	1	9/24/2003	9/25/2003	u
Aroclor 1221	EPA 3545/8082	3I24046	55	ND	1	9/24/2003	9/25/2003	↓
Aroclor 1232	EPA 3545/8082	3I24046	55	ND	1	9/24/2003	9/25/2003	
Aroclor 1242	EPA 3545/8082	3I24046	55	ND	1	9/24/2003	9/25/2003	
Aroclor 1248	EPA 3545/8082	3I24046	55	ND	1	9/24/2003	9/25/2003	
Aroclor 1254	EPA 3545/8082	3I24046	55	ND	1	9/24/2003	9/25/2003	
Aroclor 1260	EPA 3545/8082	3I24046	55	ND	1	9/24/2003	9/25/2003	
Surrogate: Decachlorobiphenyl (45-125%)				82 %				

# AMEC VALIDATED

LEVEL V

Del Mar Analytical, Irvine  
 Fred Haley For Michele Harper  
 Project Manager

MWH-San Diego  
 1230 Columbia Street, Suite 750  
 San Diego, CA 92101  
 Attention: Lisa J. Tucker

 Project ID: SSFL Transformer Sampling  
 Boeing SSFL  
 Report Number: IMI1288

 Sampled: 09/19/03-09/22/03  
 Received: 09/22/03

### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IMI1288-04 (MT835 - Soil)</b>				<b>Sampled: 09/22/03</b>				
Reporting Units: ug/kg dry								Rev Qual
Aroclor 1016	EPA 3545/8082	3I24046	53	ND	1	9/24/2003	9/25/2003	u
Aroclor 1221	EPA 3545/8082	3I24046	53	ND	1	9/24/2003	9/25/2003	
Aroclor 1232	EPA 3545/8082	3I24046	53	ND	1	9/24/2003	9/25/2003	
Aroclor 1242	EPA 3545/8082	3I24046	53	ND	1	9/24/2003	9/25/2003	
Aroclor 1248	EPA 3545/8082	3I24046	53	ND	1	9/24/2003	9/25/2003	
Aroclor 1254	EPA 3545/8082	3I24046	53	ND	1	9/24/2003	9/25/2003	
Aroclor 1260	EPA 3545/8082	3I24046	53	ND	1	9/24/2003	9/25/2003	
Surrogate: Decachlorobiphenyl (45-125%)				78 %				
<b>Sample ID: IMI1288-05 (MT836 - Soil)</b>				<b>Sampled: 09/22/03</b>				
Reporting Units: ug/kg dry								u
Aroclor 1016	EPA 3545/8082	3I24046	55	ND	1	9/24/2003	9/25/2003	
Aroclor 1221	EPA 3545/8082	3I24046	55	ND	1	9/24/2003	9/25/2003	
Aroclor 1232	EPA 3545/8082	3I24046	55	ND	1	9/24/2003	9/25/2003	
Aroclor 1242	EPA 3545/8082	3I24046	55	ND	1	9/24/2003	9/25/2003	
Aroclor 1248	EPA 3545/8082	3I24046	55	ND	1	9/24/2003	9/25/2003	
Aroclor 1254	EPA 3545/8082	3I24046	55	ND	1	9/24/2003	9/25/2003	
Aroclor 1260	EPA 3545/8082	3I24046	55	ND	1	9/24/2003	9/25/2003	
Surrogate: Decachlorobiphenyl (45-125%)				77 %				
<b>Sample ID: IMI1288-06 (MT837 - Soil)</b>				<b>Sampled: 09/22/03</b>				
Reporting Units: ug/kg dry								u
Aroclor 1016	EPA 3545/8082	3I24046	53	ND	1	9/24/2003	9/25/2003	
Aroclor 1221	EPA 3545/8082	3I24046	53	ND	1	9/24/2003	9/25/2003	
Aroclor 1232	EPA 3545/8082	3I24046	53	ND	1	9/24/2003	9/25/2003	
Aroclor 1242	EPA 3545/8082	3I24046	53	ND	1	9/24/2003	9/25/2003	
Aroclor 1248	EPA 3545/8082	3I24046	53	ND	1	9/24/2003	9/25/2003	
Aroclor 1254	EPA 3545/8082	3I24046	53	ND	1	9/24/2003	9/25/2003	
Aroclor 1260	EPA 3545/8082	3I24046	53	ND	1	9/24/2003	9/25/2003	
Surrogate: Decachlorobiphenyl (45-125%)				73 %				

## AMEC VALIDATED

LEVEL V

 Del Mar Analytical, Irvine  
 Fred Haley For Michele Harper  
 Project Manager



550 South Wadsworth Boulevard, Suite 500, Lakewood, CO 80026  
303.935.6505, Fax 303.935.6575

## DATA ASSESSMENT FORM

**Project Title:** Rocketdyne SSFL RFI  
**Project Manager:** D. Hambrick  
**Analysis/Method:** General Minerals by 9045  
**QC Level:** V<sup>1</sup>  
**SDG:** MJ062  
**Matrix:** Soil  
**No. of Samples:** 1  
**Date Reviewed:** October 8, 2002  
**Reviewer:** P. Meeks  
**Reference:** USEPA Contract Laboratory Program National Functional Guidelines For Inorganic Data Review (2/94)  
**Samples Reviewed:** MJ063

### Data Validation Findings

	Findings	Qualifications
1. <u>Sample Management</u>	Temperatures were within the QC limits of 4°±2°C. The COC matched the sample and accounted for the analysis. No custody seals were present on the cooler. The holding time for pH was exceeded.	The pH result was qualified "J."
3. <u>Method Blanks</u>	Not applicable to the pH analysis.	No qualifications were required.
5. <u>LCS/BS</u>	Not applicable to the pH analysis.	No qualifications were required.
6. <u>Duplicates</u>	None performed.	No qualifications were required.
7. <u>MS/MSDs</u>	Not applicable to the pH analysis.	No qualifications were required.
10. <u>Other</u>	After the analysis of these samples, it was determined that Ceimic Corporation's California State certification had lapsed.	Although the data in this SDG is considered to be technically sound; the results for all site samples in this SDG were qualified as estimated, "UJ," for nondetects and "J," for detects.
11. <u>Field QC Samples</u>	No field QC samples for pH.	No qualifications were required.
Field duplicates: none		
<u>Comments</u>	None	None

<sup>1</sup> Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

**CEIMIC Corporation**  
 "Analytical Chemistry for Environmental Management"

INORGANIC ANALYTES

Client: Montgomery Watson

Client Sample ID: MJ063

Date Sampled: 06/27/02

Date Sample Received: 06/28/02

Matrix: Soil

Laboratory ID: 020647-02

Percent Solids:

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed	Rev Qual	Qua Code
pH	7.41	pH Units		07/06/02	07/06/02	J	H01

+ Dry weight basis.

als 6/24/02

Reported by: S. Banerjee

Approved by: K. Wajcicki

**ANEC VALIDATED**

**LEVEL V**



550 South Wadsworth Boulevard, Suite 500, Lakewood, CO 80026  
303.935.6505, Fax 303.935.6575

## DATA ASSESSMENT FORM

Project Title: Rocketdyne, SSFL RFI Program  
Project Manager: D. Hambrick  
Analysis/Method: Total Fuel Hydrocarbons by GC/EPA Method 8015M  
QC Level: V<sup>1</sup>  
SDG: MJ062  
Matrix: Soil  
No. of Samples: 1  
Dilutions/Reanalyses: 0  
Date Reviewed: September 19, 2002  
Reviewer: L. Calvin  
Reference: National Functional Guidelines for Organic Data Review (2/94)  
Samples Reviewed: MJ063

### Data Validation Findings

	Findings	Qualifications
1. <u>Sample Management</u>	<p>The COC was signed by the laboratory and field personnel. The laboratory's sample receiving checklist noted that the sample was received intact, with a cooler temperature within the limits of <math>4^{\circ}\text{C} \pm 2^{\circ}\text{C}</math>, at <math>3^{\circ}\text{C}</math>. Custody seals were noted to be absent on the cooler. The sample was on a "HOLD" status on the COC; however, an analytical request change form dated 07/01/02 requested the analysis of the sample.</p> <p>According to the sample result summary form, the sample was extracted within 14 days of collection, and analyzed within 40 days of extraction.</p>	No qualifications were required.
3. <u>Method Blanks</u>	One soil method blank was extracted and analyzed with this SDG. None of the target compound hydrocarbon ranges were reported in the method blank.	No qualifications were required.
4. <u>LCS/BS</u>	One soil LCS was extracted and analyzed with this SDG. The recovery for the spiked diesel range organics was 56%. Recovery limits were not provided in the data package; however, the reviewer deemed the recovery acceptable.	No qualifications were required.

	Findings	Qualifications
5. <u>Surrogates</u>	The surrogate recoveries for the sample were within the laboratory QC limits.	No qualifications were required.
6. <u>MS/MSDs</u>	No MS/MSD analyses were associated with this SDG.	No qualifications were required.
7. <u>Field QC Samples</u>  ER: None FB: None FD: None	No field QC samples were associated with this SDG.	No qualifications were required.
8. <u>Other</u>	<p>Sample results and reporting limits were reported on a dry-weight basis. Results reported below the reporting limit were qualified as estimated, "J," by the laboratory.</p> <p>After the analysis of these samples, it was determined that Ceimic Corporation's California State certification had lapsed.</p>	<p>No qualifications were required.</p> <p>Although the data in this SDG is considered to be technically sound; the results for all site samples in this SDG were qualified as estimated, "UJ," for nondetects and "J," for detects.</p>
<u>Comments</u>	None.	None.

<sup>1</sup> Level V Validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

**TOTAL PETROLEUM HYDROCARBONS (TPH)**  
(Extractables)  
by Method SW846 8015B

Client: Montgomery Watson

Laboratory ID: 020647-02

Client Sample ID: MJ063

Date Sample Extracted: 07/09/02

Date Sampled: 06/27/02

Date Sample Analyzed: 07/23/02

Date Sample Received: 06/28/02

Associated Method Blank: F0709-B4

Matrix: Soil

Final Extract Volume (mL): 1.0

Percent Solids: 91

Dilution Factor: 1

Concentration in: mg/Kg (ppm) +

Target Analyte	Sample Concentration	Qual	Code	Quantitation Limit
C08-C11 (Gasoline Range)	4.0	J	NS	4
C11-C14 (Kerosene Range)	2.2J	J		4
C14-C20 (Diesel Range)	ND	W		4
C20-C30 (Lubricant Oil Range)	ND	↓	↓	4

ND = Not detected  
+ Dry weight basis.

*abs 6/27/02*

**Surrogate Spike Recovery**

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	64	49 - 102
n-Eicosane	70	71 - 117
p-Terphenyl-d14	72	62 - 121

**AMEC VALIDATED  
LEVEL V**

Reported by: RCM

Approved by: [Signature]



550 South Wadsworth Boulevard, Suite 500, Lakewood, CO 80026  
303.935.6505, Fax 303.935.6575

## DATA ASSESSMENT FORM

Project Title: Rocketdyne, SSFL RFI Program  
Project Manager: D. Hambrick  
Analysis/Method: Total Fuel Hydrocarbons by GC/EPA Method 8015M  
QC Level: V<sup>1</sup>  
SDG: MJ061  
Matrix: Soil  
No. of Samples: 1  
Date Reviewed: September 19, 2002  
Reviewer: L. Calvin  
Reference: National Functional Guidelines for Organic Data Review (2/94)  
Samples Reviewed: MJ061

### Data Validation Findings

	Findings	Qualifications
1. <u>Sample Management</u>	<p>The COC was signed by the laboratory and field personnel. The laboratory's sample receiving checklist noted that the sample was received intact, with a cooler temperature within the limits of <math>4^{\circ}\text{C} \pm 2^{\circ}\text{C}</math>, at <math>6^{\circ}\text{C}</math>. Custody seals were noted to be absent on the cooler. The sample was accounted for on the COC.</p> <p>According to the sample result summary form, the sample was extracted within 14 days of collection, and analyzed within 40 days of extraction.</p>	No qualifications were required.
3. <u>Method Blanks</u>	One soil method blank was extracted and analyzed with this SDG. None of the target compound hydrocarbon ranges were reported in the method blank.	No qualifications were required.
4. <u>LCS/BS</u>	One soil LCS was extracted and analyzed with this SDG. The recovery for the spiked diesel range organics was 62%. Recovery limits were not provided in the data package; however, the reviewer deemed the recovery acceptable.	No qualifications were required.
5. <u>Surrogates</u>	The surrogate recoveries for the sample were within the laboratory QC limits.	No qualifications were required.



	Findings	Qualifications
6. <u>MS/MSDs</u>	No MS/MSD analyses were associated with this SDG.	No qualifications were required.
7. <u>Field QC Samples</u>  ER: None FB: None FD: None	No field QC samples were associated with this SDG.	No qualifications were required.
8. <u>Other</u>	<p>Sample results and reporting limits were reported on a dry-weight basis. For this SDG, no sample detects were reported.</p> <p>After the analysis of these samples, it was determined that Ceimic Corporation's California State certification had lapsed.</p>	Although the data in this SDG is considered to be technically sound; the results for all site samples in this SDG were qualified as estimated, "UJ," for nondetects and "J," for detects.
<u>Comments</u>	None.	None.

<sup>1</sup> Level V Validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

**TOTAL PETROLEUM HYDROCARBONS (TPH)**

(Extractables)

by Method SW846 8015B

Client: Montgomery Watson

Client Sample ID: MJ061

Date Sampled: 06/24/02

Date Sample Received: 06/26/02

Matrix: Soil

Percent Solids: 89

Laboratory ID: 020633-01

Date Sample Extracted: 06/29/02

Date Sample Analyzed: 07/23/02

Associated Method Blank: F0629-B4

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Quantitation Limit
C08-C11 (Gasoline Range)	ND	4
C11-C14 (Kerosene Range)	ND	4
C14-C20 (Diesel Range)	ND	4
C20-C30 (Lubricant Oil Range)	ND	4

*equal values*

ND = Not detected

+ Dry weight basis.

**Surrogate Spike Recovery**

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	61	49 - 102
n-Eicosane	77	71 - 117
p-Terphenyl-d14	81	62 - 121

**AMEC VALIDATED  
LEVEL V**

Reported by:         *RLM*        

Approved by:         *[Signature]*



550 South Wadsworth Boulevard, Suite 500, Lakewood, CO 80026  
303.935.6505, Fax 303.935.6575

## DATA ASSESSMENT FORM

Project Title: Rocketdyne SSFL RFI  
Project Manager: D. Hambrick  
Analysis/Method: PCBs by EPA Method 8082  
QC Level: V<sup>1</sup>  
SDG: MJ061  
Matrix: Soil  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Date Reviewed: September 19, 2002  
Reviewer: K. Shadowlight  
Reference: National Functional Guidelines for Organic Data Review (2/94)  
Samples Reviewed: MJ061

### Data Validation Findings

	Findings	Qualifications
1. <u>Sample Management</u>	<p>The COC was signed by both field and laboratory personnel. The sample receiving checklist noted that the sample containers were received intact within the temperature limits of 4°C ± 2°C; however, custody seals were not present on the cooler.</p> <p>According to the sample Form I, the sample was extracted within 14 days of collection, and the sample analysis was performed within 40 days of extraction.</p>	No qualifications were required.
4. <u>Method Blanks</u>	One soil method blank was extracted and analyzed with this SDG. There were no target compounds reported in the method blank.	No qualifications were required.
5. <u>LCS/BS</u>	One soil blank spike was extracted and analyzed with this SDG. Percent recoveries for Aroclor 1016 and Aroclor 1260 were within the laboratory-established QC limits.	No qualifications were required.

	Findings	Qualifications
6. <u>Surrogates</u>	All QC and site sample surrogate recoveries were within the laboratory-established QC limits.	No qualifications were required.
7. <u>MS/MSDs</u>	There were no MS/MSD analyses performed with the sample in this SDG.	No qualifications were required.
8. <u>Field QC Samples</u> ER: None FB: None Duplicates: None	There were no field QC samples associated with this SDG.	No qualifications were required.
9. <u>Other</u>	Reporting limits were adjusted for percent moisture and sample amount.  After the analysis of these samples, it was determined that Ceimic Corporation's California State certification had lapsed.	Although the data in this SDG is considered to be technically sound; the nondetected results for all site samples in this SDG were qualified as estimated, "UJ."
<u>Comments</u>	None	No qualifications were required.

<sup>1</sup> Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

FORM 1  
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MJ061

Lab Name: CEIMIC CORP Contract: BOEING SSFL  
 Lab Code: CEIMIC Case No.: BOEING SAS No.: SDG No.: MJ061  
 Matrix: (soil/water) SOIL Lab Sample ID: 020633-01  
 Sample wt/vol: 30.2(g/mL) G Lab File ID: \_\_\_\_\_  
 % Moisture: 11 Decanted: (Y/N) N Date Received: 06/26/02  
 Extraction: (Type) SONC Date Extracted: 06/29/02  
 Concentrated Extract Volume: 10000 (uL) Date Analyzed: 07/09/02  
 Injection Volume: 1.0 (uL) Dilution Factor: 1.0  
 GPC Cleanup: (Y/N) N pH: \_\_\_\_\_ Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/KG Q

CAS NO. COMPOUND

CAS NO.	COMPOUND	CONCENTRATION UNITS	UG/KG	Q
12674-11-2	Aroclor-1016	37	U	
11104-28-2	Aroclor-1221	75	U	
11141-16-5	Aroclor-1232	37	U	
53469-21-9	Aroclor-1242	37	U	
12672-29-6	Aroclor-1248	37	U	
11097-69-1	Aroclor-1254	37	U	
11096-82-5	Aroclor-1260	37	U	

Per Qual  
Qual  
UJ \*  
↓  
↓

PM 06/24/04

AMEC VALIDATED

LEVEL V



550 South Wadsworth Boulevard, Suite 500, Lakewood, CO 80026  
303.935.6505, Fax 303.935.6575

## DATA ASSESSMENT FORM

Project Title: Rocketdyne SSFL RFI  
Project Manager: D. Hambrick  
Analysis/Method: Polyaromatic Hydrocarbons by SIM 8270  
QC Level: V<sup>1</sup>  
SDG: MJ062  
Matrix: Soil  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 1  
Date Reviewed: September 16, 2002  
Reviewer: L. Calvin  
Reference: National Functional Guidelines for Organic Data Review (2/94)  
Samples Reviewed: MJ063, MJ063DL

### Data Validation Findings

	Findings	Qualifications
1. <u>Sample Management</u>	The COC was signed by both field and laboratory personnel. The sample receiving checklist noted that the samples were received intact within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ; however, custody seals were not present on the cooler. An analytical request change form dated 07/01/02 took sample MJ063 off the "HOLD" status listed on the COC. The sample was extracted within 14 days of collection, and the sample analyses were performed within 40 days of extraction.	No qualifications were required.
3. <u>Method Blanks</u>	One soil method blank was extracted and analyzed with the sample in this SDG. Naphthalene, 2-methylnaphthalene, and diethylphthalate were reported below the reporting limits, all at concentrations of $2\mu\text{g}/\text{Kg}$ , and di-n-butylphthalate and bis(2-ethylhexylphthalate were reported above the reporting limits at concentrations of $6\mu\text{g}/\text{Kg}$ , and $170\mu\text{g}/\text{Kg}$ , respectively. The aforementioned compounds were reported in MJ063 (and/or MJ063DL).	The sample concentrations of naphthalene and 2-methylnaphthalene exceeded five times the method blank amounts, and required no qualification. The result for diethylphthalate was qualified as a nondetect, "U," and raised to the reporting limit. Results for diethylphthalate and bis(2-ethylhexyl)phthalate were qualified as estimated nondetects, "UJ," at the levels of contamination.

	Findings	Qualifications
4. <u>LCS/BS</u>	One soil LCS was extracted and analyzed with the samples in this SDG. All target compounds were spiked, and all recoveries were within the laboratory QC limits of 20-140%, with the exception of recoveries above the QC limits for naphthalene and bis(2-ethylhexyl)phthalate.	The result for naphthalene was qualified as estimated, "J," in sample MJ063DL. As bis(2-ethylhexyl)phthalate was not reportable in sample MJ063 (see section 2.3), no further qualifications were required.
5. <u>Surrogates</u>	Recoveries for all base-neutral surrogates were within the laboratory-established QC limits for the samples of this SDG, with the exception of recoveries above the QC limits for terphenyl-d14 in both analyses of the sample (MJ063 and MJ063DL).	No qualifications were required.
6. <u>MS/MSDs</u>	There were no MS/MSD analyses performed with the samples of this SDG.	No qualifications were required.
8. <u>Field QC Samples</u>  ER: None FB: None Duplicates: None	No field QC samples were associated with the samples in this SDG.	No qualifications were required.
9. <u>Other</u>	<p>Due to a result for naphthalene above the linear range of the calibration in sample MJ063, the sample was reanalyzed at a 5× dilution, with a result within linear range for naphthalene.</p> <p>Reporting limits and sample results were reported on a dry-weight basis.</p> <p>After the analysis of these samples, it was determined that Ceimic Corporation's California State certification had lapsed.</p>	<p>The result for naphthalene was rejected, "R," in the original analysis and retained in the dilution, and all other diluted results were rejected in favor of the original results.</p> <p>Although the data in this SDG is considered to be technically sound; the results for all site samples in this SDG were qualified as estimated, "UJ," for nondetects and "J," for detects.</p>
<u>Comments</u>	None	None

<sup>1</sup> Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

FORM 1  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

M WATSON SAMPLE NO.

MJ063

Lab Name: CEIMIC CORP

Contract: M WATSON

Lab Code: CEIMIC

Case No.: BOEING

SAS No.:

SDG No.: MJ062

Matrix: (soil/water) SOIL

Lab Sample ID: 020647-02

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: IF649

Level: (low/med) LOW

Date Received: 06/28/02

% Moisture: 9 decanted: (Y/N) N

Date Extracted: 07/09/02

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 07/25/02

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 6.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q	qual code	
		ug/L	ug/Kg		qual	code
62-75-9	N-Nitrosodimethylamine	4	U		UJ	*9
91-20-3	Naphthalene	170	EB		B	9
91-57-6	2-Methylnaphthalene	28	B		J	+9
208-96-8	Acenaphthylene	7			J	
83-32-9	Acenaphthene	2	J		J	
86-73-7	Fluorene	3	J		J	
85-01-8	Phenanthrene	4			J	
120-12-7	Anthracene	4	U		UJ	
206-44-0	Fluoranthene	4	U			
129-00-0	Pyrene	4	U			
56-55-3	Benzo (a) anthracene	4	U			
218-01-9	Chrysene	4	U			
205-99-2	Benzo (b) fluoranthene	4	U			
207-08-9	Benzo (k) fluoranthene	4	U			
50-32-8	Benzo (a) pyrene	4	U			
193-39-5	Indeno (1,2,3-cd) pyrene	4	U			
53-70-3	Dibenzo (a,h) anthracene	4	U			
191-24-2	Benzo (g,h,i) perylene	4	U			
84-66-2	Diethylphthalate	4	JB			
84-74-2	Di-n-butylphthalate	10	B		UJ	
117-81-7	bis (2-Ethylhexyl) phthalate	900	EB			

AMEC VALIDATED  
LEVEL V

als  
6/24/04



FORM 1  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

M WATSON SAMPLE NO.

MJ063DL

Lab Name: CEIMIC CORP

Contract: M WATSON

Lab Code: CEIMIC

Case No.: BOEING SAS No.:

SDG No.: MJ062

Matrix: (soil/water) SOIL

Lab Sample ID: 020647-02DL

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: IF667

Level: (low/med) LOW

Date Received: 06/28/02

% Moisture: 9 decanted: (Y/N) N

Date Extracted: 07/09/02

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 07/29/02

Injection Volume: 2.0 (uL)

Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 6.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q	rev qual	qual	date
62-75-9	N-Nitrosodimethylamine	18	U		NR	D	
91-20-3	Naphthalene	180	DB		J	L #9	
91-57-6	2-Methylnaphthalene	28	DB		R	D	
208-96-8	Acenaphthylene	18	U				
83-32-9	Acenaphthene	18	U				
86-73-7	Fluorene	18	U				
85-01-8	Phenanthrene	18	U				
120-12-7	Anthracene	18	U				
206-44-0	Fluoranthene	18	U				
129-00-0	Pyrene	18	U				
56-55-3	Benzo (a) anthracene	18	U				
218-01-9	Chrysene	18	U				
205-99-2	Benzo (b) fluoranthene	18	U				
207-08-9	Benzo (k) fluoranthene	18	U				
50-32-8	Benzo (a) pyrene	18	U				
193-39-5	Indeno (1,2,3-cd) pyrene	18	U				
53-70-3	Dibenzo (a,h) anthracene	18	U				
191-24-2	Benzo (g,h,i) perylene	18	U				
84-66-2	Diethylphthalate	18	U				
84-74-2	Di-n-butylphthalate	18	U				
117-81-7	bis(2-Ethylhexyl)phthalate	830	DEB				

AMEC VALIDATED  
LEVEL V

WMC  
09.16.02

als  
6/24/04

FORM I SV



550 South Wadsworth Boulevard, Suite 500, Lakewood, CO 80026  
303.935.6505, Fax 303.935.6575

## DATA ASSESSMENT FORM

Project Title: Rocketdyne SSFL RFI  
Project Manager: D. Hambrick  
Analysis/Method: Polyaromatic Hydrocarbons by SIM 8270  
QC Level: V<sup>1</sup>  
SDG: MJ061  
Matrix: Soil  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Date Reviewed: September 16, 2002  
Reviewer: L. Calvin  
Reference: National Functional Guidelines for Organic Data Review (2/94)  
Samples Reviewed: MJ061

### Data Validation Findings

	Findings	Qualifications
1. <u>Sample Management</u>	<p>The COC was signed by both field and laboratory personnel. The sample receiving checklist noted that the sample containers were received intact within the temperature limits of 4°C ± 2°C; however, custody seals were not present on the cooler.</p> <p>According to the sample Form I, the sample was extracted within 14 days of collection, and the sample analysis was performed within 40 days of extraction.</p>	No qualifications were required.
3. <u>Method Blanks</u>	<p>One soil method blank was extracted and analyzed with the samples in this SDG. Diethylphthalate, di-n-butylphthalate, and bis(2-ethylhexyl)phthalate were reported in the method blank at concentrations of 4µg/Kg, 17µg/Kg, and 73µg/Kg, respectively. The aforementioned compounds were also reported in sample MJ061 above the reporting limits.</p>	Results for diethylphthalate, di-n-butylphthalate, and bis(2-ethylhexyl)phthalate were qualified as estimated nondetects, "UJ," at the levels of contamination in sample MJ061.

	Findings	Qualifications
4. <u>LCS/BS</u>	One soil LCS was extracted and analyzed with the sample in this SDG. All target compounds were spiked, and all recoveries were within the laboratory QC limits of 20-140%, with the exception of recoveries above the QC limits for di-n-butylphthalate and bis(2-ethylhexyl)phthalate.	As neither compound was reportable in sample MJ061 (see section 2.3), no qualifications were required.
5. <u>Surrogates</u>	Recoveries for all base-neutral surrogates were within the laboratory-established QC limits for the sample in this SDG.	No qualifications were required.
6. <u>MS/MSDs</u>	There were no MS/MSD analyses performed with the sample in this SDG.	No qualifications were required.
8. <u>Field QC Samples</u>  ER: None FB: None Duplicates: None	No field QC samples were associated with the sample in this SDG.	No qualifications were required.
9. <u>Other</u>	Reporting limits and sample results were reported on a dry-weight basis.  After the analysis of these samples, it was determined that Ceimic Corporation's California State certification had lapsed.	No qualifications were required.  Although the data in this SDG is considered to be technically sound; the results for all site samples in this SDG were qualified as estimated, "UJ," for nondetects.
<u>Comments</u>	None	None

<sup>1</sup> Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

FORM 1  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

WATSON SAMPLE NO.

MJ061

Lab Name: CEIMIC CORP

Contract: M WATSON

Lab Code: CEIMIC

Case No.: BOEING SAS No.:

SDG No.: MJ061

Matrix: (soil/water) SOIL

Lab Sample ID: 020633-01

Sample wt/vol: 30.5 (g/mL) G

Lab File ID: IF646

Level: (low/med) LOW

Date Received: 06/26/02

% Moisture: 11 decanted: (Y/N) N

Date Extracted: 06/29/02

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 07/25/02

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 6.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q	rev qual	qual code
62-75-9	N-Nitrosodimethylamine	4	U		UJ	*9
91-20-3	Naphthalene	4	U			
91-57-6	2-Methylnaphthalene	4	U			
208-96-8	Acenaphthylene	4	U			
83-32-9	Acenaphthene	4	U			
86-73-7	Fluorene	4	U			
85-01-8	Phenanthrene	4	U			
120-12-7	Anthracene	4	U			
206-44-0	Fluoranthene	4	U			
129-00-0	Pyrene	4	U			
56-55-3	Benzo (a) anthracene	4	U			
218-01-9	Chrysene	4	U			
205-99-2	Benzo (b) fluoranthene	4	U			
207-08-9	Benzo (k) fluoranthene	4	U			
50-32-8	Benzo (a) pyrene	4	U			
193-39-5	Indeno (1,2,3-cd) pyrene	4	U			
53-70-3	Dibenzo (a, h) anthracene	4	U			
191-24-2	Benzo (g, h, i) perylene	4	U			
84-66-2	Diethylphthalate	4	B			
84-74-2	Di-n-butylphthalate	8	B			
117-81-7	bis (2-Ethylhexyl) phthalate	62	B			

AMEC VALIDATED

LEVEL V

als  
6/24/04



550 South Wadsworth Boulevard, Suite 500, Lakewood, CO 80026  
303.935.6505, Fax 303.935.6575

## DATA ASSESSMENT FORM

Project Title: Rocketdyne SSFL RFI  
Project Manager: D. Hambrick  
Analysis/Method: Metals by Method ILM04  
QC Level: V<sup>1</sup>  
SDG: MJ062  
Matrix: soil  
No. of Samples: 1  
Date Reviewed: September 26, 2002  
Reviewer: A. Lamirato  
Reference: USEPA SW-846 Methods 3050B, 6010B  
Samples Reviewed: MJ063

### Data Validation Findings

	Findings	Qualifications
1. <u>Sample Management</u>	<p>The coolers were received within the temperature QC limits of 4°±2° C. The COC matched the samples and accounted for the analysis. No custody seals were present on the coolers.</p> <p>The analysis was performed within the 6 month holding time for metals.</p>	No qualifications were required.
3. <u>Method Blanks</u>	Copper was detected in the method blank at 1.34 µ.g/L.	Copper detected in the sample was qualified "UJ."
5. <u>LCS/BS</u>	<p>One solid LCS sample was analyzed with the sample. The mercury recovery was below the laboratory-established limit. The silver recovery was below the laboratory-established limit.</p>	Mercury detected in the sample was qualified "J." As silver was not detected in MJ063, no further qualifications were required.
6. <u>Duplicates</u>	None.	No qualifications were required.
7. <u>MS/MSDs</u>	None.	No qualifications were required.

	Findings	Qualifications
9. <u>ICP Serial Dilution</u>	None.	No qualifications were required.
10. <u>Other</u>	<p>The sample results for silver, thallium and cadmium were reported by the laboratory as nondetects at the IDL (4.4, 1.2, and 0.3 µg/L, respectively). A review of the raw data indicated that the actual results, -83.7, -113.1, and -7.76 µg/L, were negative results greater than the applicable CRDL. The reviewer raised the reporting limits for silver and thallium to 10xCRDL (100 µg/L), and the cadmium result to the CRDL (5 µg/L).</p> <p>After the analysis of these samples, it was determined that Ceimic Corporation's California State certification had lapsed.</p>	<p>Silver, thallium and cadmium results were qualified as estimated, "UJ."</p> <p>Although the data in this SDG is considered to be technically sound; the results for all site samples in this SDG were qualified as estimated, "UJ," for nondetects and "J," for detects.</p>
11. <u>Field QC Samples</u> FB: MJ055 ER: MJ056	Metals were not detected in the field QC samples.	No qualifications were required.
<u>Comments</u>	None	None

<sup>1</sup> Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MJ063

Contract: Boeing SSFL

Lab Code: CEIMIC

Case No.: 020647

SAS No.:

SDG NO.: MJ062

Matrix (soil/water): SOIL

Lab Sample ID: 020647-02

Level (low/med): LOW

Date Received: 06/28/02

% Solids: 91.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Anal	Qual Code
7429-90-5	Aluminum	22400			P	J	*10
7440-36-0	Antimony	7.2			P	↓	↓
7440-38-2	Arsenic	2.9			P	↓	↓
7440-39-3	Barium	71.6			P	↓	↓
7440-41-7	Beryllium	0.81			P	↓	↓
7440-43-9	Cadmium	0.33 0.02	U		P	UJ	*10
7440-70-2	Calcium	2140			P	J	*10
7440-47-3	Chromium	13.8			P	↓	↓
7440-48-4	Cobalt	4.7			P	↓	↓
7440-50-8	Copper	4.0			P	UJ	B,*10
7439-89-6	Iron	20200			P	J	*10
7439-92-1	Lead	6.2			P	↓	↓
7439-95-4	Magnesium	3860			P	↓	↓
7439-96-5	Manganese	158			P	↓	↓
7439-97-6	Mercury	0.53			AV	J	L,*10
7439-98-7	Molybdenum	0.58	U		P	UJ	*10
7440-02-0	Nickel	7.8			P	UJ	*10
7440-09-7	Potassium	2010			P	↓	↓
7782-49-2	Selenium	0.23	U		P	UJ	*10
7440-22-4	Silver	6.6 0.81	U		P	UJ	*10
7440-23-5	Sodium	203	B		P	J	*10
7440-28-0	Thallium	6.6 2.9	U		P	UJ	*10
7440-31-5	Tin	2.3	U		P	UJ	*10
7440-62-2	Vanadium	29.6			P	J	*10
7440-66-6	Zinc	50.3			P	J	*10

**LEVEL V**

**AMEC VALIDATED**

*ab 6/24/04*

Color Before: BROWN

Clarity Before: CLOUDY

Texture: MEDIUM

Color After: YELLOW

Clarity After: CLEAR

Artifacts:

Comments:

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

AMEC Earth & Environmental  
 550 South Wadsworth Boulevard  
 Suite 500  
 Lakewood, CO 80226

Package ID T702MT8  
 Task Order ~~156~~ 313/50006  
 SDG No. MJ061  
 No. of Analyses 1

Laboratory Ceimic  
 Reviewer P. Meeks  
 Analysis/Method Metals

Date: Oct. 04, 2002  
 Reviewer's Signature  
P. Meeks

ACTION ITEMS <sup>a</sup>	
1. Case Narrative	
Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	<u>Qualifications were applied for:</u>
Holding Times	<u>1) ICP <del>ICSA</del> %R recoveries</u>
GC/MS Tune/Inst. Perform	<u>2) Detects. in ICSA analyses</u>
Calibrations	<u>3) Negative sample results for thallium, silver, and cadmium</u>
Blanks	<u>4) Reporting limits for thallium, silver + cadmium raised.</u>
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	
<b>COMMENTS<sup>b</sup></b>	

<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements.  
<sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



## Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. (Note: Analyte may or may not be present).

## Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D were noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination from preparation (method) blank.	Presumed contamination from preparation (method) or calibration blank.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DF TPP) was noncompliant.	Not applicable.
T	Presumed contamination from trip blank.	Not applicable.
+	False positive – reported compound was not present. Not applicable.	
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination from FB, or ER.	Presumed contamination from FB or ER.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*#	Unusual problems found with the data that have been described in Section 1, "Data Validation Findings." The number following the asterisk (*) will indicate the subsection where a description of the problem can be found.	Unusual problems found with the data that have been described in Section 1, "Data Validation Findings." The number following the asterisk (*) will indicate the subsection where a description of the problem can be found.

# DATA VALIDATION REPORT

ROCKETDYNE  
SSFL RFI Program

ANALYSIS: METALS

SAMPLE DELIVERY GROUP: MJ061

Prepared by

AMEC—Denver Operations  
550 South Wadsworth Boulevard, Suite 500  
Lakewood, Colorado 80226

## 1. INTRODUCTION

Project: Rocketdyne, SSFL RFI Program  
Contract Task Order #: 313150006  
SDG#: MJ061  
Project Manager: D. Hambrick  
Matrix: Soil  
Analysis: Metals  
QC Level: IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: P. Meeks  
Date of Review: October 04, 2002

The samples listed in Table 1 were validated based on the guidelines outlined in the *Ogden Data Validation Procedure for Levels C and D metals and cyanide* (DVP-5, Rev. 2), *USEPA SW-846 Methods 6010A, 7000A (11/90), and 7470A (09/94)*, and the *National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on the Sample Result Forms with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample identification**

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
LOTS01S01	MJ061	020633-01	soil	ILM04

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The samples arrived at the laboratory within the established temperature limit of 4°C " 2°C. No sample preservation, handling or transport problems were noted for the metals samples. No sample qualifications were required.

#### 2.1.2 Chain of Custody

The COC in the package was legible and accounted for the analyses presented in the data package. The COC was signed and dated by field and laboratory personnel. A sample receiving checklists was included for the sample. No custody seals were present on the cooler. There was no documentation as to whether custody seals were present on the sample containers. No qualifications were required.

#### 2.1.3 Holding Times

The date of collection recorded on the COC and the date of analysis recorded in the raw data documented that all sample analyses were performed within the specified holding times of six months for metals and 28 days for mercury. No qualifications were assigned to sample results.

### 2.2 CALIBRATION

All ICV and CCV results provided on the Form IIs showed acceptable %Rs, 90-110% for the ICP metals, except for silver. The silver ICV and bracketing CCVs were recovered above the control limit at 117.5%, 140.2%, and 140.7%, respectively; however, as silver was not detected in sample MJ061, no qualifications were required.

ICP CRDL standards are generally not evaluated for this project; however, the reviewer noted several high recoveries and one low recovery for the CRI analyses bracketing MJ061. Iron and sodium recoveries were greater than 200% and one recovery for aluminum was greater than 150%. One recovery for thallium was slightly low at 77.2%. No qualifications were required.

### 2.3 BLANKS

There were detects and negative results in the method blank and the CCBs associated with MJ061; however, either the detected analytes were not detected in MJ061 or the detects were not of sufficient concentration to qualify MJ061. No qualifications were required.

## 2.4 ICP INTERFERENCE CHECK SAMPLE (ICP ICS)

The results for the ICSAB analyses reported on the Form IVs were within the established control limits of 80-120%, with the following exceptions. Potassium, silver, and sodium ICSAB1 recoveries were high at 230.3%, 164.3%, and 429.4%, respectively, and the potassium, silver, and sodium ICSAB2 recoveries were high at 229.6%, 166.6%, and 427.1%, respectively. The ICSAB1 and ICSAB2 results for thallium were low at 49.9% and 51.9%, respectively. Potassium and sodium detected in MJ061 were qualified as estimated, "J," and nondetected thallium was qualified "UJ."

Additionally, there were negative results for arsenic, selenium, and thallium, and detects for silver, tin and zinc in ICSA analyses. These analytes are not present in the ICSA solution, and the absolute value of these results were greater than the applicable CRDLs. The validator reviewed the raw data for the site sample ICP analyses for the level of interferents Al, Ca, Fe, and Mg, and found that the level iron in the site sample was large enough to cause interference. Silver and tin were not detected in MJ061, and zinc was detected in MJ061 at too large a concentration to require qualification. Arsenic detected in MJ061 was qualified as estimated, "J," and nondetected selenium and thallium were qualified "UJ." No further qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

A solid LCS sample was analyzed with this SDG. The LCS results reported on the Form VII was within the laboratory's control limits and no qualifications were required.

## 2.6 LABORATORY DUPLICATES

No laboratory duplicate analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion. No qualifications were required.

## 2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No matrix spike/matrix spike duplicate analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion. No qualifications were required.

## 2.8 FURNACE ATOMIC ABSORPTION QC

Furnace atomic absorption was not utilized for the analysis of this sample; therefore, furnace atomic absorption QC is not applicable.

## 2.9 ICP SERIAL DILUTION

No ICP serial dilution analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion. No qualifications were required.

## 2.10 SAMPLE RESULT VERIFICATION

An EPA Level IV review was performed for the samples in this data package. The sample results were verified against the instrument output and were found to be acceptable for the ICAP analyses, except for silver, thallium and cadmium. The sample results for silver, thallium, and cadmium were all nondetects at the applicable IDLs; however, during the review of the raw data, the reviewer noted that the actual results were negative values, -91.6, -113.3, and -5.76  $\text{Fg/L}$ , respectively. As the absolute value of these results were greater than the applicable CRDLs, the reviewer raised the reporting limit for cadmium to the CRDL (5  $\text{Fg/L}$ ), and raised the reporting limits for thallium and silver to 10H the CRDL (100  $\text{Fg/L}$ ), and qualified the sample results as estimated nondetects, "UJ."

After the analysis of these samples, it was determined that Ceimic Corporation's California State certification had lapsed. Although the data in this SDG is considered to be technically sound; the results for all site samples in this SDG were qualified as estimated, "UJ," for nondetects and "J," for detects. No further qualifications were required.

## 2.11 FIELD QC SAMPLES

Field QC samples were evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated samples.

### 2.11.1 Field Blanks and Equipment Rinsates

There were no field QC samples associated with the samples in this SDG. No qualifications were required.

### 2.11.2 Field Duplicates

There were no field duplicate pairs associated with this package. Field duplicates are required at a rate of 10% per matrix for site samples; consequently, field duplicates are not required in every package.



TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MJ061

Contract: Boeing SSFL

Lab Code: CEIMIC

Case No.: 020633

SAS No.:

SDG NO.: MJ061

Matrix (soil/water): SOIL

Lab Sample ID: 020633-01

Level (low/med): LOW

Date Received: 06/26/02

Solids: 89.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	17800			P
7440-36-0	Antimony	9.8			P
7440-38-2	Arsenic	5.9			P
7440-39-3	Barium	100			P
7440-41-7	Beryllium	0.82			P
7440-43-9	Cadmium	0.34-0.02	U		P
7440-70-2	Calcium	3630			P
7440-47-3	Chromium	20.2			P
7440-48-4	Cobalt	5.6			P
7440-50-8	Copper	10.8			P
7439-89-6	Iron	24600			P
7439-92-1	Lead	8.7			P
7439-95-4	Magnesium	4430			P
7439-96-5	Manganese	145			P
7439-97-6	Mercury	0.06	B		AV
7439-98-7	Molybdenum	0.60	U		P
7440-02-0	Nickel	10.7			P
7440-09-7	Potassium	1950			P
7782-49-2	Selenium	0.24	U		P
7440-22-4	Silver	6.8-0.08	U		P
7440-23-5	Sodium	246	B		P
7440-28-0	Thallium	6.8-0.30	U		P
7440-31-5	Tin	2.4	U		P
7440-62-2	Vanadium	39.3			P
7440-66-6	Zinc	51.7			P

*Qual*  
*Code*

J \*10  
J \*10  
J I, \*10  
J \*10  
J \*10  
UJ \*10, \$  
J \*10  
I  
I  
UJ \*10, \$  
J I, \*10  
UJ I, \*10, \$  
UJ \*10  
J  
J

pm 10/04/02  
als 6/27/04

AMEC VALIDATED  
LEVEL IV

Color Before: BROWN

Clarity Before: CLEAR

Texture: MEDIUM

Color After: YELLOW

Clarity After: CLEAR

Artifacts:

Comments:

330



# DATA VALIDATION REPORT

Boeing SSFL RFI Group 8 Data Gap

SAMPLE DELIVERY GROUP: IQD0376

Prepared by

MEC<sup>X</sup>, LLC  
12269 East Vassar Drive  
Aurora, CO 80014

## I. INTRODUCTION

Task Order Title: Boeing SSFL RFI Group 8 Data Gap  
Contract Task Order: 1261.500D.08.002  
Sample Delivery Group: IQD0376  
Project Manager: Dixie Hambrick  
Matrix: soil  
QC Level: V  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Laboratory: Test America

**Table 1. Sample Identification**

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
L0BS0007S03	IQD0376-01	N/A	Soil	2/20/2007 2:31:00 PM	6010B

## II. Sample Management

No anomalies were observed regarding sample management. The sample in this SDG was received below the laboratory within the temperature limits of 4°C  $\pm$ 2°C, at 0°C; however, as the sample was not noted to be frozen or damaged, no qualifications were required. According to the case narrative for this SDG, the sample was received intact, on ice, and properly preserved, if applicable. The COC was appropriately signed and dated by field and/or laboratory personnel. As the sample was couriered directly from the field to the laboratory, custody seals were not required. If necessary, the client ID was added to the sample result summary by the reviewer.

---

### Data Qualifier Reference Table

---

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

---

### Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

**Qualification Code Reference Table Cont.**

---

D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

---

## II. Method Analyses

### A. EPA METHODS 6010B—Aluminum

Reviewed By: P. Meeks

Date Reviewed: April 24, 2007

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC<sup>X</sup> Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0)*, *EPA Method 6010B*, and the *National Functional Guidelines for Inorganic Data Review (2/94)*.

- Holding Times: The analytical holding time, six months for ICP metals, was met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks and CCBs had no detects.
- Interference Check Samples: Review is not applicable at a Level V validation.
- Blank Spikes and Laboratory Control Samples: The recovery was within laboratory-established QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed.
- Serial Dilution: No serial dilution analyses were performed.
- Internal Standards Performance: Not applicable to this analysis.
- Sample Result Verification: Review is not applicable at a Level V validation. Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: Aluminum was not detected in field blank FSQW0003F01 (183627). The sample in this SDG had no identified equipment rinsate sample.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.

MWH-San Diego/Boeing  
9444 Farnham Street, Suite 300  
San Diego, CA 92123  
Attention: Lisa J. Tucker

Project ID: SSFL Group 8 - DOE  
1891264  
Report Number: IQD0376

Sampled: 02/20/07  
Received: 04/04/07

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IQD0376-01 (L0BS0007S03 - Soil)</b>									
<b>Reporting Units: mg/kg dry</b>									
Aluminum	EPA 6010B	7D05093	7.0	14	28000	1	04/05/07	04/06/07	

TestAmerica - Irvine, CA  
Michele Chamberlin  
Project Manager

LEVEL V

The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from TestAmerica.

IQD0376 <Page 2 of 7>





# DATA VALIDATION REPORT

Boeing SSFL RFI Group 8 Data Gap

SAMPLE DELIVERY GROUP: IQC2077

Prepared by

MEC<sup>x</sup>, LLC  
12269 East Vassar Drive  
Aurora, CO 80014

## I. INTRODUCTION

Task Order Title: Boeing SSFL RFI Group 8 Data Gap  
Contract Task Order: 1261.500D.08.002  
Sample Delivery Group: IQC2077  
Project Manager: Dixie Hambrick  
Matrix: Soil  
QC Level: V  
No. of Samples: 2  
No. of Reanalyses/Dilutions: 0  
Laboratory: Test America

**Table 1. Sample Identification**

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
L0BS0006S01	IQC2077-01	N/A	Soil	2/20/2007 9:40:00 AM	6020
L0BS0007S02	IQC2077-02	N/A	Soil	2/20/2007 2:08:00 PM	6010B

## II. Sample Management

No anomalies were observed regarding sample management. The samples in this SDG were received at the laboratory below the temperature limits of 4°C ±2°C, at 0°C; however, due to the nonvolatile nature of the analytes, no qualifications were required. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were appropriately signed and dated by field and/or laboratory personnel. As the samples were couriered directly from the field to the laboratory, custody seals were not required. If necessary, the client ID was added to the sample result summary by the reviewer.

---

**Data Qualifier Reference Table**


---

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

---

### Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

**Qualification Code Reference Table Cont.**

---

D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

---

## II. Sample Management

### A. EPA METHODS 6010B, 6020, 7470A/7471A—Metals and Mercury

Reviewed By: P. Meeks

Date Reviewed: April 10, 2007

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0)*, *EPA Methods 6010B and 6020*, and the *National Functional Guidelines for Inorganic Data Review (2/94)*.

- Holding Times: Analytical holding times, six months for ICP and ICP-MS metals, were met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks and CCBs had no detects.
- Interference Check Samples: Review is not applicable at a Level V validation.
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratory-established QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed.
- Serial Dilution: No serial dilution analyses were performed.
- Internal Standards Performance: All sample internal standard intensities were within 30-120% of the internal standard intensities measured in the initial calibration. All CCV and CCB internal standard intensities were within 80-120% of the internal standard intensities measured in the initial calibration.
- Sample Result Verification: Review is not applicable at a Level V validation. Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

- Field Blanks and Equipment Rinsates: Field blank BLQW0018F01 (IQB1202) and equipment rinsate L0QW0021E01 (IQB2307) had no applicable detects. Arsenic was detected in equipment rinsate L0QW0001E01 (IQB2307) at 0.84 µg/L; therefore, arsenic detected in L0BS0006S01 was qualified as estimated, “J.”.
- Field Duplicates: There were no field duplicate samples identified for this SDG.

# TestAmerica

ANALYTICAL TESTING CORPORATION

17461 Derian Avenue, Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

MWH-San Diego/Boeing  
9444 Farnham Street, Suite 300  
San Diego, CA 92123  
Attention: Lisa J. Tucker

Project ID: SSFL Group 8 - DOE  
1891264  
Report Number: IQC2077

Sampled: 02/20/07  
Received: 03/20/07

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IQC2077-01 (L0BS0006S01 - Soil)									
Reporting Units: mg/kg dry									
Arsenic	J/F EPA 6020	7C20121	0.27	0.53	2.2	0.995	03/20/07	03/21/07	
Sample ID: IQC2077-02 (L0BS0007S02 - Soil)									
Reporting Units: mg/kg dry									
Aluminum	EPA 6010B	7C20108	5.9	12	27000	0.995	03/20/07	03/21/07	

TestAmerica - Irvine, CA  
Michele Chamberlin  
Project Manager

LEVEL V

The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from TestAmerica.

IQC2077 <Page 2 of 7>





# DATA VALIDATION REPORT

Boeing SSFL RFI Group 8 Data Gap

SAMPLE DELIVERY GROUP: IQB2309

Prepared by

MEC<sup>x</sup>, LLC  
12269 East Vassar Drive  
Aurora, CO 80014

**I. INTRODUCTION**

Task Order Title: Boeing SSFL RFI Group 8 Data Gap  
 Contract Task Order: 1261.500D.08.001  
 Sample Delivery Group: IQB2309  
 Project Manager: Dixie Hambrick  
 Matrix: soil  
 QC Level: V  
 No. of Samples: 11  
 No. of Reanalyses/Dilutions: 0  
 Laboratory: Test America

**Table 1. Sample Identification**

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
L0BS0001D01	IQB2309-02	N/A	Soil	2/20/2007 10:35:00 AM	6010B, 6020, 7471A, 8015B, 9045C
L0BS0001S01	IQB2309-03	N/A	Soil	2/20/2007 10:35:00 AM	6010B, 6020, 7471A, 8015B, 9045C
L0BS0002S01	IQB2309-04	N/A	Soil	2/20/2007 11:20:00 AM	6010B, 6020, 7471A, 8015B, 9045C
L0BS0003S01	IQB2309-05	N/A	Soil	2/20/2007 1:00:00 PM	6010B, 6020, 7471A, 9045C
L0BS0003S02	IQB2309-06	N/A	Soil	2/20/2007 1:35:00 PM	9045C
L0BS0004S01	IQB2309-10	N/A	Soil	2/20/2007 2:20:00 PM	6010B, 6020, 7471A, 9045C
L0BS0006S01	IQB2309-01	N/A	Soil	2/20/2007 9:40:00 AM	7471A, 9045C
L0BS0007D01	IQB2309-07	N/A	Soil	2/20/2007 2:02:00 PM	6010B, 6020, 7471A, 8015B, 8260B, 9045C
L0BS0007S01	IQB2309-08	N/A	Soil	2/20/2007 2:02:00 PM	6010B, 6020, 7471A, 8015B, 8260B, 9045C
L0BS0007S02	IQB2309-09	N/A	Soil	2/20/2007 2:08:00 PM	9045C
L0BS0007S03	IQB2309-11	N/A	Soil	2/20/2007 2:31:00 PM	9045C

**II. Sample Management**

No anomalies were observed regarding sample management. The samples in this SDG were received at the laboratory below the temperature limits of 4°C ±2°C at 0°C; however, the samples were not noted to have been frozen or damaged. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were

appropriately signed and dated by field and/or laboratory personnel. As the samples were couriered directly from the field to the laboratory, custody seals were not required. If necessary, the client ID was added to the sample result summary by the reviewer.

---

### Data Qualifier Reference Table

---

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

---

### Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present. Not applicable.	
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

**Qualification Code Reference Table Cont.**

---

D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

---

### III. Method Analyses

#### A. EPA METHODS 6010B, 6020, 7470A/7471A—Metals and Mercury

Reviewed By: P. Meeks

Date Reviewed: April 4, 2007

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC<sup>X</sup> Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0)*, *EPA Methods 6010B, 6020, 7470A/7471A*, and the *National Functional Guidelines for Inorganic Data Review (2/94)*.

- Holding Times: Analytical holding times, six months for ICP and ICP-MS metals and 28 days for mercury, were met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Mercury was detected in method blank W7B1093 at 0.0040 mg/kg; therefore, mercury detected in all associated samples except L0BS0001D01 was qualified as estimated, "UJ."
- Interference Check Samples: Review is not applicable at a Level V validation.
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratory-established QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on L0BS0001D01 for the 6010B and 6020 analytes and on L0BS0002S01 for mercury. Antimony was recovered below 30% in both the MS and the MSD and copper and selenium were recovered below the control limit in both the MS and the MSD. Arsenic, barium, cadmium, molybdenum, nickel, zinc, and zirconium were recovered below the control limits in either the MS or the MSD. Results for antimony, arsenic, barium, cadmium, copper, molybdenum, nickel, selenium, zinc, and zirconium were qualified as estimated, "J," for detects and "UJ," for nondetects.
- Serial Dilution: No serial dilution analyses were performed.
- Internal Standards Performance: All sample internal standard intensities were within 30-120% of the internal standard intensities measured in the initial calibration. All CCV and CCB internal standard intensities were within 80-120% of the internal standard intensities measured in the initial calibration.

- Sample Result Verification: Review is not applicable at a Level V validation. Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: There were no detects in field blank BLQW0018F01 (IQB1202). Arsenic was detected in equipment rinsate LQW0001E01 (IQB2307) at 0.84 µg/L; therefore, arsenic detected in L0BS0001D01, L0BS0001S01, and L0BS0002S01 was qualified as estimated, “J.”
  - Field Duplicates: Samples L0BS0001S01 and L0BS0001D01, and L0BS0007S01 and L0BS0007D01 were identified as field duplicate samples. Mercury and silver were detected in L0BS0001D01 but were not detected in the primary sample and boron was detected in L0BS0001S01 but was not detected in the field duplicate. All other detects were in common and all RPDs were ≤100%.

## **B. EPA METHOD 8015B—Extractable Total Fuel Hydrocarbons (EFHs)**

Reviewed By: K. Shadowlight

Date Reviewed: March 29, 2007

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for Total Fuel Hydrocarbons (DVP-8, Rev. 0)*, *EPA Method 8015B*, and the *National Functional Guidelines for Organic Data Review (2/94)*.

- Holding Times: Extraction and analytical holding times were met. The soil samples were extracted within 14 days of collection and analyzed within 40 days of extraction.
- Calibration: Review is not applicable at a level V validation.
- Blanks: The method blank had no target compound detects above the MDL.
- Blank Spikes and Laboratory Control Samples: The recovery was within laboratory-established QC limits.
- Surrogate Recovery: Recoveries were within laboratory-established QC limits.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed for sample L0BS0002S01. Recoveries and the RPD were within laboratory-established QC limits.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC



data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

- Field Blanks and Equipment Rinsates: There were no target compounds reported in the field blank, BSQW0018F01 (IQB1202), and equipment rinsates L0QW001E01 and L0QW002E01 (both in IQB2307).
- Field Duplicates: Samples L0BS001S01/L0BS001D01 and L0BS007S01/L0BS007D01 were the field duplicate pairs for this SDG. There were no target compounds detected in any of the field duplicate samples.
- Compound Identification: Review is not applicable at a level V validation. Four EFH hydrocarbon ranges were reported: C8-C11, C12-C14, C15-C20, and C21-C30.
- Compound Quantification and Reported Detection Limits: Review is not applicable at a level V validation. Reported nondetects are valid to the reporting limit.

### C. EPA METHOD 8260B—Volatile Organic Compounds (VOCs)

Reviewed By: L Calvin

Date Reviewed: April 2, 2007

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC<sup>X</sup> Data Validation Procedure for Volatile Organics (DVP-2, Rev. 0)*, *EPA Method 8260B*, and the *National Functional Guidelines for Organic Data Review (2/94)*.

- Holding Times: Analytical holding times were met. The soil samples were analyzed within 14 days of collection.
- GC/MS Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: The method blank had a detect for 1,1,1-trichloroethane between the MDL and the reporting limit at 0.89 µg/Kg; however, 1,1,1-trichloroethane was not detected in the associated soil samples. The method blank had no other target compound detects above the MDL.
- Blank Spikes and Laboratory Control Samples: The blank spike had a recovery above the QC limits for acetone; however, as acetone was not detected in the associated samples, qualification was unnecessary. Remaining recoveries were within laboratory-established QC limits.
- Surrogate Recovery: Recoveries were within laboratory-established QC limits.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were not performed on a sample from this SDG. Evaluation of method accuracy was based on the blank spike results.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Trip Blanks: Sample L0QW0001T01 (IQB2307) had a reportable detect between the MDL and the reporting limit for methylene chloride at 1.4 µg/L; however, methylene chloride was not detected in the associated soil site samples of this SDG.
  - Field Blanks and Equipment Rinsates: The samples in this SDG had no identified field blank for this analysis. Equipment rinsate L0QW0002E01 (IQB2307) had a reportable detect between the MDL and the reporting limit for methylene chloride at 1.4 µg/L; however, methylene chloride was not detected in the associated soil site samples of this SDG.
  - Field Duplicates: Samples L0BS0007S01 and L0BS0007D01 were field duplicate samples. Neither sample had any reportable detects above the MDL, and the pair was considered to be in agreement.
- Internal Standards Performance: Review is not applicable at a Level V validation.
- Compound Identification: Review is not applicable at a Level V validation. The laboratory analyzed for volatile target compounds by Method 8260B. Added compounds 2-chloro-1,1,1-trifluoroethane and chlorotrifluoroethene were not calibrated for and were searched for only as TICs. Results for both compounds were qualified as estimated nondetects, "UJ," in the site samples of this SDG.
- Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation. Any results reported between the MDL and the reporting limit were qualified as estimated, "J." Reported nondetects are valid to the reporting limit.
- Tentatively Identified Compounds: TICs were not reported by the laboratory for this SDG.
- System Performance: Review is not applicable at a Level V validation.

## D. EPA METHOD 9045C—General Minerals

Reviewed By: P. Meeks

Date Reviewed: April 4, 2007

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC<sup>X</sup> Data Validation Procedure for General Minerals (DVP-6, Rev. 0)*, *EPA Method 9045C*, and the *National Functional Guidelines for Inorganic Data Review (2/94)*.

- Holding Times: the analytical holding time, 24 hours from preparation for pH, were met.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Not applicable to this analysis.
- Blank Spikes and Laboratory Control Samples: Not applicable to this analysis.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on L0BS0006S01 and L0BS0002S01. Both RPDs were within the laboratory-established control limit of  $\leq 5\%$ .
- Matrix Spike/Matrix Spike Duplicate: Not applicable to this analysis.
- Sample Result Verification: Review is not applicable at a Level V validation.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: Not applicable to this analysis.
  - Samples L0BS0001S01 and L0BS0001D01, and L0BS0007S01 and L0BS0007D01 were identified as field duplicate samples no field duplicate samples identified for this SDG. Both RPDs were  $\leq 100\%$ .



Weck Laboratories, Inc.  
 14859 E. Clark Ave.  
 Industry, CA 91745  
 Phone 626.336.2139 Fax 626.336.2634

TestAmerica, Inc. - Irvine  
 17461 Derian Ave, Suite 100  
 Irvine CA, 92614

Report ID: 7022209  
 Project ID: IQB2309

Date Received: 02/22/07 09:00  
 Date Reported: 03/19/07 15:49

LOB50006501

IQB2309-01 7022209-01 (Solid)

**Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods**

Analyte	Result	Units	Reporting Limit	Dilution Factor	Method	Batch Number	Date Prepared	Date Analyzed	Data Qualifiers
% Solids*	93.0	% by Weight	0.100	1	Gravimetric	W7C0783	03/19/07	03/19/07	tc

**Metals (Non-Aqueous) by EPA 6000/7000 Series Methods**

Analyte	Result	MDL	Units	Reporting Limit	Dilution Factor	Method	Batch Number	Date Prepared	Date Analyzed	Data Qualifiers
Mercury, Total US/B	0.014	0.00070	mg/kg dry	0.011	1	EPA 7471A	W7B1093	03/10/07	03/10/07	jl

\*Analysis not validated

LEVEL V

Weck Laboratories, Inc  
 Joe Chau For Taylor Malignat, Client Services

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

MWH-San Diego/Boeing  
 9444 Farnham Street, Suite 300  
 San Diego, CA 92123  
 Attention: Lisa J. Tucker

Project ID: SSFL Group 8 - DOE  
 1891264  
 Report Number: IQB2309

Sampled: 02/20/07  
 Received: 02/21/07

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IQB2309-02 (L0BS0001D01 - Soil)</b>									
Reporting Units: mg/kg dry									
Aluminum	EPA 6010B	7B22115	5.4	11	<b>14000</b>	1	02/22/07	02/23/07	MHA
Antimony J/Q	EPA 6020	7B22114	0.032	1.1	<b>0.086</b>	1	02/22/07	02/22/07	M2, J
Arsenic J/F, Q	EPA 6020	7B22114	0.27	0.54	<b>1.9</b>	1	02/22/07	02/22/07	M2
Barium J/Q	EPA 6020	7B22114	0.086	0.54	<b>83</b>	1	02/22/07	02/22/07	M2
Beryllium	EPA 6020	7B22114	0.043	0.32	<b>0.53</b>	1	02/22/07	02/22/07	
Boron	EPA 6010B	7B22115	1.1	5.4	<b>1.1</b>	1	02/22/07	02/23/07	J
Cadmium J/Q	EPA 6020	7B22114	0.027	0.54	<b>0.12</b>	1	02/22/07	02/22/07	M2, J
Chromium	EPA 6020	7B22114	0.38	1.1	<b>14</b>	1	02/22/07	02/22/07	
Cobalt	EPA 6020	7B22114	0.086	0.54	<b>5.3</b>	1	02/22/07	02/22/07	
Copper J/Q	EPA 6020	7B22114	0.21	1.1	<b>9.8</b>	1	02/22/07	02/22/07	M2
Lead	EPA 6020	7B22114	0.054	0.54	<b>6.6</b>	1	02/22/07	02/22/07	
Lithium	EPA 6010B	7B22115	4.1	6.8	<b>17</b>	1	02/22/07	02/23/07	
Molybdenum J/Q	EPA 6020	7B22114	0.11	1.1	<b>0.33</b>	1	02/22/07	02/22/07	M2, J
Nickel ↓	EPA 6020	7B22114	0.48	1.1	<b>9.3</b>	1	02/22/07	02/22/07	
Potassium	EPA 6010B	7B22115	20	54	<b>2900</b>	1	02/22/07	02/23/07	
Selenium UJ/Q	EPA 6020	7B22114	0.21	1.1	ND	1	02/22/07	02/22/07	M2
Silver	EPA 6020	7B22114	0.054	0.54	<b>0.064</b>	1	02/22/07	02/22/07	J
Sodium	EPA 6010B	7B22115	26	54	<b>84</b>	1	02/22/07	02/23/07	
Thallium	EPA 6020	7B22114	0.11	0.54	<b>0.23</b>	1	02/22/07	02/22/07	J
Vanadium	EPA 6020	7B22114	0.43	1.1	<b>27</b>	1	02/22/07	02/22/07	
Zinc J/Q	EPA 6020	7B22114	1.4	11	<b>41</b>	1	02/22/07	02/22/07	M2
Zirconium ↓	EPA 6010B	7B22115	1.6	27	<b>2.6</b>	1	02/22/07	02/23/07	M2, J

TestAmerica - Irvine, CA  
 Nicholas Marz For Michele Chamberlin  
 Project Manager

LEVEL V



Weck Laboratories, Inc.  
 14859 E. Clark Ave.  
 Industry, CA 91745  
 Phone 626.336.2139 Fax 626.336.2634

TestAmerica, Inc. - Irvine  
 17461 Derian Ave, Suite 100  
 Irvine CA, 92614

Report ID: 7022209  
 Project ID: IQB2309

Date Received: 02/22/07 09:00  
 Date Reported: 03/19/07 15:49

LOBS0001001  
 IQB2309-02 7022209-02 (Solid)

**Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods**

Analyte	Result	Units	Reporting Limit	Dilution Factor	Method	Batch Number	Date Prepared	Date Analyzed	Data Qualifiers
% Solids *	93.3	% by Weight	0.100	1	Gravimetric	W7C0783	03/19/07	03/19/07	tc

**Metals (Non-Aqueous) by EPA 6000/7000 Series Methods**

Analyte	Result	MDL	Units	Reporting Limit	Dilution Factor	Method	Batch Number	Date Prepared	Date Analyzed	Data Qualifiers
Mercury, Total	0.028	0.00070	mg/kg dry	0.011	1	EPA 7471A	W7B1093	03/10/07	03/10/07	jl

\* Analysis not validated

LEVEL V

Weck Laboratories, Inc  
 Joe Chau For Taylor Malignat, Client Services

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

MWH-San Diego/Boeing  
 9444 Farnham Street, Suite 300  
 San Diego, CA 92123  
 Attention: Lisa J. Tucker

Project ID: SSFL Group 8 - DOE  
 1891264  
 Report Number: IQB2309

Sampled: 02/20/07  
 Received: 02/21/07

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IQB2309-03 (L0BS0001S01 - Soil)									
Reporting Units: mg/kg dry									
Aluminum	EPA 6010B	7B22115	5.5	11	15000	1	02/22/07	02/23/07	
Antimony J/Q	EPA 6020	7B22114	0.033	1.1	0.099	1	02/22/07	02/22/07	J
Arsenic J/F, J/Q	EPA 6020	7B22114	0.27	0.55	1.9	1	02/22/07	02/22/07	
Barium J/Q	EPA 6020	7B22114	0.088	0.55	76	1	02/22/07	02/22/07	
Beryllium	EPA 6020	7B22114	0.044	0.33	0.51	1	02/22/07	02/22/07	
Boron U	EPA 6010B	7B22115	1.1	5.5	ND	1	02/22/07	02/23/07	
Cadmium J/Q	EPA 6020	7B22114	0.027	0.55	0.14	1	02/22/07	02/22/07	J
Chromium	EPA 6020	7B22114	0.38	1.1	13	1	02/22/07	02/22/07	
Cobalt	EPA 6020	7B22114	0.088	0.55	4.6	1	02/22/07	02/22/07	
Copper J/Q	EPA 6020	7B22114	0.22	1.1	7.5	1	02/22/07	02/22/07	
Lead	EPA 6020	7B22114	0.055	0.55	8.0	1	02/22/07	02/22/07	
Lithium	EPA 6010B	7B22115	4.2	6.9	17	1	02/22/07	02/23/07	
Molybdenum J/Q	EPA 6020	7B22114	0.11	1.1	0.39	1	02/22/07	02/22/07	J
Nickel ↓	EPA 6020	7B22114	0.49	1.1	8.5	1	02/22/07	02/22/07	
Potassium	EPA 6010B	7B22115	21	55	2900	1	02/22/07	02/23/07	
Selenium U J/Q	EPA 6020	7B22114	0.22	1.1	ND	1	02/22/07	02/22/07	
Silver U	EPA 6020	7B22114	0.055	0.55	ND	1	02/22/07	02/22/07	
Sodium	EPA 6010B	7B22115	26	55	72	1	02/22/07	02/23/07	
Thallium	EPA 6020	7B22114	0.11	0.55	0.27	1	02/22/07	02/22/07	J
Vanadium	EPA 6020	7B22114	0.44	1.1	27	1	02/22/07	02/22/07	
Zinc J/Q	EPA 6020	7B22114	1.4	11	43	1	02/22/07	02/22/07	
Zirconium ↓	EPA 6010B	7B22115	1.6	27	2.9	1	02/22/07	02/23/07	J

TestAmerica - Irvine, CA  
 Nicholas Marz For Michele Chamberlin  
 Project Manager

LEVEL V



Weck Laboratories, Inc.  
 14859 E. Clark Ave.  
 Industry, CA 91745  
 Phone 626.336.2139 Fax 626.336.2634

TestAmerica, Inc. - Irvine 17461 Derian Ave, Suite 100 Irvine CA, 92614	Report ID: 7022209 Project ID: IQB2309	Date Received: 02/22/07 09:00 Date Reported: 03/19/07 15:49
---	---	--

LOB50001501  
 IQB2309-03 7022209-03 (Solid)

**Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods**

Analyte	Result	Units	Reporting Limit	Dilution Factor	Method	Batch Number	Date Prepared	Date Analyzed	Data Qualifiers
% Solids *	91.2	% by Weight	0.100	1	Gravimetric	W7C0783	03/19/07	03/19/07	tc

**Metals (Non-Aqueous) by EPA 6000/7000 Series Methods**

Analyte	Result	MDL	Units	Reporting Limit	Dilution Factor	Method	Batch Number	Date Prepared	Date Analyzed	Data Qualifiers
Mercury, Total US/B	0.018	0.00071	mg/kg dry	0.011	1	EPA 7471A	W7B1093	03/10/07	03/10/07	jl

\*Analysis not validated

LEVEL V

Weck Laboratories, Inc  
 Joe Chau For Taylor Malignant, Client Services

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



MWH-San Diego/Boeing  
 9444 Farnham Street, Suite 300  
 San Diego, CA 92123  
 Attention: Lisa J. Tucker

Project ID: SSFL Group 8 - DOE  
 1891264  
 Report Number: IQB2309

Sampled: 02/20/07  
 Received: 02/21/07

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IQB2309-04 (L0BS0002S01 - Soil)									
Reporting Units: mg/kg dry									
Aluminum	EPA 6010B	7B22115	5.8	12	15000	1	02/22/07	02/23/07	
Antimony J/Q	EPA 6020	7B22114	0.035	1.2	0.12	1	02/22/07	02/22/07	J
Arsenic J/F, Q	EPA 6020	7B22114	0.29	0.58	2.1	1	02/22/07	02/22/07	
Barium J/Q	EPA 6020	7B22114	0.092	0.58	84	1	02/22/07	02/22/07	
Beryllium	EPA 6020	7B22114	0.046	0.35	0.54	1	02/22/07	02/22/07	
Boron U	EPA 6010B	7B22115	1.2	5.8	ND	1	02/22/07	02/23/07	
Cadmium J/Q	EPA 6020	7B22114	0.029	0.58	0.17	1	02/22/07	02/22/07	J
Chromium	EPA 6020	7B22114	0.40	1.2	15	1	02/22/07	02/22/07	
Cobalt	EPA 6020	7B22114	0.092	0.58	4.9	1	02/22/07	02/22/07	
Copper J/Q	EPA 6020	7B22114	0.23	1.2	9.1	1	02/22/07	02/22/07	
Lead	EPA 6020	7B22114	0.058	0.58	11	1	02/22/07	02/22/07	
Lithium	EPA 6010B	7B22115	4.4	7.3	19	1	02/22/07	02/23/07	
Molybdenum J/Q	EPA 6020	7B22114	0.12	1.2	0.35	1	02/22/07	02/22/07	J
Nickel ↓	EPA 6020	7B22114	0.52	1.2	9.9	1	02/22/07	02/22/07	
Potassium	EPA 6010B	7B22115	22	58	3200	1	02/22/07	02/23/07	
Selenium U/J/Q	EPA 6020	7B22114	0.23	1.2	ND	1	02/22/07	02/22/07	
Silver U	EPA 6020	7B22114	0.058	0.58	ND	1	02/22/07	02/22/07	
Sodium	EPA 6010B	7B22115	28	58	72	1	02/22/07	02/23/07	
Thallium	EPA 6020	7B22114	0.12	0.58	0.27	1	02/22/07	02/22/07	J
Vanadium	EPA 6020	7B22114	0.46	1.2	30	1	02/22/07	02/22/07	
Zinc J/Q	EPA 6020	7B22114	1.5	12	50	1	02/22/07	02/22/07	
Zirconium ↓	EPA 6010B	7B22115	1.7	29	2.8	1	02/22/07	02/23/07	J

TestAmerica - Irvine, CA  
 Nicholas Marz For Michele Chamberlin  
 Project Manager

LEVEL V



Weck Laboratories, Inc.  
 14859 E. Clark Ave.  
 Industry, CA 91745  
 Phone 626.336.2139 Fax 626.336.2634

TestAmerica, Inc. - Irvine  
 17461 Derian Ave, Suite 100  
 Irvine CA, 92614

Report ID: 7022209  
 Project ID: IQB2309

Date Received: 02/22/07 09:00  
 Date Reported: 03/19/07 5:49

LOB50002501

IQB2309-04 7022209-04 (Solid)

**Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods**

Analyte	Result	Units	Reporting Limit	Dilution Factor	Method	Batch Number	Date Prepared	Date Analyzed	Data Qualifiers
% Solids *	86.5	% by Weight	0.100	1	Gravimetric	W7C0783	03/19/07	03/19/07	tc

**Metals (Non-Aqueous) by EPA 6000/7000 Series Methods**

Analyte	Result	MDL	Units	Reporting Limit	Dilution Factor	Method	Batch Number	Date Prepared	Date Analyzed	Data Qualifiers
Mercury, Total	0.019	0.00075	mg/kg dry	0.012	1	EPA 7471A	W7C0475	03/12/07	03/13/07	jl

\* Analysis not validated

LEVEL V

Weck Laboratories, Inc  
 Joe Chau For Taylor Malignat, Client Services

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

MWH-San Diego/Boeing  
 9444 Farnham Street, Suite 300  
 San Diego, CA 92123  
 Attention: Lisa J. Tucker

Project ID: SSFL Group 8 - DOE  
 1891264  
 Report Number: IQB2309

Sampled: 02/20/07  
 Received: 02/21/07

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IQB2309-05 (L0BS0003S01 - Soil)									
Reporting Units: mg/kg dry									
Aluminum	EPA 6010B	7B22115	5.7	11	13000	1	02/22/07	02/23/07	
Antimony J/Q	EPA 6020	7B22114	0.034	1.1	0.082	1	02/22/07	02/22/07	J
Arsenic ↓	EPA 6020	7B22114	0.28	0.57	2.4	1	02/22/07	02/22/07	
Barium	EPA 6020	7B22114	0.091	0.57	88	1	02/22/07	02/22/07	
Beryllium	EPA 6020	7B22114	0.045	0.34	0.50	1	02/22/07	02/22/07	
Boron U	EPA 6010B	7B22115	1.1	5.7	ND	1	02/22/07	02/23/07	
Cadmium J/Q	EPA 6020	7B22114	0.028	0.57	0.16	1	02/22/07	02/22/07	J
Chromium	EPA 6020	7B22114	0.40	1.1	15	1	02/22/07	02/22/07	
Cobalt	EPA 6020	7B22114	0.091	0.57	5.3	1	02/22/07	02/22/07	
Copper J/Q	EPA 6020	7B22114	0.23	1.1	8.4	1	02/22/07	02/22/07	
Lead	EPA 6020	7B22114	0.057	0.57	5.1	1	02/22/07	02/22/07	
Lithium	EPA 6010B	7B22115	4.3	7.1	22	1	02/22/07	02/23/07	
Molybdenum J/Q	EPA 6020	7B22114	0.11	1.1	0.40	1	02/22/07	02/22/07	J
Nickel ↓	EPA 6020	7B22114	0.51	1.1	10	1	02/22/07	02/22/07	
Potassium	EPA 6010B	7B22115	22	57	3700	1	02/22/07	02/23/07	
Selenium U/J/Q	EPA 6020	7B22114	0.23	1.1	ND	1	02/22/07	02/22/07	
Silver U	EPA 6020	7B22114	0.057	0.57	ND	1	02/22/07	02/22/07	
Sodium	EPA 6010B	7B22115	27	57	74	1	02/22/07	02/23/07	
Thallium	EPA 6020	7B22114	0.11	0.57	0.25	1	02/22/07	02/22/07	J
Vanadium	EPA 6020	7B22114	0.45	1.1	29	1	02/22/07	02/22/07	
Zinc J/Q	EPA 6020	7B22114	1.5	11	46	1	02/22/07	02/22/07	
Zirconium ↓	EPA 6010B	7B22115	1.7	28	2.0	1	02/22/07	02/23/07	J

TestAmerica - Irvine, CA  
 Nicholas Marz For Michele Chamberlin  
 Project Manager

LEVEL V



Weck Laboratories, Inc.  
 14859 E. Clark Ave.  
 Industry, CA 91745  
 Phone 626.336.2139 Fax 626.336.2634

TestAmerica, Inc. - Irvine  
 17461 Derian Ave, Suite 100  
 Irvine CA, 92614

Report ID: 7022209  
 Project ID: IQB2309

Date Received: 02/22/07 09:00  
 Date Reported: 03/19/07 15:49

LOB50003501  
 IQB2309-05 7022209-05 (Solid)

**Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods**

Analyte	Result	Units	Reporting Limit	Dilution Factor	Method	Batch Number	Date Prepared	Date Analyzed	Data Qualifiers
% Solids *	88.2	% by Weight	0.100	1	Gravimetric	W7C0783	03/19/07	03/19/07	tc

**Metals (Non-Aqueous) by EPA 6000/7000 Series Methods**

Analyte	Result	MDL	Units	Reporting Limit	Dilution Factor	Method	Batch Number	Date Prepared	Date Analyzed	Data Qualifiers
Mercury, Total <i>UJ/B</i>	<u>0.018</u>	0.00074	mg/kg dry	0.011	1	EPA 7471A	W7B1093	03/10/07	03/10/07	jl

\*Analysis not validated

LEVEL V

Weck Laboratories, Inc  
 Joe Chau For Taylor Malignat, Client Services

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

MWH-San Diego/Boeing  
 9444 Farnham Street, Suite 300  
 San Diego, CA 92123  
 Attention: Lisa J. Tucker

Project ID: SSFL Group 8 - DOE  
 1891264  
 Report Number: IQB2309

Sampled: 02/20/07  
 Received: 02/21/07

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IQB2309-07 (L0BS0007D01 - Soil)									
Reporting Units: mg/kg dry									
Aluminum	EPA 6010B	7B22115	6.2	12	<b>23000</b>	1	02/22/07	02/23/07	
Antimony J/Q	EPA 6020	7B22114	0.037	1.2	<b>0.17</b>	1	02/22/07	02/22/07	J
Arsenic ↓	EPA 6020	7B22114	0.31	0.62	<b>3.2</b>	1	02/22/07	02/22/07	
Barium ↓	EPA 6020	7B22114	0.099	0.62	<b>98</b>	1	02/22/07	02/22/07	
Beryllium	EPA 6020	7B22114	0.049	0.37	<b>0.67</b>	1	02/22/07	02/22/07	
Boron	EPA 6010B	7B22115	1.2	6.2	<b>2.0</b>	1	02/22/07	02/23/07	J
Cadmium J/Q	EPA 6020	7B22114	0.031	0.62	<b>0.22</b>	1	02/22/07	02/22/07	J
Chromium	EPA 6020	7B22114	0.43	1.2	<b>24</b>	1	02/22/07	02/22/07	
Cobalt	EPA 6020	7B22114	0.099	0.62	<b>8.5</b>	1	02/22/07	02/22/07	
Copper J/Q	EPA 6020	7B22114	0.25	1.2	<b>13</b>	1	02/22/07	02/22/07	
Lead	EPA 6020	7B22114	0.062	0.62	<b>8.8</b>	1	02/22/07	02/22/07	
Lithium	EPA 6010B	7B22115	4.7	7.8	<b>20</b>	1	02/22/07	02/23/07	
Molybdenum J/Q	EPA 6020	7B22114	0.12	1.2	<b>0.26</b>	1	02/22/07	02/22/07	J
Nickel ↓	EPA 6020	7B22114	0.55	1.2	<b>16</b>	1	02/22/07	02/22/07	
Potassium	EPA 6010B	7B22115	23	62	<b>5100</b>	1	02/22/07	02/23/07	
Selenium J/Q	EPA 6020	7B22114	0.25	1.2	<b>0.26</b>	1	02/22/07	02/22/07	J
Silver	EPA 6020	7B22114	0.062	0.62	<b>0.070</b>	1	02/22/07	02/22/07	J
Sodium	EPA 6010B	7B22115	30	62	<b>95</b>	1	02/22/07	02/23/07	
Thallium	EPA 6020	7B22114	0.12	0.62	<b>0.29</b>	1	02/22/07	02/22/07	J
Vanadium	EPA 6020	7B22114	0.49	1.2	<b>43</b>	1	02/22/07	02/22/07	
Zinc J/Q	EPA 6020	7B22114	1.6	12	<b>50</b>	1	02/22/07	02/22/07	
Zirconium ↓	EPA 6010B	7B22115	1.8	31	<b>4.7</b>	1	02/22/07	02/23/07	J

TestAmerica - Irvine, CA  
 Nicholas Marz For Michele Chamberlin  
 Project Manager

LEVEL V



TestAmerica, Inc. - Irvine  
 17461 Derian Ave, Suite 100  
 Irvine CA, 92614

Report ID: 7022209  
 Project ID: IQB2309

Date Received: 02/22/07 09:00  
 Date Reported: 03/19/07 15:49

LOB50007D01  
 IQB2309-07 7022209-06 (Solid)

**Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods**

Analyte	Result	Units	Reporting Limit	Dilution Factor	Method	Batch Number	Date Prepared	Date Analyzed	Data Qualifiers
% Solids *	81.1	% by Weight	0.100	1	Gravimetric	W7C0783	03/19/07	03/19/07	tc

**Metals (Non-Aqueous) by EPA 6000/7000 Series Methods**

Analyte	Result	MDL	Units	Reporting Limit	Dilution Factor	Method	Batch Number	Date Prepared	Date Analyzed	Data Qualifiers
Mercury, Total US/B	0.0009	0.00080	mg/kg dry	0.012	1	EPA 7471A	W7B1093	03/10/07	03/10/07	jl J

\* Analysis not validated

LEVEL V



MWH-San Diego/Boeing  
 9444 Farnham Street, Suite 300  
 San Diego, CA 92123  
 Attention: Lisa J. Tucker

Project ID: SSFL Group 8 - DOE  
 1891264  
 Report Number: IQB2309

Sampled: 02/20/07  
 Received: 02/21/07

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IQB2309-08 (L0BS0007S01 - Soil)									
Reporting Units: mg/kg dry									
Aluminum	EPA 6010B	7B22115	5.5	11	21000	1	02/22/07	02/23/07	
Antimony J/Q	EPA 6020	7B22114	0.033	1.1	0.20	1	02/22/07	02/22/07	J
Arsenic ↓	EPA 6020	7B22114	0.28	0.55	3.2	1	02/22/07	02/22/07	
Barium ↓	EPA 6020	7B22114	0.089	0.55	89	1	02/22/07	02/22/07	
Beryllium	EPA 6020	7B22114	0.044	0.33	0.65	1	02/22/07	02/22/07	
Boron	EPA 6010B	7B22115	1.1	5.5	2.7	1	02/22/07	02/23/07	J
Cadmium J/Q	EPA 6020	7B22114	0.028	0.55	0.22	1	02/22/07	02/22/07	J
Chromium	EPA 6020	7B22114	0.39	1.1	24	1	02/22/07	02/22/07	
Cobalt	EPA 6020	7B22114	0.089	0.55	8.3	1	02/22/07	02/22/07	
Copper J/Q	EPA 6020	7B22114	0.22	1.1	13	1	02/22/07	02/22/07	
Lead	EPA 6020	7B22114	0.055	0.55	8.7	1	02/22/07	02/22/07	
Lithium	EPA 6010B	7B22115	4.2	7.0	19	1	02/22/07	02/23/07	
Molybdenum J/Q	EPA 6020	7B22114	0.11	1.1	0.26	1	02/22/07	02/22/07	J
Nickel ↓	EPA 6020	7B22114	0.50	1.1	15	1	02/22/07	02/22/07	
Potassium	EPA 6010B	7B22115	21	55	4800	1	02/22/07	02/23/07	
Selenium J/Q	EPA 6020	7B22114	0.22	1.1	0.26	1	02/22/07	02/22/07	J
Silver	EPA 6020	7B22114	0.055	0.55	0.063	1	02/22/07	02/22/07	J
Sodium	EPA 6010B	7B22115	27	55	72	1	02/22/07	02/23/07	
Thallium	EPA 6020	7B22114	0.11	0.55	0.29	1	02/22/07	02/22/07	J
Vanadium	EPA 6020	7B22114	0.44	1.1	42	1	02/22/07	02/22/07	
Zinc J/Q	EPA 6020	7B22114	1.4	11	50	1	02/22/07	02/22/07	
Zirconium ↓	EPA 6010B	7B22115	1.7	28	4.3	1	02/22/07	02/23/07	J

TestAmerica - Irvine, CA  
 Nicholas Marz For Michele Chamberlin  
 Project Manager

LEVEL V



Weck Laboratories, Inc.  
 14859 E. Clark Ave.  
 Industry, CA 91745  
 Phone 626.336.2139 Fax 626.336.2634

TestAmerica, Inc. - Irvine  
 17461 Derian Ave, Suite 100  
 Irvine CA, 92614

Report ID: 7022209  
 Project ID: IQB2309

Date Received: 02/22/07 09:00  
 Date Reported: 03/19/07 15:49

LOB50007501  
 IQB2309-08 7022209-07 (Solid)

**Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods**

Analyte	Result	Units	Reporting Limit	Dilution Factor	Method	Batch Number	Date Prepared	Date Analyzed	Data Qualifiers
% Solids *	90.3	% by Weight	0.100	1	Gravimetric	W7C0783	03/19/07	03/19/07	tc

**Metals (Non-Aqueous) by EPA 6000/7000 Series Methods**

Analyte	Result	MDL	Units	Reporting Limit	Dilution Factor	Method	Batch Number	Date Prepared	Date Analyzed	Data Qualifiers
Mercury, Total W/B	0.018	0.00072	mg/kg dry	0.011	1	EPA 7471A	W7B1093	03/10/07	03/10/07	jl

\*Analysis not validated

LEVEL V

Weck Laboratories, Inc  
 Joe Chau For Taylor Malignat, Client Services

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



MWH-San Diego/Boeing  
 9444 Farnham Street, Suite 300  
 San Diego, CA 92123  
 Attention: Lisa J. Tucker

Project ID: SSFL Group 8 - DOE  
 1891264  
 Report Number: IQB2309

Sampled: 02/20/07  
 Received: 02/21/07

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IQB2309-10 (L0BS0004S01 - Soil)									
Reporting Units: mg/kg dry									
Aluminum	EPA 6010B	7B22115	5.5	11	<b>11000</b>	1	02/22/07	02/23/07	
Antimony J/Q	EPA 6020	7B22114	0.033	1.1	<b>0.046</b>	1	02/22/07	02/22/07	J
Arsenic ↓	EPA 6020	7B22114	0.27	0.55	<b>2.8</b>	1	02/22/07	02/22/07	
Barium ↓	EPA 6020	7B22114	0.087	0.55	<b>55</b>	1	02/22/07	02/22/07	
Beryllium	EPA 6020	7B22114	0.044	0.33	<b>0.35</b>	1	02/22/07	02/22/07	
Boron U	EPA 6010B	7B22115	1.1	5.5	ND	1	02/22/07	02/23/07	
Cadmium J/Q	EPA 6020	7B22114	0.027	0.55	<b>0.081</b>	1	02/22/07	02/22/07	J
Chromium	EPA 6020	7B22114	0.38	1.1	<b>12</b>	1	02/22/07	02/22/07	
Cobalt	EPA 6020	7B22114	0.087	0.55	<b>5.3</b>	1	02/22/07	02/22/07	
Copper J/Q	EPA 6020	7B22114	0.22	1.1	<b>6.2</b>	1	02/22/07	02/22/07	
Lead	EPA 6020	7B22114	0.055	0.55	<b>4.7</b>	1	02/22/07	02/22/07	
Lithium	EPA 6010B	7B22115	4.1	6.9	<b>26</b>	1	02/22/07	02/23/07	
Molybdenum J/Q	EPA 6020	7B22114	0.11	1.1	<b>0.30</b>	1	02/22/07	02/22/07	J
Nickel ↓	EPA 6020	7B22114	0.49	1.1	<b>6.8</b>	1	02/22/07	02/22/07	
Potassium	EPA 6010B	7B22115	21	55	<b>3300</b>	1	02/22/07	02/23/07	
Selenium J/Q	EPA 6020	7B22114	0.22	1.1	<b>0.25</b>	1	02/22/07	02/22/07	J
Silver	EPA 6020	7B22114	0.055	0.55	<b>0.075</b>	1	02/22/07	02/22/07	J
Sodium	EPA 6010B	7B22115	26	55	<b>70</b>	1	02/22/07	02/23/07	
Thallium	EPA 6020	7B22114	0.11	0.55	<b>0.24</b>	1	02/22/07	02/22/07	J
Vanadium	EPA 6020	7B22114	0.44	1.1	<b>25</b>	1	02/22/07	02/22/07	
Zinc J/Q	EPA 6020	7B22114	1.4	11	<b>40</b>	1	02/22/07	02/22/07	
Zirconium UJ/Q	EPA 6010B	7B22115	1.6	27	ND	1	02/22/07	02/23/07	

TestAmerica - Irvine, CA  
 Nicholas Marz For Michele Chamberlin  
 Project Manager

LEVEL V



Weck Laboratories, Inc.  
 14859 E. Clark Ave.  
 Industry, CA 91745  
 Phone 626.336.2139 Fax 626.336.2634

TestAmerica, Inc. - Irvine  
 17461 Derian Ave, Suite 100  
 Irvine CA, 92614

Report ID: 7022209  
 Project ID: IQB2309

Date Received: 02/22/07 09:00  
 Date Reported: 03/19/07 5:49

LOBS6004501  
 IQB2309-10 7022209-06 (Solid)

**Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods**

Analyte	Result	Units	Reporting Limit	Dilution Factor	Method	Batch Number	Date Prepared	Date Analyzed	Data Qualifiers
% Solids *	91.6	% by Weight	0.100	1	Gravimetric	W7C0783	03/19/07	03/19/07	tc

**Metals (Non-Aqueous) by EPA 6000/7000 Series Methods**

Analyte	Result	MDL	Units	Reporting Limit	Dilution Factor	Method	Batch Number	Date Prepared	Date Analyzed	Data Qualifiers
Mercury, Total <i>UJ/B</i>	0.019	0.00071	mg/kg dry	0.011	1	EPA 7471A	W7B1093	03/10/07	03/10/07	jl

\* Analysis not validated

LEVEL V

Weck Laboratories, Inc  
 Joe Chau For Taylor Malignat, Client Services

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

MWH-San Diego/Boeing  
 9444 Farnham Street, Suite 300  
 San Diego, CA 92123  
 Attention: Lisa J. Tucker

Project ID: SSFL Group 8 - DOE

1891264

Report Number: IQB2309

Sampled: 02/20/07

Received: 02/21/07

## EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IQB2309-02 (L0BS0001D01 - Soil)</b>									
Reporting Units: mg/kg dry									
EFH (C8 - C11)	EPA 8015B	7B28113	3.8	5.4	ND	1	02/28/07	02/28/07	
EFH (C12 - C14)	EPA 8015B	7B28113	3.8	5.4	ND	1	02/28/07	02/28/07	
EFH (C15 - C20)	EPA 8015B	7B28113	3.8	5.4	ND	1	02/28/07	02/28/07	
EFH (C21 - C30)	EPA 8015B	7B28113	3.8	5.4	ND	1	02/28/07	02/28/07	
Surrogate: n-Octacosane (40-125%)					88 %				

<b>Sample ID: IQB2309-03 (L0BS0001S01 - Soil)</b>									
Reporting Units: mg/kg dry									
EFH (C8 - C11)	EPA 8015B	7B28113	3.8	5.5	ND	1	02/28/07	02/28/07	
EFH (C12 - C14)	EPA 8015B	7B28113	3.8	5.5	ND	1	02/28/07	02/28/07	
EFH (C15 - C20)	EPA 8015B	7B28113	3.8	5.5	ND	1	02/28/07	02/28/07	
EFH (C21 - C30)	EPA 8015B	7B28113	3.8	5.5	ND	1	02/28/07	02/28/07	
Surrogate: n-Octacosane (40-125%)					85 %				

<b>Sample ID: IQB2309-04 (L0BS0002S01 - Soil)</b>									
Reporting Units: mg/kg dry									
EFH (C8 - C11)	EPA 8015B	7B28113	4.0	5.8	ND	1	02/28/07	03/01/07	
EFH (C12 - C14)	EPA 8015B	7B28113	4.0	5.8	ND	1	02/28/07	03/01/07	
EFH (C15 - C20)	EPA 8015B	7B28113	4.0	5.8	ND	1	02/28/07	03/01/07	
EFH (C21 - C30)	EPA 8015B	7B28113	4.0	5.8	ND	1	02/28/07	03/01/07	
Surrogate: n-Octacosane (40-125%)					72 %				

<b>Sample ID: IQB2309-07 (L0BS0007D01 - Soil)</b>									
Reporting Units: mg/kg dry									
EFH (C8 - C11)	EPA 8015B	7B28113	4.3	6.2	ND	0.999	02/28/07	02/28/07	
EFH (C12 - C14)	EPA 8015B	7B28113	4.3	6.2	ND	0.999	02/28/07	02/28/07	
EFH (C15 - C20)	EPA 8015B	7B28113	4.3	6.2	ND	0.999	02/28/07	02/28/07	
EFH (C21 - C30)	EPA 8015B	7B28113	4.3	6.2	ND	0.999	02/28/07	02/28/07	
Surrogate: n-Octacosane (40-125%)					90 %				

<b>Sample ID: IQB2309-08 (L0BS0007S01 - Soil)</b>									
Reporting Units: mg/kg dry									
EFH (C8 - C11)	EPA 8015B	7B28113	3.9	5.5	ND	1	02/28/07	03/01/07	
EFH (C12 - C14)	EPA 8015B	7B28113	3.9	5.5	ND	1	02/28/07	03/01/07	
EFH (C15 - C20)	EPA 8015B	7B28113	3.9	5.5	ND	1	02/28/07	03/01/07	
EFH (C21 - C30)	EPA 8015B	7B28113	3.9	5.5	ND	1	02/28/07	03/01/07	
Surrogate: n-Octacosane (40-125%)					85 %				

level II

TestAmerica - Irvine, CA  
 Nicholas Marz For Michele Chamberlin  
 Project Manager

MWH-San Diego/Boeing  
 9444 Farnham Street, Suite 300  
 San Diego, CA 92123  
 Attention: Lisa J. Tucker

Project ID: SSFL Group 8 - DOE

1891264

Report Number: IQB2309

Sampled: 02/20/07

Received: 02/21/07

## EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IQB2309-02 (L0BS0001D01 - Soil)</b>									
Reporting Units: mg/kg dry									
EFH (C8 - C11)	EPA 8015B	7B28113	3.8	5.4	ND	1	02/28/07	02/28/07	
EFH (C12 - C14)	EPA 8015B	7B28113	3.8	5.4	ND	1	02/28/07	02/28/07	
EFH (C15 - C20)	EPA 8015B	7B28113	3.8	5.4	ND	1	02/28/07	02/28/07	
EFH (C21 - C30)	EPA 8015B	7B28113	3.8	5.4	ND	1	02/28/07	02/28/07	
Surrogate: n-Octacosane (40-125%)					88 %				

<b>Sample ID: IQB2309-03 (L0BS0001S01 - Soil)</b>									
Reporting Units: mg/kg dry									
EFH (C8 - C11)	EPA 8015B	7B28113	3.8	5.5	ND	1	02/28/07	02/28/07	
EFH (C12 - C14)	EPA 8015B	7B28113	3.8	5.5	ND	1	02/28/07	02/28/07	
EFH (C15 - C20)	EPA 8015B	7B28113	3.8	5.5	ND	1	02/28/07	02/28/07	
EFH (C21 - C30)	EPA 8015B	7B28113	3.8	5.5	ND	1	02/28/07	02/28/07	
Surrogate: n-Octacosane (40-125%)					85 %				

<b>Sample ID: IQB2309-04 (L0BS0002S01 - Soil)</b>									
Reporting Units: mg/kg dry									
EFH (C8 - C11)	EPA 8015B	7B28113	4.0	5.8	ND	1	02/28/07	03/01/07	
EFH (C12 - C14)	EPA 8015B	7B28113	4.0	5.8	ND	1	02/28/07	03/01/07	
EFH (C15 - C20)	EPA 8015B	7B28113	4.0	5.8	ND	1	02/28/07	03/01/07	
EFH (C21 - C30)	EPA 8015B	7B28113	4.0	5.8	ND	1	02/28/07	03/01/07	
Surrogate: n-Octacosane (40-125%)					72 %				

<b>Sample ID: IQB2309-07 (L0BS0007D01 - Soil)</b>									
Reporting Units: mg/kg dry									
EFH (C8 - C11)	EPA 8015B	7B28113	4.3	6.2	ND	0.999	02/28/07	02/28/07	
EFH (C12 - C14)	EPA 8015B	7B28113	4.3	6.2	ND	0.999	02/28/07	02/28/07	
EFH (C15 - C20)	EPA 8015B	7B28113	4.3	6.2	ND	0.999	02/28/07	02/28/07	
EFH (C21 - C30)	EPA 8015B	7B28113	4.3	6.2	ND	0.999	02/28/07	02/28/07	
Surrogate: n-Octacosane (40-125%)					90 %				

<b>Sample ID: IQB2309-08 (L0BS0007S01 - Soil)</b>									
Reporting Units: mg/kg dry									
EFH (C8 - C11)	EPA 8015B	7B28113	3.9	5.5	ND	1	02/28/07	03/01/07	
EFH (C12 - C14)	EPA 8015B	7B28113	3.9	5.5	ND	1	02/28/07	03/01/07	
EFH (C15 - C20)	EPA 8015B	7B28113	3.9	5.5	ND	1	02/28/07	03/01/07	
EFH (C21 - C30)	EPA 8015B	7B28113	3.9	5.5	ND	1	02/28/07	03/01/07	
Surrogate: n-Octacosane (40-125%)					85 %				

level II

**TestAmerica - Irvine, CA**  
 Nicholas Marz For Michele Chamberlin  
 Project Manager

MWH-San Diego/Boeing  
 9444 Farnham Street, Suite 300  
 San Diego, CA 92123  
 Attention: Lisa J. Tucker

Project ID: SSFL Group 8 - DOE  
 1891264  
 Report Number: IQB2309

Sampled: 02/20/07  
 Received: 02/21/07

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IQB2309-01 (L0BS0006S01 - Soil)</b>									
Reporting Units: %									
* Percent Solids	EPA 160.3 MOD	7B26122	0.10	0.10	93	1	02/26/07	02/27/07	
<b>Sample ID: IQB2309-02 (L0BS0001D01 - Soil)</b>									
Reporting Units: %									
Percent Solids	EPA 160.3 MOD	7B26122	0.10	0.10	93	1	02/26/07	02/27/07	
<b>Sample ID: IQB2309-03 (L0BS0001S01 - Soil)</b>									
Reporting Units: %									
Percent Solids	EPA 160.3 MOD	7B26122	0.10	0.10	91	1	02/26/07	02/27/07	
<b>Sample ID: IQB2309-04 (L0BS0002S01 - Soil)</b>									
Reporting Units: %									
Percent Solids	EPA 160.3 MOD	7B26122	0.10	0.10	86	1	02/26/07	02/27/07	
<b>Sample ID: IQB2309-05 (L0BS0003S01 - Soil)</b>									
Reporting Units: %									
Percent Solids	EPA 160.3 MOD	7B26122	0.10	0.10	88	1	02/26/07	02/27/07	
<b>Sample ID: IQB2309-07 (L0BS0007D01 - Soil)</b>									
Reporting Units: %									
Percent Solids	EPA 160.3 MOD	7B26122	0.10	0.10	81	1	02/26/07	02/27/07	
<b>Sample ID: IQB2309-08 (L0BS0007S01 - Soil)</b>									
Reporting Units: %									
Percent Solids	EPA 160.3 MOD	7B26122	0.10	0.10	90	1	02/26/07	02/27/07	
<b>Sample ID: IQB2309-10 (L0BS0004S01 - Soil)</b>									
Reporting Units: %									
Percent Solids	EPA 160.3 MOD	7B26122	0.10	0.10	92	1	02/26/07	02/27/07	
<b>Sample ID: IQB2309-01 (L0BS0006S01 - Soil)</b>									
Reporting Units: pH Units									
pH	EPA 9045C	7B22122	N/A	NA	6.50	1	02/22/07	02/22/07	
<b>Sample ID: IQB2309-02 (L0BS0001D01 - Soil)</b>									
Reporting Units: pH Units									
pH	EPA 9045C	7B22122	N/A	NA	6.77	1	02/22/07	02/22/07	

TestAmerica - Irvine, CA  
 Nicholas Marz For Michele Chamberlin  
 Project Manager

LEVEL V

The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from TestAmerica.

MWH-San Diego/Boeing  
 9444 Farnham Street, Suite 300  
 San Diego, CA 92123  
 Attention: Lisa J. Tucker

Project ID: SSFL Group 8 - DOE  
 1891264  
 Report Number: IQB2309

Sampled: 02/20/07  
 Received: 02/21/07

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IQB2309-03 (L0BS0001S01 - Soil)</b>									
Reporting Units: pH Units									
pH	EPA 9045C	7B22122	N/A	NA	7.07	1	02/22/07	02/22/07	
<b>Sample ID: IQB2309-04 (L0BS0002S01 - Soil)</b>									
Reporting Units: pH Units									
pH	EPA 9045C	7B22122	N/A	NA	6.70	1	02/22/07	02/22/07	
<b>Sample ID: IQB2309-05 (L0BS0003S01 - Soil)</b>									
Reporting Units: pH Units									
pH	EPA 9045C	7B22122	N/A	NA	7.01	1	02/22/07	02/22/07	
<b>Sample ID: IQB2309-06 (L0BS0003S02 - Soil)</b>									
Reporting Units: pH Units									
pH	EPA 9045C	7B22122	N/A	NA	7.34	1	02/22/07	02/22/07	
<b>Sample ID: IQB2309-07 (L0BS0007D01 - Soil)</b>									
Reporting Units: pH Units									
pH	EPA 9045C	7B22122	N/A	NA	7.47	1	02/22/07	02/22/07	
<b>Sample ID: IQB2309-08 (L0BS0007S01 - Soil)</b>									
Reporting Units: pH Units									
pH	EPA 9045C	7B22122	N/A	NA	7.77	1	02/22/07	02/22/07	
<b>Sample ID: IQB2309-09 (L0BS0007S02 - Soil)</b>									
Reporting Units: pH Units									
pH	EPA 9045C	7B22122	N/A	NA	7.67	1	02/22/07	02/22/07	
<b>Sample ID: IQB2309-10 (L0BS0004S01 - Soil)</b>									
Reporting Units: pH Units									
pH	EPA 9045C	7B22122	N/A	NA	6.91	1	02/22/07	02/22/07	
<b>Sample ID: IQB2309-11 (L0BS0007S03 - Soil)</b>									
Reporting Units: pH Units									
pH	EPA 9045C	7B22122	N/A	NA	8.37	1	02/22/07	02/22/07	

TestAmerica - Irvine, CA  
 Nicholas Marz For Michele Chamberlin  
 Project Manager



MWH-San Diego/Boeing  
9444 Farnham Street, Suite 300  
San Diego, CA 92123  
Attention: Lisa J. Tucker

Project ID: SSFL Group 8 - DOE  
1891264  
Report Number: IQB2309

Sampled: 02/20/07  
Received: 02/21/07

## VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IQB2309-07 (L0BS0007D01 - Soil)									
Reporting Units: ug/kg dry									
Acetone	EPA 8260B	7B24028	9.0	11	ND	0.916	02/24/07	02/24/07	L
Benzene	EPA 8260B	7B24028	0.56	2.3	ND	0.916	02/24/07	02/24/07	
Bromobenzene	EPA 8260B	7B24028	0.95	5.6	ND	0.916	02/24/07	02/24/07	
Bromochloromethane	EPA 8260B	7B24028	1.0	5.6	ND	0.916	02/24/07	02/24/07	
Bromodichloromethane	EPA 8260B	7B24028	0.47	2.3	ND	0.916	02/24/07	02/24/07	
Bromoform	EPA 8260B	7B24028	0.90	5.6	ND	0.916	02/24/07	02/24/07	
Bromomethane	EPA 8260B	7B24028	1.0	5.6	ND	0.916	02/24/07	02/24/07	
2-Butanone (MEK)	EPA 8260B	7B24028	6.8	11	ND	0.916	02/24/07	02/24/07	
n-Butylbenzene	EPA 8260B	7B24028	0.81	5.6	ND	0.916	02/24/07	02/24/07	
sec-Butylbenzene	EPA 8260B	7B24028	0.76	5.6	ND	0.916	02/24/07	02/24/07	
tert-Butylbenzene	EPA 8260B	7B24028	0.70	5.6	ND	0.916	02/24/07	02/24/07	
Carbon tetrachloride	EPA 8260B	7B24028	0.56	5.6	ND	0.916	02/24/07	02/24/07	
Chlorobenzene	EPA 8260B	7B24028	0.59	2.3	ND	0.916	02/24/07	02/24/07	
Chloroethane	EPA 8260B	7B24028	1.7	5.6	ND	0.916	02/24/07	02/24/07	
2-Chloroethyl vinyl ether	EPA 8260B	7B24028	4.3	5.6	ND	0.916	02/24/07	02/24/07	
Chloroform	EPA 8260B	7B24028	0.56	2.3	ND	0.916	02/24/07	02/24/07	
Chloromethane	EPA 8260B	7B24028	1.1	5.6	ND	0.916	02/24/07	02/24/07	
2-Chlorotoluene	EPA 8260B	7B24028	0.98	5.6	ND	0.916	02/24/07	02/24/07	
4-Chlorotoluene	EPA 8260B	7B24028	0.84	5.6	ND	0.916	02/24/07	02/24/07	
Dibromochloromethane	EPA 8260B	7B24028	0.63	2.3	ND	0.916	02/24/07	02/24/07	
1,2-Dibromo-3-chloropropane	EPA 8260B	7B24028	1.7	5.6	ND	0.916	02/24/07	02/24/07	
1,2-Dibromoethane (EDB)	EPA 8260B	7B24028	0.90	2.3	ND	0.916	02/24/07	02/24/07	
Dibromomethane	EPA 8260B	7B24028	1.0	2.3	ND	0.916	02/24/07	02/24/07	
1,2-Dichlorobenzene	EPA 8260B	7B24028	1.1	2.3	ND	0.916	02/24/07	02/24/07	
1,3-Dichlorobenzene	EPA 8260B	7B24028	0.95	2.3	ND	0.916	02/24/07	02/24/07	
1,4-Dichlorobenzene	EPA 8260B	7B24028	1.1	2.3	ND	0.916	02/24/07	02/24/07	
Dichlorodifluoromethane	EPA 8260B	7B24028	1.7	5.6	ND	0.916	02/24/07	02/24/07	
1,1-Dichloroethane	EPA 8260B	7B24028	0.56	2.3	ND	0.916	02/24/07	02/24/07	
1,2-Dichloroethane	EPA 8260B	7B24028	0.90	2.3	ND	0.916	02/24/07	02/24/07	
1,1-Dichloroethene	EPA 8260B	7B24028	0.68	5.6	ND	0.916	02/24/07	02/24/07	
cis-1,2-Dichloroethene	EPA 8260B	7B24028	0.94	2.3	ND	0.916	02/24/07	02/24/07	
trans-1,2-Dichloroethene	EPA 8260B	7B24028	0.79	2.3	ND	0.916	02/24/07	02/24/07	
1,2-Dichloropropane	EPA 8260B	7B24028	0.40	2.3	ND	0.916	02/24/07	02/24/07	
1,3-Dichloropropane	EPA 8260B	7B24028	0.71	2.3	ND	0.916	02/24/07	02/24/07	
2,2-Dichloropropane	EPA 8260B	7B24028	0.51	2.3	ND	0.916	02/24/07	02/24/07	
1,1-Dichloropropene	EPA 8260B	7B24028	0.45	2.3	ND	0.916	02/24/07	02/24/07	
cis-1,3-Dichloropropene	EPA 8260B	7B24028	0.50	2.3	ND	0.916	02/24/07	02/24/07	
trans-1,3-Dichloropropene	EPA 8260B	7B24028	0.69	2.3	ND	0.916	02/24/07	02/24/07	
Ethylbenzene	EPA 8260B	7B24028	0.56	2.3	ND	0.916	02/24/07	02/24/07	
Hexachlorobutadiene	EPA 8260B	7B24028	0.82	5.6	ND	0.916	02/24/07	02/24/07	
2-Hexanone	EPA 8260B	7B24028	10	11	ND	0.916	02/24/07	02/24/07	

TestAmerica - Irvine, CA  
Nicholas Marz For Michele Chamberlin  
Project Manager

MWH-San Diego/Boeing  
9444 Farnham Street, Suite 300  
San Diego, CA 92123  
Attention: Lisa J. Tucker

Project ID: SSFL Group 8 - DOE  
1891264  
Report Number: IQB2309

Sampled: 02/20/07  
Received: 02/21/07

## VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IQB2309-07 (L0BS0007D01 - Soil) - cont.									
Reporting Units: ug/kg dry									
Isopropylbenzene	EPA 8260B	7B24028	0.61	2.3	ND	0.916	02/24/07	02/24/07	
p-Isopropyltoluene	EPA 8260B	7B24028	0.81	2.3	ND	0.916	02/24/07	02/24/07	
Methylene chloride	EPA 8260B	7B24028	7.3	23	ND	0.916	02/24/07	02/24/07	
4-Methyl-2-pentanone (MIBK)	EPA 8260B	7B24028	3.6	5.6	ND	0.916	02/24/07	02/24/07	
Methyl-tert-butyl Ether (MTBE)	EPA 8260B	7B24028	1.1	5.6	ND	0.916	02/24/07	02/24/07	
Naphthalene	EPA 8260B	7B24028	1.2	5.6	ND	0.916	02/24/07	02/24/07	
n-Propylbenzene	EPA 8260B	7B24028	0.69	2.3	ND	0.916	02/24/07	02/24/07	
Styrene	EPA 8260B	7B24028	0.65	2.3	ND	0.916	02/24/07	02/24/07	
1,1,1,2-Tetrachloroethane	EPA 8260B	7B24028	0.64	5.6	ND	0.916	02/24/07	02/24/07	
1,1,2,2-Tetrachloroethane	EPA 8260B	7B24028	0.97	2.3	ND	0.916	02/24/07	02/24/07	
Tetrachloroethene	EPA 8260B	7B24028	0.55	2.3	ND	0.916	02/24/07	02/24/07	
Toluene	EPA 8260B	7B24028	0.56	2.3	ND	0.916	02/24/07	02/24/07	
1,2,3-Trichlorobenzene	EPA 8260B	7B24028	1.1	5.6	ND	0.916	02/24/07	02/24/07	
1,2,4-Trichlorobenzene	EPA 8260B	7B24028	1.1	5.6	ND	0.916	02/24/07	02/24/07	
1,1,1-Trichloroethane	EPA 8260B	7B24028	0.79	2.3	ND	0.916	02/24/07	02/24/07	
1,1,2-Trichloroethane	EPA 8260B	7B24028	0.98	2.3	ND	0.916	02/24/07	02/24/07	
Trichloroethene	EPA 8260B	7B24028	0.56	2.3	ND	0.916	02/24/07	02/24/07	
Trichlorofluoromethane	EPA 8260B	7B24028	0.61	5.6	ND	0.916	02/24/07	02/24/07	
1,2,3-Trichloropropane	EPA 8260B	7B24028	1.1	11	ND	0.916	02/24/07	02/24/07	
1,2,4-Trimethylbenzene	EPA 8260B	7B24028	0.88	2.3	ND	0.916	02/24/07	02/24/07	
1,3,5-Trimethylbenzene	EPA 8260B	7B24028	0.71	2.3	ND	0.916	02/24/07	02/24/07	
Vinyl chloride	EPA 8260B	7B24028	1.0	2.3	ND	0.916	02/24/07	02/24/07	
o-Xylene	EPA 8260B	7B24028	0.56	2.3	ND	0.916	02/24/07	02/24/07	
m,p-Xylenes	EPA 8260B	7B24028	0.90	2.3	ND	0.916	02/24/07	02/24/07	
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	7B24028	4.5	5.6	ND	0.916	02/24/07	02/24/07	
Surrogate: Dibromofluoromethane (80-125%)					94 %				
Surrogate: Toluene-d8 (80-120%)					98 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					96 %				

TestAmerica - Irvine, CA  
Nicholas Marz For Michele Chamberlin  
Project Manager

Level V



MWH-San Diego/Boeing  
 9444 Farnham Street, Suite 300  
 San Diego, CA 92123  
 Attention: Lisa J. Tucker

Project ID: SSFL Group 8 - DOE  
 1891264  
 Report Number: IQB2309

Sampled: 02/20/07  
 Received: 02/21/07

## VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IQB2309-08 (LOBS0007S01 - Soil)									
Reporting Units: ug/kg dry									
Acetone	EPA 8260B	7B24028	8.1	10	ND	0.917	02/24/07	02/24/07	L
Benzene	EPA 8260B	7B24028	0.51	2.0	ND	0.917	02/24/07	02/24/07	
Bromobenzene	EPA 8260B	7B24028	0.85	5.1	ND	0.917	02/24/07	02/24/07	
Bromochloromethane	EPA 8260B	7B24028	0.91	5.1	ND	0.917	02/24/07	02/24/07	
Bromodichloromethane	EPA 8260B	7B24028	0.43	2.0	ND	0.917	02/24/07	02/24/07	
Bromoform	EPA 8260B	7B24028	0.81	5.1	ND	0.917	02/24/07	02/24/07	
Bromomethane	EPA 8260B	7B24028	0.93	5.1	ND	0.917	02/24/07	02/24/07	
2-Butanone (MEK)	EPA 8260B	7B24028	6.1	10	ND	0.917	02/24/07	02/24/07	
n-Butylbenzene	EPA 8260B	7B24028	0.73	5.1	ND	0.917	02/24/07	02/24/07	
sec-Butylbenzene	EPA 8260B	7B24028	0.68	5.1	ND	0.917	02/24/07	02/24/07	
tert-Butylbenzene	EPA 8260B	7B24028	0.63	5.1	ND	0.917	02/24/07	02/24/07	
Carbon tetrachloride	EPA 8260B	7B24028	0.51	5.1	ND	0.917	02/24/07	02/24/07	
Chlorobenzene	EPA 8260B	7B24028	0.53	2.0	ND	0.917	02/24/07	02/24/07	
Chloroethane	EPA 8260B	7B24028	1.5	5.1	ND	0.917	02/24/07	02/24/07	
2-Chloroethyl vinyl ether	EPA 8260B	7B24028	3.9	5.1	ND	0.917	02/24/07	02/24/07	
Chloroform	EPA 8260B	7B24028	0.51	2.0	ND	0.917	02/24/07	02/24/07	
Chloromethane	EPA 8260B	7B24028	1.0	5.1	ND	0.917	02/24/07	02/24/07	
2-Chlorotoluene	EPA 8260B	7B24028	0.88	5.1	ND	0.917	02/24/07	02/24/07	
4-Chlorotoluene	EPA 8260B	7B24028	0.75	5.1	ND	0.917	02/24/07	02/24/07	
Dibromochloromethane	EPA 8260B	7B24028	0.57	2.0	ND	0.917	02/24/07	02/24/07	
1,2-Dibromo-3-chloropropane	EPA 8260B	7B24028	1.5	5.1	ND	0.917	02/24/07	02/24/07	
1,2-Dibromoethane (EDB)	EPA 8260B	7B24028	0.81	2.0	ND	0.917	02/24/07	02/24/07	
Dibromomethane	EPA 8260B	7B24028	0.91	2.0	ND	0.917	02/24/07	02/24/07	
1,2-Dichlorobenzene	EPA 8260B	7B24028	0.97	2.0	ND	0.917	02/24/07	02/24/07	
1,3-Dichlorobenzene	EPA 8260B	7B24028	0.85	2.0	ND	0.917	02/24/07	02/24/07	
1,4-Dichlorobenzene	EPA 8260B	7B24028	0.96	2.0	ND	0.917	02/24/07	02/24/07	
Dichlorodifluoromethane	EPA 8260B	7B24028	1.5	5.1	ND	0.917	02/24/07	02/24/07	
1,1-Dichloroethane	EPA 8260B	7B24028	0.51	2.0	ND	0.917	02/24/07	02/24/07	
1,2-Dichloroethane	EPA 8260B	7B24028	0.81	2.0	ND	0.917	02/24/07	02/24/07	
1,1-Dichloroethene	EPA 8260B	7B24028	0.61	5.1	ND	0.917	02/24/07	02/24/07	
cis-1,2-Dichloroethene	EPA 8260B	7B24028	0.84	2.0	ND	0.917	02/24/07	02/24/07	
trans-1,2-Dichloroethene	EPA 8260B	7B24028	0.71	2.0	ND	0.917	02/24/07	02/24/07	
1,2-Dichloropropane	EPA 8260B	7B24028	0.36	2.0	ND	0.917	02/24/07	02/24/07	
1,3-Dichloropropane	EPA 8260B	7B24028	0.64	2.0	ND	0.917	02/24/07	02/24/07	
2,2-Dichloropropane	EPA 8260B	7B24028	0.46	2.0	ND	0.917	02/24/07	02/24/07	
1,1-Dichloropropene	EPA 8260B	7B24028	0.41	2.0	ND	0.917	02/24/07	02/24/07	
cis-1,3-Dichloropropene	EPA 8260B	7B24028	0.45	2.0	ND	0.917	02/24/07	02/24/07	
trans-1,3-Dichloropropene	EPA 8260B	7B24028	0.62	2.0	ND	0.917	02/24/07	02/24/07	
Ethylbenzene	EPA 8260B	7B24028	0.51	2.0	ND	0.917	02/24/07	02/24/07	
Hexachlorobutadiene	EPA 8260B	7B24028	0.74	5.1	ND	0.917	02/24/07	02/24/07	
2-Hexanone	EPA 8260B	7B24028	9.2	10	ND	0.917	02/24/07	02/24/07	

TestAmerica - Irvine, CA  
 Nicholas Marz For Michele Chamberlin  
 Project Manager

MWH-San Diego/Boeing  
9444 Farnham Street, Suite 300  
San Diego, CA 92123  
Attention: Lisa J. Tucker

Project ID: SSFL Group 8 - DOE  
1891264  
Report Number: IQB2309

Sampled: 02/20/07  
Received: 02/21/07

## VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IQB2309-08 (LOBS0007S01 - Soil) - cont.									
Reporting Units: ug/kg dry									
Isopropylbenzene	EPA 8260B	7B24028	0.55	2.0	ND	0.917	02/24/07	02/24/07	
p-Isopropyltoluene	EPA 8260B	7B24028	0.73	2.0	ND	0.917	02/24/07	02/24/07	
Methylene chloride	EPA 8260B	7B24028	6.6	20	ND	0.917	02/24/07	02/24/07	
4-Methyl-2-pentanone (MIBK)	EPA 8260B	7B24028	3.3	5.1	ND	0.917	02/24/07	02/24/07	
Methyl-tert-butyl Ether (MTBE)	EPA 8260B	7B24028	1.0	5.1	ND	0.917	02/24/07	02/24/07	
Naphthalene	EPA 8260B	7B24028	1.1	5.1	ND	0.917	02/24/07	02/24/07	
n-Propylbenzene	EPA 8260B	7B24028	0.62	2.0	ND	0.917	02/24/07	02/24/07	
Styrene	EPA 8260B	7B24028	0.59	2.0	ND	0.917	02/24/07	02/24/07	
1,1,1,2-Tetrachloroethane	EPA 8260B	7B24028	0.58	5.1	ND	0.917	02/24/07	02/24/07	
1,1,2,2-Tetrachloroethane	EPA 8260B	7B24028	0.87	2.0	ND	0.917	02/24/07	02/24/07	
Tetrachloroethene	EPA 8260B	7B24028	0.50	2.0	ND	0.917	02/24/07	02/24/07	
Toluene	EPA 8260B	7B24028	0.51	2.0	ND	0.917	02/24/07	02/24/07	
1,2,3-Trichlorobenzene	EPA 8260B	7B24028	1.0	5.1	ND	0.917	02/24/07	02/24/07	
1,2,4-Trichlorobenzene	EPA 8260B	7B24028	1.0	5.1	ND	0.917	02/24/07	02/24/07	
1,1,1-Trichloroethane	EPA 8260B	7B24028	0.71	<u>2.0</u>	<b>0.79</b>	0.917	02/24/07	02/24/07	B, J
1,1,2-Trichloroethane	EPA 8260B	7B24028	0.88	2.0	ND	0.917	02/24/07	02/24/07	
Trichloroethene	EPA 8260B	7B24028	0.51	2.0	ND	0.917	02/24/07	02/24/07	
Trichlorofluoromethane	EPA 8260B	7B24028	0.55	5.1	ND	0.917	02/24/07	02/24/07	
1,2,3-Trichloropropane	EPA 8260B	7B24028	1.0	10	ND	0.917	02/24/07	02/24/07	
1,2,4-Trimethylbenzene	EPA 8260B	7B24028	0.79	2.0	ND	0.917	02/24/07	02/24/07	
1,3,5-Trimethylbenzene	EPA 8260B	7B24028	0.64	2.0	ND	0.917	02/24/07	02/24/07	
Vinyl chloride	EPA 8260B	7B24028	0.92	2.0	ND	0.917	02/24/07	02/24/07	
o-Xylene	EPA 8260B	7B24028	0.51	2.0	ND	0.917	02/24/07	02/24/07	
m,p-Xylenes	EPA 8260B	7B24028	0.81	2.0	ND	0.917	02/24/07	02/24/07	
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	7B24028	4.1	5.1	ND	0.917	02/24/07	02/24/07	
Surrogate: Dibromofluoromethane (80-125%)					96 %				
Surrogate: Toluene-d8 (80-120%)					99 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					95 %				

TestAmerica - Irvine, CA  
Nicholas Marz For Michele Chamberlin  
Project Manager

Level II

MWH-San Diego/Boeing  
 9444 Farnham Street, Suite 300  
 San Diego, CA 92123  
 Attention: Lisa J. Tucker

Project ID: SSFL Group 8 - DOE  
 1891264  
 Report Number: IQB2309

Sampled: 02/20/07  
 Received: 02/21/07

## PURGEABLES BY GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IQB2309-07 (L0BS0007D01 - Soil)</b>									
Reporting Units: ug/kg dry									
2-Chloro-1,1,1-trifluoroethane	EPA 8260B	7B24028	N/A	11	ND	0.916	02/24/07	02/24/07	
Chlorotrifluoroethene	EPA 8260B	7B24028	N/A	11	ND	0.916	02/24/07	02/24/07	
<b>Sample ID: IQB2309-08 (L0BS0007S01 - Soil)</b>									
Reporting Units: ug/kg dry									
2-Chloro-1,1,1-trifluoroethane	EPA 8260B	7B24028	N/A	10	ND	0.917	02/24/07	02/24/07	
Chlorotrifluoroethene	EPA 8260B	7B24028	N/A	10	ND	0.917	02/24/07	02/24/07	

TestAmerica - Irvine, CA  
 Nicholas Marz For Michele Chamberlin  
 Project Manager

The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from TestAmerica.

Level II  
 IQB2309 <Page 8 of 34>



# DATA VALIDATION REPORT

Boeing SSFL RFI Group 8 Data Gap

SAMPLE DELIVERY GROUP: D7E170359

Prepared by

MEC<sup>X</sup>, LLC  
12269 East Vassar Drive  
Aurora, CO 80014

**I. INTRODUCTION**

Task Order Title: Boeing SSFL RFI Group 8 Data Gap  
 Contract Task Order: 1261.500D.08.001  
 Sample Delivery Group: D7E170359  
 Project Manager: Dixie Hambrick  
 Matrix: soil  
 QC Level: V  
 No. of Samples: 2  
 No. of Reanalyses/Dilutions: 0  
 Laboratory: STL-Denver

**Table 1. Sample Identification**

Sample Name	Lab Name	Sample	Sub-Lab Sample Name	Matrix	Collection	Method
L0BS0010S01SP	D7E170359002	N/A		Soil	5/16/2007 12:45:00 PM	6010B, 8082, 9056
L0BS0014S01SP	D7E170359001	N/A		Soil	5/16/2007 7:37:00 AM	6010B, 6020, 7471A, 8260B,

**II. Sample Management**

No anomalies were observed regarding sample management. The samples in this SDG were received at the laboratory within the temperature limits of 4°C ±2°C. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were appropriately signed and dated by field and/or laboratory personnel. Custody seals were intact. If necessary, the client ID was added to the sample result summary by the reviewer.

---

**Data Qualifier Reference Table**

---

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

---

### Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

**Qualification Code Reference Table Cont.**

---

D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

---



### III. Method Analyses

#### A. EPA METHODS 6010B, 6020, 7470A/7471A—Metals and Mercury

Reviewed By: P. Meeks

Date Reviewed: June 28, 2007

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0)*, *EPA Methods 6010B, 6020, 7470A/7471A*, and the *National Functional Guidelines for Inorganic Data Review (2/94)*.

- Holding Times: Analytical holding times, six months for ICP and ICP-MS metals and 28 days for mercury, were met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks had no applicable detects. Mercury was reported in a CCB at - 0.072 µg/L; therefore, nondetected mercury in LOQW00014S01SP was qualified as estimated, "UJ."
- Interference Check Samples: Review is not applicable at a Level V validation.
- Blank Spikes and Laboratory Control Samples: Recoveries and RPDs were within laboratory-established QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed for a sample in this SDG. Due to poor recoveries noted in other SDGs, the reviewer qualified the nondetected antimony in LOQW0014S01SP as estimated, "UJ."
- Serial Dilution: No serial dilution analyses were performed for a sample in this SDG.
- Internal Standards Performance: All sample internal standard intensities were within 30-120% of the internal standard intensities measured in the initial calibration. All CCV and CCB internal standard intensities were within 80-120% of the internal standard intensities measured in the initial calibration.
- Sample Result Verification: Review is not applicable at a Level V validation. Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC

data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

- Field Blanks and Equipment Rinsates: There were no applicable detects in field blank BLQW0019F01 (186235) or equipment rinsate LQW0004E01 (186245).
- Field Duplicates: There were no field duplicate samples identified for this SDG.

## **B. EPA METHOD 8082—PCBs**

Reviewed By: K. Shadowlight

Date Reviewed: June 26, 2007

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for Organochlorine Pesticides/PCBs by GC (DVP-4, Rev. 0)*, *EPA Method 8082*, and the *National Functional Guidelines for Organic Data Review (2/94)*.

- Holding Times: Extraction and analytical holding times were met. The soil sample was extracted within 14 days of collection and analyzed within 40 days of extraction.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: The method blank had no target compound detects above the MDL.
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratory-established QC limits.
- Surrogate Recovery: Recoveries were within laboratory-established QC limits.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were not performed on a sample from this SDG. Evaluation of method accuracy was based on the blank spike results.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: There were no target compounds detected in field blank BLQW0019F01 (186235) or equipment rinsate LOQW0004E01 (186245).
  - Field Duplicates: There were no field duplicate samples identified for this SDG.
- Compound Identification: Review is not applicable at a Level V validation. The laboratory analyzed for Aroclors by Method 8082.

- Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation. Although the laboratory reported nondetected results to the MDL, reported nondetects are valid to the reporting limit. The reviewer hand-corrected the sample result forms to reflect the correct nondetected values.

### C. EPA METHOD 8260B—Volatile Organic Compounds (VOCs)

Reviewed By: L. Calvin

Date Reviewed: June 28, 2007

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC<sup>X</sup> Data Validation Procedure for Volatile Organics (DVP-2, Rev. 0)*, *EPA Method 8260B*, and the *National Functional Guidelines for Organic Data Review (2/94)*.

- Holding Times: Analytical holding times were met. The soil sample was analyzed within 14 days of collection.
- GC/MS Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: The method blank had no target compound detects above the MDL or added compounds detected as TICs.
- Blank Spikes and Laboratory Control Samples: Recoveries and RPDs were within laboratory-established QC limits.
- Surrogate Recovery: Recoveries were within laboratory-established QC limits.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were not performed on the sample from this SDG. Evaluation of method accuracy was based on the blank spike results.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Trip Blanks: This SDG had no identified trip blank.
  - Field Blanks and Equipment Rinsates: Field blank BLQW0019F01 (186235) and equipment rinsate LOQW0004E01 (186245) had detects between the MDL and the RL for 2-butanone at concentrations of 3.09 µg/Kg and 3.14 µg/Kg, respectively; however, 2-butanone was not detected in the associated site sample.

- Field Duplicates: There were no field duplicate samples identified for this SDG.
- Internal Standards Performance: Review is not applicable at a Level V validation.
- Compound Identification: Review is not applicable at a Level V validation. The laboratory analyzed for volatile target compounds by Method 8260B. Two requested target compounds, 2-chloro-1,1,1-trifluoroethane and chlorotrifluoroethene, were searched for only as TICs (see TIC section).
- Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation. Any result reported between the MDL and the reporting limit was qualified as estimated, "J." Although the laboratory reported nondetected results to the MDL, reported nondetects are valid to the reporting limit. The reviewer hand-corrected the sample result forms to reflect the correct nondetected values.
- Tentatively Identified Compounds: A TIC search was performed for added target compounds 2-chloro-1,1,1-trifluoroethane and chlorotrifluoroethene. As neither compound was detected as a TIC, results for both were qualified as estimated nondetects, "UJ."
- System Performance: Review is not applicable at a Level V validation.

#### **D. EPA METHOD 9056—General Minerals**

Reviewed By: P. Meeks

Date Reviewed: June 28, 2007

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC<sup>X</sup> Data Validation Procedure for General Minerals (DVP-6, Rev. 0)*, *EPA Method 9056*, and the *National Functional Guidelines for Inorganic Data Review (2/94)*.

- Holding Times: The analytical holding time, 28 days for fluoride, was met.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks and CCBs had no detects.
- Blank Spikes and Laboratory Control Samples: Recoveries and RPD were within laboratory-established QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: Recoveries and RPD were within laboratory-established QC limits.

- Sample Result Verification: Review is not applicable at a Level V validation. Nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: Fluoride was not detected in field blank BLQW00019F01 (186235) or equipment rinsate LQW0004E01 (186245).
  - Field Duplicates: There were no field duplicate samples identified for this SDG.

# STL

MWH Americas, Inc.

## Total Metals Analysis Data Sheet

Lab Name: STL DENVER  
Lot/SDG Number: D7E170359  
Matrix: SOLID  
% Moisture: 12  
Basis: Dry  
Analysis Method: 6010B  
Unit: mg/kg  
QC Batch ID: 7142591  
Sample Aliquot: 1.01 g  
Dilution Factor: 1

Client Sample ID: L0BS0014S01SP  
Lab Sample ID: D7E170359-001  
Lab WorkOrder: JW7D9  
Date/Time Collected: 05/16/07 07:37  
Date/Time Received: 05/17/07 12:30  
Date Leached:  
Date/Time Extracted: 05/23/07 08:00  
Date/Time Analyzed: 05/25/07 03:49  
Instrument ID: 025

CAS No.	Analyte	Conc.	MDL	RL	Q
7440-42-8	Boron	6.0	1.1	11	J
7440-09-7	Potassium	3900	47	340	
7440-67-7	Zirconium	4.9	0.78	3.4	

LEVEL V

# STL

MWH Americas, Inc.

## Total Metals Analysis Data Sheet

Lab Name: STL DENVER  
Lot/SDG Number: D7E170359  
Matrix: SOLID  
% Moisture: 12  
Basis: Dry  
Analysis Method: 6010B  
Unit: mg/kg  
QC Batch ID: 7142591  
Sample Aliquot: 1.01 g  
Dilution Factor: 1

Client Sample ID: LOBS0014S01SP  
Lab Sample ID: D7E170359-001  
Lab WorkOrder: JW7D9  
Date/Time Collected: 05/16/07 07:37  
Date/Time Received: 05/17/07 12:30  
Date Leached:  
Date/Time Extracted: 05/23/07 08:00  
Date/Time Analyzed: 05/26/07 03:23  
Instrument ID: 025

CAS No.	Analyte	Conc.	MDL	RL	Q
7429-90-5	Aluminum	26000	5.6	11	L
7439-93-2	Lithium	23	0.34	5.7	
7440-23-5	Sodium	230	67	570	J

LEVEL V

# STL

## MWH Americas, Inc. Total Metals Analysis Data Sheet

Lab Name: STL DENVER  
 Lot/SDG Number: D7E170359  
 Matrix: SOLID  
 % Moisture: 12  
 Basis: Dry  
 Analysis Method: 6020  
 Unit: ug/kg  
 QC Batch ID: 7142590  
 Sample Aliquot: 0.99 g  
 Dilution Factor: 1

Client Sample ID: L0BS0014S01SP  
 Lab Sample ID: D7E170359-001  
 Lab WorkOrder: JW7D9  
 Date/Time Collected: 05/16/07 07:37  
 Date/Time Received: 05/17/07 12:30  
 Date Leached:  
 Date/Time Extracted: 05/23/07 08:00  
 Date/Time Analyzed: 05/31/07 21:46  
 Instrument ID: 004

CAS No.	Analyte	Conc.	MDL	RL	Q
7440-36-0	Antimony <i>VJ/Q</i>				
7440-38-2	Arsenic	72	72	230	U
7440-39-3	Barium	4000	17	680	L
7440-41-7	Beryllium	130000	60	230	
7440-43-9	Cadmium	740	23	110	
7440-47-3	Chromium	270	7.0	110	
7440-48-4	Cobalt	26000	68	230	B L
7440-50-8	Copper	8400	2.9	110	L
7439-92-1	Lead	13000	92	290	L
7439-98-7	Molybdenum	8600	57	170	B
7440-02-0	Nickel	160	18	230	J
7782-49-2	Selenium	17000	46	170	L
7440-22-4	Silver	540	91	570	J
7440-28-0	Thallium	56	18	110	J
7440-62-2	Vanadium	300	3.4	110	
7440-66-6	Zinc	47000	34	570	L
		58000	290	1100	B L

LEVEL V



# STL

MWH Americas, Inc.

## Total Metals Analysis Data Sheet

Lab Name: STL DENVER  
Lot/SDG Number: D7E170359  
Matrix: SOLID  
% Moisture: 12  
Basis: Dry  
Analysis Method: 7471A  
Unit: ug/kg  
QC Batch ID: 7141529  
Sample Aliquot: 0.31 g  
Dilution Factor: 1

Client Sample ID: L0BS0014S01SP  
Lab Sample ID: D7E170359-001  
Lab WorkOrder: JW7D9  
Date/Time Collected: 05/16/07 07:37  
Date/Time Received: 05/17/07 12:30  
Date Leached:  
Date/Time Extracted: 05/23/07 10:40  
Date/Time Analyzed: 05/23/07 20:46  
Instrument ID: 023

CAS No.	Analyte	Conc.	MDL	RL	Q
7439-97-6	Mercury <u>UJ/B</u>	3.2	3.2	38	U

LEVEL V

# STL

MWH Americas, Inc.

## Total Metals Analysis Data Sheet

Lab Name: STL DENVER  
Lot/SDG Number: D7E170359  
Matrix: SOLID  
% Moisture: 8.4  
Basis: Dry  
Analysis Method: 6010B  
Unit: mg/kg  
QC Batch ID: 7142591  
Sample Aliquot: 0.99 g  
Dilution Factor: 1

Client Sample ID: L0BS0010S01SP  
Lab Sample ID: D7E170359-002  
Lab WorkOrder: JW7EE  
Date/Time Collected: 05/16/07 12:45  
Date/Time Received: 05/17/07 12:30  
Date Leached:  
Date/Time Extracted: 05/23/07 08:00  
Date/Time Analyzed: 05/25/07 03:54  
Instrument ID: 025

CAS No.	Analyte	Conc.	MDL	RL	Q
7440-42-8	Boron	1.1	1.1	11	J

LEVEL V

# STL

MWH Americas, Inc.

## Analysis Data Sheet

Lab Name: STL DENVER  
Lot/SDG Number: D7E170359  
Matrix: SOLID  
% Moisture: 8.4  
Basis: Dry  
Analysis Method: 8082  
Unit: ug/kg  
QC Batch ID: 7138114  
Sample Aliquot: 30.1 g  
Dilution Factor: 1

Client Sample ID: LOBS0010S01SP  
Lab Sample ID: D7E170359-002  
Lab WorkOrder: JW7EE1AD  
Date/Time Collected: 05/16/07 12:45  
Date/Time Received: 05/17/07 12:30  
Date Leached:  
Date/Time Extracted: 05/18/07 07:30  
Date/Time Analyzed: 05/24/07 23:42  
Instrument ID: W1

CAS No.	Analyte	Conc.	MDL	RL	Q
12674-11-2	Aroclor 1016 <i>u/s</i>	<i>36</i> 5.6	5.6	36	U
11104-28-2	Aroclor 1221	<i>51</i> 17	17	51	U
11141-16-5	Aroclor 1232	<i>36</i> 5.6	5.6	36	U
53469-21-9	Aroclor 1242	<i>10</i>	10	36	U
12672-29-6	Aroclor 1248	<i>6.1</i>	6.1	36	U
11097-69-1	Aroclor 1254	<i>6.0</i>	6.0	36	U
11096-82-5	Aroclor 1260	<i>2.9</i>	2.9	36	U

CAS No.	Surrogate	% Rec	Lower Limit	Upper Limit	Q
2051-24-3	Decachlorobiphenyl	98	38	162	
877-09-8	Tetrachloro-m-xylene	88	53	132	

*Level IV*

# STL

MWH Americas, Inc.  
Analysis Data Sheet

Lab Name: STL DENVER  
 Lot/SDG Number: D7E170359  
 Matrix: SOLID  
 % Moisture: 12  
 Basis: Dry  
 Analysis Method: 8260B  
 Unit: ug/kg  
 QC Batch ID: 7142159  
 Sample Aliquot: 5.4 g  
 Dilution Factor: 0.92

Client Sample ID: L0BS0014S01SP  
 Lab Sample ID: D7E170359-001  
 Lab WorkOrder: JW7D91A0  
 Date/Time Collected: 05/16/07 07:37  
 Date/Time Received: 05/17/07 12:30  
 Date Leached:  
 Date/Time Extracted: 05/17/07 22:30  
 Date/Time Analyzed: 05/21/07 11:00  
 Instrument ID: J

CAS No.	Analyte	Conc.	MDL	RL	Q
630-20-6	1,1,1,2-Tetrachloroethane	u/s 5.3 0.59	0.59	5.3	U
71-55-6	1,1,1-Trichloroethane	0.55	0.55	5.3	U
79-34-5	1,1,2,2-Tetrachloroethane	0.64	0.64	5.3	U
79-00-5	1,1,2-Trichloroethane	0.92	0.92	5.3	U
75-34-3	1,1-Dichloroethane	0.22	0.22	5.3	U
75-35-4	1,1-Dichloroethene	0.62	0.62	5.3	U
563-58-6	1,1-Dichloropropene	0.57	0.57	5.3	U
87-61-6	1,2,3-Trichlorobenzene	0.79	0.79	5.3	U
96-18-4	1,2,3-Trichloropropane	0.85	0.85	5.3	U
120-82-1	1,2,4-Trichlorobenzene	0.77	0.77	5.3	U
95-63-6	1,2,4-Trimethylbenzene	0.61	0.61	5.3	U
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	11 0.63	0.63	11	U
106-93-4	1,2-Dibromoethane (EDB)	5.3 0.55	0.55	5.3	U
95-50-1	1,2-Dichlorobenzene	0.47	0.47	5.3	U
107-06-2	1,2-Dichloroethane	0.74	0.74	5.3	U
78-87-5	1,2-Dichloropropane	0.58	0.58	5.3	U
108-67-8	1,3,5-Trimethylbenzene	0.60	0.60	5.3	U
541-73-1	1,3-Dichlorobenzene	0.50	0.50	5.3	U
142-28-9	1,3-Dichloropropane	0.54	0.54	5.3	U
106-46-7	1,4-Dichlorobenzene	0.82	0.82	5.3	U
594-20-7	2,2-Dichloropropane	0.46	0.46	5.3	U
78-93-3	2-Butanone (MEK)	21 1.9	1.9	21	U
110-75-8	2-Chloroethyl vinyl ether	5.3 5.3	5.3	5.3	U
95-49-8	2-Chlorotoluene	5.3 0.54	0.54	5.3	U
591-78-6	2-Hexanone	21 5.1	5.1	21	U
106-43-4	4-Chlorotoluene	5.3 0.82	0.82	5.3	U
108-10-1	4-Methyl-2-pentanone	21 4.6	4.6	21	U
67-64-1	Acetone	21 5.7	5.7	21	U
71-43-2	Benzene	5.3 0.49	0.49	5.3	U

STL Denver

Form 1 Analysis Data Sheet Equivalent

Level II

PM 7/31/07  
Rev 1

# STL

MWH Americas, Inc.

## Analysis Data Sheet

**Lab Name:** STL DENVER  
**Lot/SDG Number:** D7E170359  
**Matrix:** SOLID  
**% Moisture:** 12  
**Basis:** Dry  
**Analysis Method:** 8260B  
**Unit:** ug/kg  
**QC Batch ID:** 7142159  
**Sample Aliquot:** 5.4 g  
**Dilution Factor:** 0.92

**Client Sample ID:** L0BS0014S01SP  
**Lab Sample ID:** D7E170359-001  
**Lab WorkOrder:** JW7D91A0  
**Date/Time Collected:** 05/16/07 07:37  
**Date/Time Received:** 05/17/07 12:30  
**Date Leached:**  
**Date/Time Extracted:** 05/17/07 22:30  
**Date/Time Analyzed:** 05/21/07 11:00  
**Instrument ID:** J

CAS No.	Analyte	Conc.	MDL	RL	Q
108-86-1	Bromobenzene	5.3 0.51	0.51	5.3	U
74-97-5	Bromochloromethane	↓ 0.32	0.32	5.3	U
75-27-4	Bromodichloromethane	↓ 0.23	0.23	5.3	U
75-25-2	Bromoform	↓ 0.24	0.24	5.3	U
74-83-9	Bromomethane	11 0.53	0.53	11	U
56-23-5	Carbon tetrachloride	5.3 0.66	0.66	5.3	U
108-90-7	Chlorobenzene	5.3 0.57	0.57	5.3	U
75-00-3	Chloroethane	11 0.93	0.93	11	U
67-66-3	Chloroform	↓ 0.30	0.30	11	U
74-87-3	Chloromethane	↓ 0.81	0.81	11	U
156-59-2	cis-1,2-Dichloroethene	2.6 0.59	0.59	2.6	U
10061-01-5	cis-1,3-Dichloropropene	5.3 1.4	1.4	5.3	U
124-48-1	Dibromochloromethane	↓ 0.60	0.60	5.3	U
74-95-3	Dibromomethane	↓ 0.88	0.88	5.3	U
75-71-8	Dichlorodifluoromethane	11 0.55	0.55	11	U
100-41-4	Ethylbenzene	5.3 0.70	0.70	5.3	U
87-68-3	Hexachlorobutadiene	↓ 0.58	0.58	5.3	U
98-82-8	Isopropylbenzene	↓ 0.62	0.62	5.3	U
1634-04-4	Methyl tert-butyl ether	21 0.36	0.36	21	U
75-09-2	Methylene chloride	5.3 0.79	0.79	5.3	U
136777-61-2	m-Xylene & p-Xylene	2.6 1.1	1.1	2.6	U
91-20-3	Naphthalene	5.3 0.66	0.66	5.3	U
104-51-8	n-Butylbenzene	↓ 0.59	0.59	5.3	U
103-65-1	n-Propylbenzene	↓ 0.61	0.61	5.3	U
95-47-6	o-Xylene	2.6 0.64	0.64	2.6	U
99-87-6	p-Isopropyltoluene	5.3 0.51	0.51	5.3	U
135-98-8	sec-Butylbenzene	↓ 0.81	0.81	5.3	U
100-42-5	Styrene	↓ 0.66	0.66	5.3	U
98-06-6	tert-Butylbenzene	↓ 0.53	0.53	5.3	U

STL Denver

Form 1 Analysis Data Sheet Equivalent  
Level II

DM 7/31/07  
Rev 1



# STL

MWH Americas, Inc.  
Analysis Data Sheet

Lab Name: STL DENVER  
 Lot/SDG Number: D7E170359  
 Matrix: SOLID  
 % Moisture: 12  
 Basis: Dry  
 Analysis Method: 8260B  
 Unit: ug/kg  
 QC Batch ID: 7142159  
 Sample Aliquot: 5.4 g  
 Dilution Factor: 0.92

Client Sample ID: L0BS0014S01SP  
 Lab Sample ID: D7E170359-001  
 Lab WorkOrder: JW7D91A0  
 Date/Time Collected: 05/16/07 07:37  
 Date/Time Received: 05/17/07 12:30  
 Date Leached:  
 Date/Time Extracted: 05/17/07 22:30  
 Date/Time Analyzed: 05/21/07 11:00  
 Instrument ID: 1

CAS No.	Analyte	Conc.	MDL	RL	Q
127-18-4	Tetrachloroethene	5.3 -0.62	0.62	5.3	U
108-88-3	Toluene	5.3 0.72	0.72	5.3	U
156-60-5	trans-1,2-Dichloroethene	2.6 -0.41	0.41	2.6	U
10061-02-6	trans-1,3-Dichloropropene	5.3 -0.70	0.70	5.3	U
79-01-6	Trichloroethene	5.3 -0.24	0.24	5.3	U
75-69-4	Trichlorofluoromethane	11 +-1	1.1	11	U
76-13-1	Trichlorotrifluoroethane	21 -0.47	0.47	21	U
75-01-4	Vinyl chloride	5.3 1.4	1.4	5.3	U
75-88-7	2-Chloro-1,1,1-trifluoroethane				TND
79-38-9	Chlorotrifluoroethylene				TND

CAS No.	Surrogate	% Rec	Lower Limit	Upper Limit	Q
17060-07-0	1,2-Dichloroethane-d4	112	58	140	
2037-26-5	Toluene-d8	107	80	126	
1868-53-7	Dibromofluoromethane	108	75	121	
460-00-4	4-Bromofluorobenzene	93	76	127	

*Level II*

*JAC  
06.28.07*

*Mm 7/31/07  
Res 1*

MWH Americas, Inc.

Client Sample ID: L0BS0010S01SP

General Chemistry

Lot-Sample #....: D7E170359-002  
Date Sampled....: 05/16/07 12:45

Work Order #....: JW7EE  
Date Received...: 05/17/07

Matrix.....: SO

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Fluoride	2.1 J	11	mg/kg	SW846 9056	05/23-05/24/07	7144342
			Dilution Factor: 1	Analysis Time...: 04:28	MDL.....: 0.90	
Total Solids	* 92	0.10	%	MCAWW 160.3 MOD	05/21/07	7141589
			Dilution Factor: 1	Analysis Time...: 11:45	MDL.....:	

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Estimated result: result is less than RL and greater than or equal to the MDL.

\* Analysis not validated

LEVEL ✓



# DATA VALIDATION REPORT

Boeing SSFL RFI Group 8 Data Gap

SAMPLE DELIVERY GROUP: D7E170358

Prepared by

MEC<sup>X</sup>, LLC  
12269 East Vassar Drive  
Aurora, CO 80014



**I. INTRODUCTION**

Task Order Title: Boeing SSFL RFI Group 8 Data Gap  
 Contract Task Order: 1261.500D.08.001  
 Sample Delivery Group: D7E170358  
 Project Manager: Dixie Hambrick  
 Matrix: soil  
 QC Level: V  
 No. of Samples: 1  
 No. of Reanalyses/Dilutions: 0  
 Laboratory: STL-Denver

**Table 1. Sample Identification**

Sample Name	Lab Name	Sample	Sub-Lab Sample Name	Matrix	Collection	Method
L0BS0012S01SP	D7E170358001		N/A	Soil	5/15/2007 12:30:00 PM	6010B, 6020, 7471A, 8015B, 8082, 8260B, 8270C SIM, 9056

**II. Sample Management**

No anomalies were observed regarding sample management. The sample in this SDG was received at the laboratory within the temperature limits of 4°C ±2°C. According to the case narrative for this SDG, the sample was received intact, on ice, and properly preserved, if applicable. The COC was appropriately signed and dated by field and/or laboratory personnel. Custody seals were intact. If necessary, the client ID was added to the sample result summary by the reviewer.

---

**Data Qualifier Reference Table**

---

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

---

### Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

**Qualification Code Reference Table Cont.**

---

D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

---

### III. Method Analyses

#### A. EPA METHODS 6010B, 6020, 7470A/7471A—Metals and Mercury

Reviewed By: P. Meeks

Date Reviewed: June 28, 2007

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0)*, *EPA Methods 6010B, 6020, 7470A/7471A*, and the *National Functional Guidelines for Inorganic Data Review (2/94)*.

- Holding Times: Analytical holding times, six months for ICP and ICP-MS metals and 28 days for mercury, were met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks had no applicable detects. Mercury was reported in a CCB at 0.079 ug/L; therefore, nondetected mercury in the sample was qualified as estimated, "UJ."
- Interference Check Samples: Review is not applicable at a Level V validation.
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratory-established QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on the sample in this SDG. Antimony was recovered below 30% in both the MS and the MSD; therefore, nondetected antimony was rejected, "R," in the sample. Most 6020 analytes were recovered below the control limit in the MS and five 6020 analytes were recovered below the control limit in the MSD. Sodium was recovered above the control limit in the MS and mercury was recovered below the control limit in the MSD. Nondetected mercury was qualified as estimated, "UJ," and arsenic, cadmium, cobalt, copper, lead, molybdenum, nickel, selenium, silver, sodium, and thallium were qualified as estimated detects, "J." The mercury RPD exceeded the laboratory-established control limit; however, as mercury was not detected in the sample, no qualifications were required. All remaining recoveries and RPDs were within laboratory-established QC limits.
- Serial Dilution: Serial dilution analyses were performed on the sample in this SDG. The %Ds for aluminum, arsenic, chromium, cobalt, copper, nickel, vanadium, and zinc exceeded the control limit; therefore, the aforementioned analytes were qualified as estimated detects, "J." All remaining %Ds were within the laboratory-established control limit.

- Internal Standards Performance: All sample internal standard intensities were within 30-120% of the internal standard intensities measured in the initial calibration. All CCV and CCB internal standard intensities were within 80-120% of the internal standard intensities measured in the initial calibration.
- Sample Result Verification: Review is not applicable at a Level V validation. Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: There were no applicable detects in field blank BLQW0002F01 (186235) or equipment rinsate L0QW0004E01 (186245).
  - Field Duplicates: There were no field duplicate samples identified for this SDG.

## **B. EPA METHOD 8270C-SIM—Polynuclear Aromatic Hydrocarbons (PAHs)**

Reviewed By: L. Calvin

Date Reviewed: July 3, 2007

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for Semivolatile Organics (DVP-3, Rev. 0)*, *EPA Method 8270C*, and the *National Functional Guidelines for Organic Data Review (2/94)*.

- Holding Times: Extraction and analytical holding times were met. The soil sample was extracted within 14 days of collection and analyzed within 40 days of extraction.
- GC/MS Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: The following target compounds were detected in the method blank between the MDL and the RL: acenaphthene (0.33 µg/Kg), diethyl phthalate (0.80 µg/Kg), fluoranthene (0.21 µg/Kg), naphthalene (0.65 µg/Kg), phenanthrene (0.55 µg/Kg), bis(2-ethylhexyl) phthalate (4.6 µg/Kg), butyl benzyl phthalate (0.37 µg/Kg), and di-n-butyl phthalate (1.7 µg/Kg). Naphthalene and butyl benzyl phthalate were not detected in the associated sample. Sample concentrations of fluoranthene and phenanthrene exceeded five times the method blank amounts. Sample results for the remaining method blank contaminants were qualified as nondetects, "U," at the reporting limit. The method blank had no other target compound detects above the MDL.

- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratory-established QC limits.
- Surrogate Recovery: Recoveries were within laboratory-established QC limits.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on sample L0BS0012S01SP. In both the MS and MSD, di-n-octyl phthalate was recovered above the QC limits; however, di-n-octyl phthalate was not detected in the parent sample. Benzo(a)pyrene, fluoranthene, and pyrene were recovered above the QC limits in the MS only, and the RPD for benzo(g,h,i)perylene exceeded the QC limit of 30%. No qualifications were assigned.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: Field blank BLQW0019F01 (186235) and equipment rinsate LOQW0004E01 (186245) had no target compounds detected above the MDL.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.
- Internal Standards Performance: Review is not applicable at a Level V validation.
- Compound Identification: Review is not applicable at a Level V validation. The laboratory analyzed for PAH compounds and added phthalates by Method 8270C/SIM.
- Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation; however, the laboratory flagged benzo(b)fluoranthene and benzo(k)fluoranthene with a “K” qualifier to indicate coelution of the two isomers in sample L0BS0012S01SP. Both target compounds were reported only as a single benzo(b)fluoranthene result; therefore, the result for benzo(b)fluoranthene was qualified as estimated, “J,” and the result for benzo(k)fluoranthene was rejected, “R.” Any result reported between the MDL and the reporting limit was qualified as estimated, “J.” Reported nondetects are valid to the reporting limit.

Although the laboratory reported nondetected results to the MDL, reported nondetects are valid to the reporting limit. The reviewer hand-corrected the sample result forms to reflect the correct nondetected values.

- Tentatively Identified Compounds: TICs were not reported by the laboratory for this SDG.
- System performance: System performance is not evaluated at a Level V validation.

## C. EPA METHOD 8082—PCBs

Reviewed By: K. Shadowlight

Date Reviewed: June 26, 2007

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for Organochlorine Pesticides/PCBs by GC (DVP-4, Rev. 0)*, *EPA Method 8082*, and the *National Functional Guidelines for Organic Data Review (2/94)*.

- Holding Times: Extraction and analytical holding times were met. The soil sample was extracted within 14 days of collection and analyzed within 40 days of extraction.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: The method blank had no target compound detects above the MDL.
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratory-established QC limits.
- Surrogate Recovery: Recoveries were within laboratory-established QC limits.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on sample LOBS0012S01SP from this SDG. The recoveries and RPDs were within the laboratory-established QC limits.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: There were no target compounds detected in field blank BLQW0019F01 (186235) or equipment rinsate LOQW0004E01 (186245).
  - Field Duplicates: There were no field duplicate samples identified for this SDG.
- Compound Identification: Review is not applicable at a Level V validation. The laboratory analyzed for Aroclors by Method 8082.
- Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation. Although the laboratory reported nondetected results to the MDL, reported nondetects are valid to the reporting limit. The reviewer hand-corrected the sample result forms to reflect the correct nondetected values.



## D. EPA METHOD 8015B—Extractable Total Fuel Hydrocarbons (EFHs)

Reviewed By: K. Shadowlight

Date Reviewed: June 26, 2007

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC<sup>X</sup> Data Validation Procedure for Total Fuel Hydrocarbons (DVP-8, Rev. 0)*, *EPA Method 8015B*, and the *National Functional Guidelines for Organic Data Review (2/94)*.

- Holding Times: Extraction and analytical holding times were met. The soil sample was extracted within 14 days of collection and analyzed within 40 days of extraction.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: The method blank had no target compound detects above the MDL.
- Blank Spikes and Laboratory Control Samples: The recovery was within laboratory-established QC limits.
- Surrogate Recovery: The recovery was within laboratory-established QC limits.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on sample LOBS0012S01SP from this SDG. The recoveries and RPD were within the laboratory-established QC limits.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: There were no target compounds detected in field blank BLQW0019F01 (186235) or equipment rinse LOQW0004E01 (186245) to qualify the site sample.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.
- Compound Identification: Review is not applicable at a Level V validation. Four EFH hydrocarbon ranges were reported: C8-C11, C12-C14, C15-C20, and C21-C30.
- Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation. Any result reported between the MDL and the reporting limit was qualified as estimated, "J." Although the laboratory reported nondetected results to the MDL, reported nondetects are valid to the reporting limit. The reviewer hand-corrected the sample result forms to reflect the correct nondetected values.

## E. EPA METHOD 8260B—Volatile Organic Compounds (VOCs)

Reviewed By: L. Calvin

Date Reviewed: June 28, 2007

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC<sup>X</sup> Data Validation Procedure for Volatile Organics (DVP-2, Rev. 0)*, *EPA Method 8260B*, and the *National Functional Guidelines for Organic Data Review (2/94)*.

- Holding Times: Analytical holding times were met. The soil sample was analyzed within 14 days of collection.
- GC/MS Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: The method blanks had no target compound detects above the MDL or added compounds detected as TICs.
- Blank Spikes and Laboratory Control Samples: Recoveries and RPDs were within laboratory-established QC limits.
- Surrogate Recovery: Recoveries were within laboratory-established QC limits.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were not performed on the sample from this SDG. Evaluation of method accuracy was based on the blank spike results.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Trip Blanks: This SDG had no identified trip blank.
  - Field Blanks and Equipment Rinsates: Field blank BLQW0019F01 (186235) and equipment rinsate LOQW0004E01 (186245) had detects between the MDL and the RL for 2-butanone at concentrations of 3.09 µg/Kg and 3.14 µg/Kg, respectively; however, 2-butanone was not detected in the associated site sample.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.
- Internal Standards Performance: Review is not applicable at a Level V validation.
- Compound Identification: Review is not applicable at a Level V validation. The laboratory analyzed for volatile target compounds by Method 8260B. Two requested target

compounds, 2-chloro-1,1,1-trifluoroethane and chlorotrifluoroethene, were searched for only as TICs (see TIC section).

- Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation. Any result reported between the MDL and the reporting limit was qualified as estimated, "J." Although the laboratory reported nondetected results to the MDL, reported nondetects are valid to the reporting limit. The reviewer hand-corrected the sample result forms to reflect the correct nondetected values.
- Tentatively Identified Compounds: A TIC search was performed for added target compounds 2-chloro-1,1,1-trifluoroethane and chlorotrifluoroethene. As neither compound was detected as a TIC, results for both were qualified as estimated nondetects, "UJ."
- System Performance: Review is not applicable at a Level V validation.

#### **F. EPA METHOD 9056—General Minerals**

Reviewed By: P. Meeks

Date Reviewed: June 28, 2007

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for General Minerals (DVP-6, Rev. 0)*, *EPA Method 9056*, and the *National Functional Guidelines for Inorganic Data Review (2/94)*.

- Holding Times: the analytical holding time, 28 days for fluoride, was met.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks and CCBs had no detects.
- Blank Spikes and Laboratory Control Samples: Recoveries and RPD were within laboratory-established QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: Recoveries and RPD were within laboratory-established QC limits.
- Sample Result Verification: Review is not applicable at a Level V validation. Nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

- Field Blanks and Equipment Rinsates: Fluoride was not detected in field blank BLQW0019F01 (186235) or equipment rinsate L0QW0004E01 (186245).
- Field Duplicates: There were no field duplicate samples identified for this SDG.

# STL

MWH Americas, Inc.

## Total Metals Analysis Data Sheet

Lab Name: STL DENVER  
Lot/SDG Number: D7E170358  
Matrix: SOLID  
% Moisture: 18  
Basis: Dry  
Analysis Method: 6010B  
Unit: mg/kg  
QC Batch ID: 7142591  
Sample Aliquot: 1.01 g  
Dilution Factor: 1

Client Sample ID: L0BS0012S01SP  
Lab Sample ID: D7E170358-001  
Lab WorkOrder: JW7D7  
Date/Time Collected: 05/15/07 12:30  
Date/Time Received: 05/17/07 12:30  
Date Leached:  
Date/Time Extracted: 05/23/07 08:00  
Date/Time Analyzed: 05/26/07 03:04  
Instrument ID: 025

CAS No.	Analyte	Conc.	MDL	RL	Q
7429-90-5	Aluminum <u>J/A</u>	<u>23000</u>	6.0	12	L
7439-93-2	Lithium	<u>19</u>	0.37	6.1	
7440-23-5	Sodium <u>J/Q</u>	<u>390</u>	72	610	J

LEVEL V

# STL

MWH Americas, Inc.

## Total Metals Analysis Data Sheet

Lab Name: STL DENVER  
Lot/SDG Number: D7E170358  
Matrix: SOLID  
% Moisture: 18  
Basis: Dry  
Analysis Method: 6010B  
Unit: mg/kg  
QC Batch ID: 7142591  
Sample Aliquot: 1.01 g  
Dilution Factor: 1

Client Sample ID: L0BS0012S01SP  
Lab Sample ID: D7E170358-001  
Lab WorkOrder: JW7D7  
Date/Time Collected: 05/15/07 12:30  
Date/Time Received: 05/17/07 12:30  
Date Leached:  
Date/Time Extracted: 05/23/07 08:00  
Date/Time Analyzed: 05/25/07 03:15  
Instrument ID: 025

CAS No.	Analyte	Conc.	MDL	RL	Q
7440-42-8	Boron	4.7	1.2	12	J
7440-09-7	Potassium	3700	50	370	
7440-67-7	Zirconium	5.1	0.83	3.7	

LEVEL V

# STL

MWH Americas, Inc.

## Total Metals Analysis Data Sheet

Lab Name: STL DENVER  
 Lot/SDG Number: D7E170358  
 Matrix: SOLID  
 % Moisture: 18  
 Basis: Dry  
 Analysis Method: 6020  
 Unit: ug/kg  
 QC Batch ID: 7142590  
 Sample Aliquot: 1.01 g  
 Dilution Factor: 1

Client Sample ID: L0BS0012S01SP  
 Lab Sample ID: D7E170358-001  
 Lab WorkOrder: JW7D7  
 Date/Time Collected: 05/15/07 12:30  
 Date/Time Received: 05/17/07 12:30  
 Date Leached:  
 Date/Time Extracted: 05/23/07 08:00  
 Date/Time Analyzed: 05/31/07 21:27  
 Instrument ID: 004

CAS No.	Analyte	Conc.	MDL	RL	Q
7440-36-0	Antimony <i>R/Q</i>	77	77	240	U
7440-38-2	Arsenic <i>J/Q, E</i>	4000	18	730	L
7440-39-3	Barium	130000	64	240	
7440-41-7	Beryllium	900	24	120	
7440-43-9	Cadmium <i>J/Q</i>	360	7.5	120	
7440-47-3	Chromium <i>J/E</i>	28000	73	240	B L
7440-48-4	Cobalt <i>J/Q, E</i>	9300	3.0	120	L
7440-50-8	Copper	14000	99	300	L
7439-92-1	Lead	11000	61	180	B
7439-98-7	Molybdenum	270	19	240	
7440-02-0	Nickel <i>E</i>	19000	49	180	L
7782-49-2	Selenium	530	97	610	J
7440-22-4	Silver	63	19	120	J
7440-28-0	Thallium	350	3.7	120	
7440-62-2	Vanadium <i>J/E</i>	52000	37	610	L
7440-66-6	Zinc	58000	300	1200	B L

LEVEL V

# STL

MWH Americas, Inc.

## Total Metals Analysis Data Sheet

Lab Name: STL DENVER  
Lot/SDG Number: D7E170358  
Matrix: SOLID  
% Moisture: 18  
Basis: Dry  
Analysis Method: 7471A  
Unit: ug/kg  
QC Batch ID: 7141529  
Sample Aliquot: 0.3 g  
Dilution Factor: 1

Client Sample ID: L0BS0012S01SP  
Lab Sample ID: D7E170358-001  
Lab WorkOrder: JW7D7  
Date/Time Collected: 05/15/07 12:30  
Date/Time Received: 05/17/07 12:30  
Date Leached:  
Date/Time Extracted: 05/23/07 10:40  
Date/Time Analyzed: 05/23/07 20:34  
Instrument ID: 023

CAS No.	Analyte	Conc.	MDL	RL	Q
7439-97-6	Mercury <u>UJ/B,Q</u>	3.4	3.4	40	U

LEVEL V



# STL

MWH Americas, Inc.

## Analysis Data Sheet

Lab Name: STL DENVER  
 Lot/SDG Number: D7E170358  
 Matrix: SOLID  
 % Moisture: 18  
 Basis: Dry  
 Analysis Method: 8270C-SIM  
 Unit: ug/kg  
 QC Batch ID: 7141110  
 Sample Aliquot: 30.5 g  
 Dilution Factor: 0.98

Client Sample ID: L0BS0012S01SP  
 Lab Sample ID: D7E170358-001  
 Lab WorkOrder: JW7D71A4  
 Date/Time Collected: 05/15/07 12:30  
 Date/Time Received: 05/17/07 12:30  
 Date Leached: \_\_\_\_\_  
 Date/Time Extracted: 05/22/07 07:30  
 Date/Time Analyzed: 05/25/07 17:43  
 Instrument ID: GCMS2

CAS No.	Analyte	Conc.	MDL	RL	Q
90-12-0	1-Methylnaphthalene <i>u/s</i>	6.0 0.31	0.31	6.0	U
91-57-6	2-Methylnaphthalene <i>J</i>	0.42	0.37	6.0	J
83-32-9	Acenaphthene <i>u/B</i>	0.35	0.19	6.0	JB
208-96-8	Acenaphthylene <i>u/s</i>	6.0 -0.20	0.20	6.0	U
120-12-7	Anthracene <i>J</i>	2.2	0.16	6.0	J
56-55-3	Benzo(a)anthracene	11	0.17	6.0	
50-32-8	Benzo(a)pyrene	13	0.17	6.0	
205-99-2	Benzo(b)fluoranthene <i>J/*III</i>	20	0.17	6.0	K
191-24-2	Benzo(ghi)perylene	8.1	0.24	6.0	
207-08-9	Benzo(k)fluoranthene <i>R/*III</i>	0.16	0.16	6.0	UK
117-81-7	bis(2-Ethylhexyl) phthalate <i>u/B</i>	10	4.0	12	JB
85-68-7	Butyl benzyl phthalate <i>u/s</i>	6.0 -0.20	0.20	6.0	U
218-01-9	Chrysene	14	0.23	6.0	
53-70-3	Dibenzo(a,h)anthracene <i>J</i>	3.5	0.29	6.0	J
84-66-2	Diethyl phthalate <i>u/B</i>	0.63	0.35	6.0	JB
131-11-3	Dimethyl phthalate <i>u/s</i>	6.0 0.56	0.56	6.0	U
84-74-2	Di-n-butyl phthalate <i>u/B</i>	3.5	1.0	6.0	JB
117-84-0	Di-n-octyl phthalate <i>u/s</i>	6.0 -0.38	0.38	6.0	U
206-44-0	Fluoranthene	21	0.25	6.0	B
86-73-7	Fluorene <i>u/s</i>	6.0 0.27	0.27	6.0	U
193-39-5	Indeno(1,2,3-cd)pyrene	7.6	0.29	6.0	
91-20-3	Naphthalene <i>u/s</i>	6.0 0.39	0.39	6.0	U
62-75-9	N-Nitrosodimethylamine <i>↓ ↓</i>	6.0 0.55	0.55	6.0	U
85-01-8	Phenanthrene	7.5	0.37	6.0	B
129-00-0	Pyrene	19	0.21	6.0	

*Level V*

*MM  
Rev 1  
7/31/07*

# STL

MWH Americas, Inc.  
Analysis Data Sheet

Lab Name: STL DENVER  
 Lot/SDG Number: D7E170358  
 Matrix: SOLID  
 % Moisture: 18  
 Basis: Dry  
 Analysis Method: 8082  
 Unit: ug/kg  
 QC Batch ID: 7138114  
 Sample Aliquot: 31.4 g  
 Dilution Factor: 0.96

Client Sample ID: L0BS0012S01SP  
 Lab Sample ID: D7E170358-001  
 Lab WorkOrder: JW7D71A0  
 Date/Time Collected: 05/15/07 12:30  
 Date/Time Received: 05/17/07 12:30  
 Date Leached:  
 Date/Time Extracted: 05/18/07 07:30  
 Date/Time Analyzed: 05/24/07 22:32  
 Instrument ID: W1

CAS No.	Analyte	Conc.	MDL	RL	Q
12674-11-2	Aroclor 1016 <i>4/5</i>	<i>39</i> 6.0	6.0	39	U
11104-28-2	Aroclor 1221	<i>55</i> 78	18	55	U
11141-16-5	Aroclor 1232	<i>39</i> 6.0	6.0	39	U
53469-21-9	Aroclor 1242	<i>11</i>	11	39	U
12672-29-6	Aroclor 1248	<i>6.6</i>	6.6	39	U
11097-69-1	Aroclor 1254	<i>6.5</i>	6.5	39	U
11096-82-5	Aroclor 1260 <i>↓ ↓</i>	<i>3.1</i>	3.1	39	U

CAS No.	Surrogate	% Rec	Lower Limit	Upper Limit	Q
2051-24-3	Decachlorobiphenyl	95	38	162	
877-09-8	Tetrachloro-m-xylene	90	53	132	

*Level V*

*pm 7/31/07  
Rev 1*

# STL

MWH Americas, Inc.

## Analysis Data Sheet

Lab Name: STL DENVER  
Lot/SDG Number: D7E170358  
Matrix: SOLID  
% Moisture: 18  
Basis: Dry  
Analysis Method: 8015B  
Unit: mg/kg  
QC Batch ID: 7138134  
Sample Aliquot: 30.9 g  
Dilution Factor: 0.97

Client Sample ID: L0BS0012S01SP  
Lab Sample ID: D7E170358-001  
Lab WorkOrder: JW7D71AX  
Date/Time Collected: 05/15/07 12:30  
Date/Time Received: 05/17/07 12:30  
Date Leached:  
Date/Time Extracted: 05/18/07 08:00  
Date/Time Analyzed: 05/23/07 18:14  
Instrument ID: U

CAS No.	Analyte	Conc.	MDL	RL	Q
Q937	EFH (C12-C14) <i>u/s</i>	4.7 ±2	1.2	4.7	U
Q1124	EFH (C15-C20) <i>u/s</i>	4.7 ±2	1.2	4.7	U
Q853	EFH (C21-C30) <i>J</i>	3.4	1.2	4.7	J
Q743	EFH (C8-C11) <i>u/s</i>	4.7 ±2	1.2	4.7	U

CAS No.	Surrogate	% Rec	Lower Limit	Upper Limit	Q
84-15-1	o-Terphenyl	81	45	115	

*Level V*

*Am 7/31/07  
Rwl*

# STL

MWH Americas, Inc.

## Analysis Data Sheet

Lab Name: STL DENVER  
 Lot/SDG Number: D7E170358  
 Matrix: SOLID  
 % Moisture: 18  
 Basis: Dry  
 Analysis Method: 8260B  
 Unit: ug/kg  
 QC Batch ID: 7142157  
 Sample Aliquot: 6.01 g  
 Dilution Factor: 0.83

Client Sample ID: L0BS0012S01SP  
 Lab Sample ID: D7E170358-001  
 Lab WorkOrder: JW7D71A5  
 Date/Time Collected: 05/15/07 12:30  
 Date/Time Received: 05/17/07 12:30  
 Date Leached:  
 Date/Time Extracted: 05/17/07 12:15  
 Date/Time Analyzed: 05/21/07 10:36  
 Instrument ID: J

CAS No.	Analyte	Conc.	MDL	RL	Q
630-20-6	1,1,1,2-Tetrachloroethane	u/s 5.1 0.57	0.57	5.1	U
71-55-6	1,1,1-Trichloroethane	0.53	0.53	5.1	U
79-34-5	1,1,2,2-Tetrachloroethane	0.62	0.62	5.1	U
79-00-5	1,1,2-Trichloroethane	0.89	0.89	5.1	U
75-34-3	1,1-Dichloroethane	0.21	0.21	5.1	U
75-35-4	1,1-Dichloroethene	0.60	0.60	5.1	U
563-58-6	1,1-Dichloropropene	0.55	0.55	5.1	U
87-61-6	1,2,3-Trichlorobenzene	0.76	0.76	5.1	U
96-18-4	1,2,3-Trichloropropane	0.82	0.82	5.1	U
120-82-1	1,2,4-Trichlorobenzene	0.74	0.74	5.1	U
95-63-6	1,2,4-Trimethylbenzene	↓ 0.59	0.59	5.1	U
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	10 0.61	0.61	10	U
106-93-4	1,2-Dibromoethane (EDB)	5.1 0.53	0.53	5.1	U
95-50-1	1,2-Dichlorobenzene	0.46	0.46	5.1	U
107-06-2	1,2-Dichloroethane	0.71	0.71	5.1	U
78-87-5	1,2-Dichloropropane	0.56	0.56	5.1	U
108-67-8	1,3,5-Trimethylbenzene	0.58	0.58	5.1	U
541-73-1	1,3-Dichlorobenzene	0.49	0.49	5.1	U
142-28-9	1,3-Dichloropropane	0.52	0.52	5.1	U
106-46-7	1,4-Dichlorobenzene	0.79	0.79	5.1	U
594-20-7	2,2-Dichloropropane	↓ 0.44	0.44	5.1	U
78-93-3	2-Butanone (MEK)	20 1.9	1.9	20	U
110-75-8	2-Chloroethyl vinyl ether	5.1 5.1	5.1	5.1	U
95-49-8	2-Chlorotoluene	5.1 0.52	0.52	5.1	U
591-78-6	2-Hexanone	20 4.9	4.9	20	U
106-43-4	4-Chlorotoluene	5.1 0.79	0.79	5.1	U
108-10-1	4-Methyl-2-pentanone	20 4.4	4.4	20	U
67-64-1	Acetone	20 5.4	5.4	20	U
71-43-2	Benzene	5.1 0.48	0.48	5.1	U

STL Denver

Form 1 Analysis Data Sheet Equivalent

Level I

Rev 1 Amy  
7/31/07



# STL

MWH Americas, Inc.

## Analysis Data Sheet

Lab Name: STL DENVER  
 Lot/SDG Number: D7E170358  
 Matrix: SOLID  
 % Moisture: 18  
 Basis: Dry  
 Analysis Method: 8260B  
 Unit: ug/kg  
 QC Batch ID: 7142157  
 Sample Aliquot: 6.01 g  
 Dilution Factor: 0.83

Client Sample ID: L0BS0012S01SP  
 Lab Sample ID: D7E170358-001  
 Lab WorkOrder: JW7D71A5  
 Date/Time Collected: 05/15/07 12:30  
 Date/Time Received: 05/17/07 12:30  
 Date Leached:  
 Date/Time Extracted: 05/17/07 12:15  
 Date/Time Analyzed: 05/21/07 10:36  
 Instrument ID: 1

CAS No.	Analyte	Conc.	MDL	RL	Q
108-86-1	Bromobenzene	5.1 -0.50	0.50	5.1	U
74-97-5	Bromochloromethane	↓ 0.30	0.30	5.1	U
75-27-4	Bromodichloromethane	↓ 0.22	0.22	5.1	U
75-25-2	Bromoform	↓ 0.23	0.23	5.1	U
74-83-9	Bromomethane	10 -0.51	0.51	10	U
56-23-5	Carbon tetrachloride	5.1 -0.64	0.64	5.1	U
108-90-7	Chlorobenzene	↓ -0.55	0.55	5.1	U
75-00-3	Chloroethane	10 -0.90	0.90	10	U
67-66-3	Chloroform	↓ -0.29	0.29	10	U
74-87-3	Chloromethane	↓ -0.78	0.78	10	U
156-59-2	cis-1,2-Dichloroethene	2.5 -0.57	0.57	2.5	U
10061-01-5	cis-1,3-Dichloropropene	5.1 -1.3	1.3	5.1	U
124-48-1	Dibromochloromethane	↓ -0.58	0.58	5.1	U
74-95-3	Dibromomethane	↓ 0.85	0.85	5.1	U
75-71-8	Dichlorodifluoromethane	10 0.53	0.53	10	U
100-41-4	Ethylbenzene	5.1 0.68	0.68	5.1	U
87-68-3	Hexachlorobutadiene	↓ 0.56	0.56	5.1	U
98-82-8	Isopropylbenzene	↓ 0.60	0.60	5.1	U
1634-04-4	Methyl tert-butyl ether	20 0.34	0.34	20	U
75-09-2	Methylene chloride	5.1 0.76	0.76	5.1	U
136777-61-2	m-Xylene & p-Xylene	2.5 1.1	1.1	2.5	U
91-20-3	Naphthalene	5.1 0.64	0.64	5.1	U
104-51-8	n-Butylbenzene	↓ 0.57	0.57	5.1	U
103-65-1	n-Propylbenzene	↓ 0.59	0.59	5.1	U
95-47-6	o-Xylene	2.5 0.62	0.62	2.5	U
99-87-6	p-Isopropyltoluene	5.1 0.50	0.50	5.1	U
135-98-8	sec-Butylbenzene	↓ 0.78	0.78	5.1	U
100-42-5	Styrene	↓ 0.64	0.64	5.1	U
98-06-6	tert-Butylbenzene	↓ 0.51	0.51	5.1	U

STL Denver

Form 1 Analysis Data Sheet Equivalent

Level II

Rev 1 Am  
7/31/07

# STL

MWH Americas, Inc.

## Analysis Data Sheet

Lab Name: STL DENVER  
 Lot/SDG Number: D7E170358  
 Matrix: SOLID  
 % Moisture: 18  
 Basis: Dry  
 Analysis Method: 8260B  
 Unit: ug/kg  
 QC Batch ID: 7142157  
 Sample Aliquot: 6.01 g  
 Dilution Factor: 0.83

Client Sample ID: L0BS0012S01SP  
 Lab Sample ID: D7E170358-001  
 Lab WorkOrder: JW7D71A5  
 Date/Time Collected: 05/15/07 12:30  
 Date/Time Received: 05/17/07 12:30  
 Date Leached:  
 Date/Time Extracted: 05/17/07 12:15  
 Date/Time Analyzed: 05/21/07 10:36  
 Instrument ID: I

CAS No.	Analyte	Conc.	MDL	RL	Q
127-18-4	Tetrachloroethene	5.1 -0.60	0.60	5.1	U
108-88-3	Toluene	↓ -0.70	0.70	5.1	U
156-60-5	trans-1,2-Dichloroethene	2.5 0.39	0.39	2.5	U
10061-02-6	trans-1,3-Dichloropropene	5.1 -0.68	0.68	5.1	U
79-01-6	Trichloroethene	↓ 0.23	0.23	5.1	U
75-69-4	Trichlorofluoromethane	1.0 1.1	1.1	10	U
76-13-1	Trichlorotrifluoroethane	2.0 0.46	0.46	20	U
75-01-4	Vinyl chloride	5.1 -1.4	1.4	5.1	U
75-88-7	2-Chloro-1,1,1-trifluoroethane				TND
79-38-9	Chlorotrifluoroethylene				TND

CAS No.	Surrogate	% Rec	Lower Limit	Upper Limit	Q
17060-07-0	1,2-Dichloroethane-d4	114	58	140	
2037-26-5	Toluene-d8	104	80	126	
1868-53-7	Dibromofluoromethane	110	75	121	
460-00-4	4-Bromofluorobenzene	104	76	127	

*Level II*

*WFO  
05-28-07*

MWH Americas, Inc.

Client Sample ID: L0BS0012S01SP

General Chemistry

Lot-Sample #...: D7E170358-001 Work Order #...: JW7D7 Matrix.....: SO  
Date Sampled...: 05/15/07 12:30 Date Received...: 05/17/07

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Fluoride	3.5 J	12	mg/kg	SW846 9056	05/23-05/24/07	7144342
			Dilution Factor: 1	Analysis Time...: 04:11	MDL.....: 1.0	
Total Solids *	82	0.10	%	MCAWW 160.3 MOD	05/21/07	7141589
			Dilution Factor: 1	Analysis Time...: 11:45	MDL.....:	

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Estimated result: result is less than RL and greater than or equal to the MDL.

\* Analysis not validated

LEVEL V

**DATA VALIDATION**



Pkg ID#: 186245		
Analysis: VOA, TPH, PAH, PCB, Metals, Wet Chem.		
SDG#: 186245	Reviewer: PM, KS, EW	Rev Date: 6/1, 6/2, 6/3
Matrix: water/soil	2nd Rev: KS, PM,KS	2nd Rev Date: 6/2, 6/2, 6/4
Rev Type: Transcription	Tech edit:	Tech edit Date:
QC Level: V	Database Approval:	Approval Date:
# Samples: 10	Data Entry:	Entry Date:
# RE/DL: 0	Verification:	Ver Date:
	Ship:	Ship Date:

**Check List Items:**

**Writeup:**

- Qualifications in text match Form Is
- Spell check
- Pagination, appropriate headers/footers
- Correct project site name/manager on cover and introduction pages

**Form Is:**

- "U" / "J" lab codes carried over
- Appropriate qual codes used
- Form I IDs match sample ID table

**Other:**

- QC Level Stamp on Form Is, Level V
- Contract Compliance Screen

**Required Edits/Changes:**

---

WC: None

---

MT: text edits and form edit

---

PCB, TF: minor text edits

---

VOA: text edits

---

PAH: minor text edits

---