

Chain of Custody and Supporting Documentation



CHAIN OF CUSTODY RECORD

COC #: 237071

MWHAG20090910_00

Page: 1 of 2

Customer Information		Project Information		Project Information	
Site:	SSFL	Client Name:	Boeing	Collector:	A. Goldenberg
Company:	MWH	Sampling Event:	ISRA Sampling, August 2009	Contact #:	
Report to:	Sarah Von Raesfeld	Project Number:	1891614.05462	Requested Analyses	
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl	Metals 6020 Soil Lead	
	Suite 600	PM Phone #:	(925) 627-4627	D2216 Moisture Soil	
	Walnut Creek	Field Contact:	Benjamin Stewart		
	CA	Field Contact #:	(818) 266-1378		
	94596	Lab Name:	GEL Laboratories, LLC		
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Jackie Trudell		
	sean.leffler@mwhglobal.com	Lab Address:	2040 Savage Road		
		Lab Phone:	Charleston, SC 29407		
			(843) 769-7388		
Sample Name	Matrix	Date	Time	No. of Containers	Comments
HZET0206S001	Soil	9/10/2009	9:40	1	
HZET0201S001	Soil	9/10/2009	10:00	1	
HZET0202S001	Soil	9/10/2009	10:45	1	
HZET0203S001	Soil	9/10/2009	11:15	1	
HZET0204S001	Soil	9/10/2009	11:20	1	
HZET0205S001	Soil	9/10/2009	12:45	1	
HZET0206S001	Soil	9/10/2009	13:00	1	
HZET0207S001	Soil	9/10/2009	13:10	1	
HZET0208S001	Soil	9/10/2009	13:20	1	
HZET0209S001	Soil	9/10/2009	13:30	1	

1. Relinquished by:		2. Received by:		3. Relinquished by:		4. Received by:	
Date:	9-10-09	Date:	9/10/09	Date:		Date:	
Company:	MWH	Company:	Gel	Company:		Company:	
Time:		Time:	9:10	Time:		Time:	

Comments:

GeoTracker EDF

Data Validation Package Level IV



Client: <u>SSFI</u>		SDG/ARCOC/Work Order: <u>237071</u>	
Received By: <u>Rms</u>		Date Received: <u>9/11/09</u>	
Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/>	Maximum Counts Observed*:
Classified Radioactive II or III by RSO?		<input checked="" type="checkbox"/>	<u>40 cpm</u>
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/>	
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

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 0 ≤ 6 deg. C?	<input checked="" type="checkbox"/>			Preservation Method: <u>ice bags</u> blue ice dry ice none other (describe) <u>34</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: If Preservation added, Lot#:
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?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
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"/>			

Comments:
Fx: 9457 3161 4159

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: ISRA Sampling, August 2009 _____

Start: 8/24/2009 _____

End: 9/30/2009 _____

LTO DATE:

LTO NUMBER:

<p>Consultant Name: MWH Address: 2121 N. California Blvd. Ste. 600 Walnut Creek, CA 94596</p> <p>Contact Name: Sarah Von Raesfeld Phone Number: 925-627-4654 Fax Number: 925-627-4501 E-mail Address: Sarah.VonRaesfeld@mwhglobal.com</p>	<p>Contract Laboratory: GEL Address: 2040 Savage Rd. Charleston, SC 29407</p> <p>Lab Contact Name: Jackie Trudell Phone Number: 843-769-7388 Fax Number: 843-766-1178 E-mail Address: jacqueline.trudell@gel.com</p>
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SAMPLE CONTAINER ORDER FORM

Date Required: _____

Requested Analyses: (Specify # of Samples)

Date Sample Pickup: _____

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

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)

	Water	Soil	Contingent
Dioxins (1613B)	15	124	0
EPA 8015M (DRO)	--	--	--
EPA 8015M (JET FUEL)	--	--	--
EPA 8015M (CC)	--	--	--
TCE (8260B)	5	12	0
EPA 8270C SIM (SVOC)	--	--	--
EPA 8310 (PAH)	--	--	--
EPA 8082 (PCB)	3	5	0
Nickel (6020)	5	10	0
Chromium (6020)	5	10	0
Silver (6020)	5	10	0
Cadmium (6020)	10	35	0
Arsenic (6020)	5	10	0
% Moisture (D2216)	0	170	0
Lead (6020)	10	65	0
Copper (6020)	10	75	0
Zinc (6020)	5	20	0
Mercury by 7471A/7470A	5	25	0

Est. Total # of Samples: 175 Est. Total # of EDDs 40

LABORATORY REPORTING REQUIREMENTS

Project TAT:
 Normal: X (10 Business days)
 RUSH: 5 (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: Sarah.VonRaesfeld@mwhglobal.com
 Send Original Reports To:

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

Project Site _____ (enter "X")
 Consultant Office _____ (enter "X")
 Other Location (specify in comments) X (enter "X")
 # of Copies Reports Req.: 1

SPECIAL INSTRUCTIONS/LTO NOTES

CONFIRMATION OF TRANSMITTAL & RECEIPT

LTO Sent By:
 Name: Sarah Von Raesfeld
 Date: 09/02/09

LTO Received By-:
 Name: _____
 Date: _____

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Case Narrative

**Case Narrative
for
Boeing - SSFL (MWH)
Work Order: 237071
SDG: 237071**

September 25, 2009

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 September 11, 2009 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. There are no additional comments concerning sample receipt.

The laboratory received the following samples:

<u>Laboratory Identification</u>	<u>Sample Description</u>
237071001	HZET0200S001
237071002	HZET0201S001
237071003	HZET0202S001
237071004	HZET0203S001
237071005	HZET0204S001
237071006	HZET0205S001
237071007	HZET0206S001
237071008	HZET0207S001
237071009	HZET0208S001
237071010	HZET0209S001
237071011	HZET0210S001
237071012	HZET0211S001
237071013	HZET0212S001

Items of Note

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: Metals and Percent Moisture.

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.



Jacqueline Trudell

Project Manager

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 18 September 2009

State	Certification
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California – NELAP	01151CA
Colorado	GEL
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA Region 5	WG-15J
Florida – NELAP	E87156
Georgia	E87156 (FL/NELAP)
Georgia DW	967
Hawaii	N/A
ISO 17025	2567.01
Idaho	SC00012
Illinois – NELAP	200029
Indiana	C-SC-01
Kansas – NELAP	E-10332
Kentucky	90129
Louisiana – NELAP	03046
Maryland	270
Massachusetts	M-SC012
Nevada	SC00012
New Jersey – NELAP	SC002
New Mexico	FL NELAP E87156
New York – NELAP	11501
North Carolina	233
North Carolina DW	45709
Oklahoma	9904
Pennsylvania – NELAP	68-00485
South Carolina	10120001/10120002
Tennessee	TN 02934
Texas – NELAP	T104704235-07B-TX
U.S. Dept. of Agriculture	S-52597
Utah – NELAP	GEL
Vermont	VT87156
Virginia	00151
Washington	C1641



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: 237071

Prepared by

MEC^x, LP
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Boeing SSFL RFI ISRA
 Contract Task Order: 1261.500D.00
 Sample Delivery Group: 237071
 Project Manager: Dixie Hambrick
 Matrix: soil
 QC Level: V
 No. of Samples: 13
 No. of Reanalyses/Dilutions: 0
 Laboratory: GEL

Table 1. Sample Identification

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
HZET0200S001	237071001	N/A	Soil	9/10/2009 9:40:00 AM	6020
HZET0201S001	237071002	N/A	Soil	9/10/2009 10:00:00 AM	6020
HZET0202S001	237071003	N/A	Soil	9/10/2009 10:45:00 AM	6020
HZET0203S001	237071004	N/A	Soil	9/10/2009 11:15:00 AM	6020
HZET0204S001	237071005	N/A	Soil	9/10/2009 11:20:00 AM	6020
HZET0205S001	237071006	N/A	Soil	9/10/2009 12:45:00 PM	6020
HZET0206S001	237071007	N/A	Soil	9/10/2009 1:00:00 PM	6020
HZET0207S001	237071008	N/A	Soil	9/10/2009 1:10:00 PM	6020
HZET0208S001	237071009	N/A	Soil	9/10/2009 1:20:00 PM	6020
HZET0209S001	237071010	N/A	Soil	9/10/2009 1:30:00 PM	6020
HZET0210S001	237071011	N/A	Soil	9/10/2009 1:40:00 PM	6020
HZET0211S001	237071012	N/A	Soil	9/10/2009 1:50:00 PM	6020
HZET0212S001	237071013	N/A	Soil	9/10/2009 2:00:00 PM	6020

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 or PCB congeners.	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.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

T-II	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a class of compound but not of sufficient identification quality to represent a specific compound.	Not applicable
T-III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
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.
*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 METHOD 6020—Lead

Reviewed By: P. Meeks

Date Reviewed: October 2, 2009

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC^x Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0)*, *EPA Method 6020*, and the *National Functional Guidelines for Inorganic Data Review (7/02)*.

- Holding Times: The analytical holding time, six months for ICP-MS 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: A laboratory duplicate analysis was performed on HZET0200S001. The RPD was within the method-established control limit.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on HZET0200S001. Recoveries and the RPD were within laboratory-established QC limits.
- Serial Dilution: A serial dilution analysis was performed on HZET0200S001. The %D was within the method-established control limit.
- Internal Standards Performance: Review is not applicable at a Level V validation.
- Sample Result Verification: Review is not applicable at a Level V validation. As the samples in this SDG were validated at Level V, the QC information necessary to make an absolute determination of bias in the samples was not reviewed; therefore, when qualifications were applied, no bias was assigned. The samples in this SDG were analyzed at the laboratory's standard 2x dilution for soils. Any result reported between the MDL and the reporting limit was qualified as estimated, "J." 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: FBQW2239 (223913) was the field blank associated with the samples in this SDG. Lead was not detected in the field blank. The samples in this SDG had no equipment rinsate.
- Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 237071

Analysis Method 6020

Sample Name	HZET0200S001	Matrix Type:	SOIL	Result Type:	Primary Result			
Lab Sample Name:	237071001	Sample Date:	9/10/2009 9:40:00 AM	Validation Level:	V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	4.68	0.402	0.101	mg/kg			
Sample Name	HZET0201S001	Matrix Type:	SOIL	Result Type:	Primary Result			
Lab Sample Name:	237071002	Sample Date:	9/10/2009 10:00:00 AM	Validation Level:	V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	4.73	0.406	0.102	mg/kg			
Sample Name	HZET0202S001	Matrix Type:	SOIL	Result Type:	Primary Result			
Lab Sample Name:	237071003	Sample Date:	9/10/2009 10:45:00 AM	Validation Level:	V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	4.59	0.401	0.1	mg/kg			
Sample Name	HZET0203S001	Matrix Type:	SOIL	Result Type:	Primary Result			
Lab Sample Name:	237071004	Sample Date:	9/10/2009 11:15:00 AM	Validation Level:	V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	4.44	0.4	0.1	mg/kg			
Sample Name	HZET0204S001	Matrix Type:	SOIL	Result Type:	Primary Result			
Lab Sample Name:	237071005	Sample Date:	9/10/2009 11:20:00 AM	Validation Level:	V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	4.52	0.391	0.0976	mg/kg			
Sample Name	HZET0205S001	Matrix Type:	SOIL	Result Type:	Primary Result			
Lab Sample Name:	237071006	Sample Date:	9/10/2009 12:45:00 PM	Validation Level:	V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	5.78	0.404	0.101	mg/kg			
Sample Name	HZET0206S001	Matrix Type:	SOIL	Result Type:	Primary Result			
Lab Sample Name:	237071007	Sample Date:	9/10/2009 1:00:00 PM	Validation Level:	V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	11.9	0.402	0.101	mg/kg			

Analysis Method 6020

Sample Name HZET0207S001 **Matrix Type:** SOIL **Result Type:** Primary Result
Lab Sample Name: 237071008 **Sample Date:** 9/10/2009 1:10:00 PM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	6.3	0.417	0.104	mg/kg			

Sample Name HZET0208S001 **Matrix Type:** SOIL **Result Type:** Primary Result
Lab Sample Name: 237071009 **Sample Date:** 9/10/2009 1:20:00 PM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	11	0.402	0.1	mg/kg			

Sample Name HZET0209S001 **Matrix Type:** SOIL **Result Type:** Primary Result
Lab Sample Name: 237071010 **Sample Date:** 9/10/2009 1:30:00 PM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	6.13	0.391	0.0977	mg/kg			

Sample Name HZET0210S001 **Matrix Type:** SOIL **Result Type:** Primary Result
Lab Sample Name: 237071011 **Sample Date:** 9/10/2009 1:40:00 PM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	5.8	0.406	0.102	mg/kg			

Sample Name HZET0211S001 **Matrix Type:** SOIL **Result Type:** Primary Result
Lab Sample Name: 237071012 **Sample Date:** 9/10/2009 1:50:00 PM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	5.72	0.411	0.103	mg/kg			

Sample Name HZET0212S001 **Matrix Type:** SOIL **Result Type:** Primary Result
Lab Sample Name: 237071013 **Sample Date:** 9/10/2009 2:00:00 PM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	7.79	0.434	0.108	mg/kg			

Chain of Custody and Supporting Documentation



CHAIN OF CUSTODY RECORD

COC #:

23708571

MWHAG20090901_00

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236438

Customer Information		Project Information			
Site:	SSFL	Client Name:	Boeing		
Company:	MWH	Sampling Event:	ISRA Sampling, August 2009		
Report to:	Sarah Von Raesfeld	Project Number:	1891614.05462		
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl		
	Suite 600	PM Phone #:	(925) 627-4627		
	Walnut Creek	Field Contact:	Alex Fischl		
	CA	Field Contact #:	(925) 627-4627		
	94596	Lab Name:	GEL Laboratories, LLC		
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Jackie Trudell		
	sean.leffler@mwhglobal.com	Lab Address:	2040 Savage Road		
		Lab Phone:	Charleston, SC 29407		
			(843) 769-7388		
Sample Name	Matrix	Date	Time	No. of Containers	
EQW2246	Water	9/1/2009	13:15	3	
HZET0300D001	Soil	9/1/2009	11:50	1	
HZET0300S001	Soil	9/1/2009	11:50	1	
HZET0301S001	Soil	9/1/2009	11:38	1	
Requested Analyses					
		Metals 6020 Cu Water	10	5	
		Metals 6020 Soil Copper		5	5
		Metals 6020 Soil Lead		5	5
		Metals 6020 Water Lead	10		
		D2216 Moisture Soil		5	5
Instructions/TAT					
Legend: Numerical values for analyses equate to turn around time in days					
H - Hold EH - Extract/Extrude & Hold					
Note: Values in the cells below are Turn Around Times.					
Comments					

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
Alloy W. P. P.	9-1-09	Jackie Trudell	9/2/09				
Company:	Time:	Company:	Time:	Company:	Time:	Company:	Time:
MWH		GEL	835				
Comments:							
Geotracker EDF <input type="checkbox"/>							
Data Validation Package <input checked="" type="checkbox"/> Level IV							



SAMPLE RECEIPT & REVIEW FORM

237085H

Client: <u>SSFL</u>		SDG/ARCOC/Work Order: <u>236436 JT 9/11/09</u>	
Received By: <u>JP</u>		Date Received: <u>9/2/09</u>	
Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/>	Maximum Counts Observed*: <u>204pm</u>
Classified Radioactive II or III by RSO?		<input checked="" type="checkbox"/>	
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/>	
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

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 0 ≤ 6 deg. C?	<input checked="" type="checkbox"/>		<u>40</u>	ice bags blue ice dry ice none other (describe)
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: If Preservation added, Lot#:
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?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
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"/>	cooler arrived with 3 empty vials with no label
12	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			

Comments: Fed Ex 9457 315 80558

PM (or PMA) review: Initials JT Date 9/2/09

Subject: leachates

From: Sarah Von Raesfeld <Sarah.E.VonRaesfeld@us.mwhglobal.com>

Date: Fri, 11 Sep 2009 10:07:29 -0600

To: Jackie Trudell <jacqueline.trudell@gel.com>

Hi Jackie,

Please run STLC on a 5 day TAT for the following samples:

HZET0300S001 - Cu and Pb

HZET0300D001 - Cu

Thanks,

Sarah



MWH

BUILDING A BETTER WORLD

Sarah Von Raesfeld
Environmental Chemist

MWH Americas, Inc.
2121 N. California Blvd.
Suite 600
Walnut Creek, California 94596

Telephone: 925 627 4500

Direct Line: 925 627 4654

Facsimile: 925 627 4501

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: ISRA Sampling, August 2009 _____

Start: 8/24/2009 _____

End: 9/30/2009 _____

LTO DATE:

LTO NUMBER:

<p>Consultant Name: <u>MWH</u> Address: <u>2121 N. California Blvd. Ste. 600</u> <u>Walnut Creek, CA 94596</u></p> <p>Contact Name: <u>Sarah Von Raesfeld</u> Phone Number: <u>925-627-4654</u> Fax Number: <u>925-627-4501</u> E-mail Address: <u>Sarah.VonRaesfeld@mwhglobal.com</u></p>	<p>Contract Laboratory: <u>GEL</u> Address: <u>2040 Savage Rd.</u> <u>Charleston, SC 29407</u></p> <p>Lab Contact Name: <u>Jackie Trudell</u> Phone Number: <u>843-769-7388</u> Fax Number: <u>843-766-1178</u> E-mail Address: <u>jacqueline.trudell@gel.com</u></p>
--	--

SAMPLE CONTAINER ORDER FORM

<p>Date Required: _____</p> <p>Date Sample Pickup: _____</p> <p>Ship Containers To: Project Site _____ (enter "X") Consultant Office _____ (enter "X") Other Location (specify in comments) _____ (enter "X")</p> <p>Container Information: Trip Blank (VOA only) <u>No</u> (Yes/No) Temp Blank (VOA Only) <u>No</u> (Yes/No) DI Water Required? <u>No</u> (Yes/No) MS/MSD Extra Bottles? <u>No</u> (Yes/No)</p> <p>Sample Matrix: Soil <u>X</u> (select all applicable) Water <u>X</u> (select all applicable) Vapor _____ (select all applicable)</p> <p>Est. Total # of Samples: <u>175</u> Est. Total # of EDDs <u>40</u></p>	<p>Requested Analyses: (Specify # of Samples)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Water</th> <th style="text-align: center;">Soil</th> <th style="text-align: center;">Contingent</th> </tr> </thead> <tbody> <tr> <td>Dioxins (1613B)</td> <td style="text-align: center;">15</td> <td style="text-align: center;">124</td> <td style="text-align: center;">0</td> </tr> <tr> <td>EPA 8015M (DRO)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8015M (JET FUEL)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8015M (CC)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>TCE (8260B)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">12</td> <td style="text-align: center;">0</td> </tr> <tr> <td>EPA 8270C SIM (SVOC)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8310 (PAH)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8082 (PCB)</td> <td style="text-align: center;">3</td> <td style="text-align: center;">5</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Nickel (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Chromium (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Silver (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Cadmium (6020)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">35</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Arsenic (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>% Moisture (D2216)</td> <td style="text-align: center;">0</td> <td style="text-align: center;">170</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Lead (6020)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">65</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Copper (6020)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">75</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Zinc (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">20</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Mercury by 7471A/7470A</td> <td style="text-align: center;">5</td> <td style="text-align: center;">25</td> <td style="text-align: center;">0</td> </tr> </tbody> </table>		Water	Soil	Contingent	Dioxins (1613B)	15	124	0	EPA 8015M (DRO)	--	--	--	EPA 8015M (JET FUEL)	--	--	--	EPA 8015M (CC)	--	--	--	TCE (8260B)	5	12	0	EPA 8270C SIM (SVOC)	--	--	--	EPA 8310 (PAH)	--	--	--	EPA 8082 (PCB)	3	5	0	Nickel (6020)	5	10	0	Chromium (6020)	5	10	0	Silver (6020)	5	10	0	Cadmium (6020)	10	35	0	Arsenic (6020)	5	10	0	% Moisture (D2216)	0	170	0	Lead (6020)	10	65	0	Copper (6020)	10	75	0	Zinc (6020)	5	20	0	Mercury by 7471A/7470A	5	25	0
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LABORATORY REPORTING REQUIREMENTS

<p>Project TAT: Normal: <u>X</u> (10 Business days) RUSH: <u>5</u> (Specify- 24 / 48 / 72HRS) Other : _____ (Specify # of Days) Report Due Date: _____</p> <p>Special Reporting Requirements: Contingent Analysis? <u>No</u> (Yes/No) TIC (VOC) Required? <u>No</u> (Yes/No) TIC (SVOC) Required? <u>No</u> (Yes/No) Data Validation Pckge.: <u>Tier III</u> (Boeing Tier I, II or III)</p>	<p>Laboratory Results/Reports Deliverables: Draft Results Fax?: _____ (Yes/No) Draft Results E-mail?: <u>Yes</u> (Yes/No) Specify Fax/E-mail Contact Name, #, E-mail Address: <u>Sarah.VonRaesfeld@mwhglobal.com</u> Send Original Reports To: Project Site _____ (enter "X") Consultant Office _____ (enter "X") Other Location (specify in comments) <u>X</u> (enter "X") # of Copies Reports Req.: <u>1</u></p>
--	--

SPECIAL INSTRUCTIONS/LTO NOTES

CONFIRMATION OF TRANSMITTAL & RECEIPT

<p>LTO Sent By: Name: <u>Sarah Von Raesfeld</u> Date: <u>09/02/09</u></p>	<p>LTO Received By-: Name: _____ Date: _____</p>
--	---

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Case Narrative

**Case Narrative
for
Boeing - SSFL (MWH)
Work Order: 237085
SDG: 237085H**

October 01, 2009

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 September 02, 2009 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. There are no additional comments concerning sample receipt.

The laboratory received the following samples:

<u>Laboratory Identification</u>	<u>Sample Description</u>
237085001	HZET0300S001
237085002	HZET0300D001

Items of Note

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: Metals.

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.


Jacqueline Trudell
Project Manager

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 18 September 2009

State	Certification
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California – NELAP	01151CA
Colorado	GEL
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA Region 5	WG-15J
Florida – NELAP	E87156
Georgia	E87156 (FL/NELAP)
Georgia DW	967
Hawaii	N/A
ISO 17025	2567.01
Idaho	SC00012
Illinois – NELAP	200029
Indiana	C-SC-01
Kansas – NELAP	E-10332
Kentucky	90129
Louisiana – NELAP	03046
Maryland	270
Massachusetts	M-SC012
Nevada	SC00012
New Jersey – NELAP	SC002
New Mexico	FL NELAP E87156
New York – NELAP	11501
North Carolina	233
North Carolina DW	45709
Oklahoma	9904
Pennsylvania – NELAP	68-00485
South Carolina	10120001/10120002
Tennessee	TN 02934
Texas – NELAP	T104704235-07B-TX
U.S. Dept. of Agriculture	S-52597
Utah – NELAP	GEL
Vermont	VT87156
Virginia	00151
Washington	C1641



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: 237085H

Prepared by

MECX, LP
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Boeing SSFL RFI ISRA
Contract Task Order: 1261.500D.00
Sample Delivery Group: 237085H
Project Manager: Dixie Hambrick
Matrix: water/soil
QC Level: V
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Laboratory: GEL

Table 1. Sample Identification

<i>Sample Name</i>	<i>Lab Sample Name</i>	<i>Sub-Lab Sample Name</i>	<i>Matrix</i>	<i>Collection</i>	<i>Method</i>
HZET0300D001	237085002	N/A	Soil	9/1/2009 11:50:00 AM	6020-STLC
HZET0300S001	237085001	N/A	Soil	9/1/2009 11:50:00 AM	6020-STLC

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 or PCB congeners.	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.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

T-II	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a class of compound but not of sufficient identification quality to represent a specific compound.	Not applicable
T-III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
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.
*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 METHOD 6020—Metals

Reviewed By: P. Meeks

Date Reviewed: October 5, 2009

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC^x Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0)*, *EPA Method 6020*, and the *National Functional Guidelines for Inorganic Data Review (7/02)*.

- Holding Times: The analytical holding time, six months for ICP-MS 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: Recoveries were within laboratory-established QC limits.
- Laboratory Duplicates: A laboratory duplicate analysis was performed on HZET0300S001. The RPDs were within the method-established control limit.
- Matrix Spike/Matrix Spike Duplicate: A matrix spike analysis was performed on HZET0300S001. The recoveries were within method-established QC limits.
- Serial Dilution: A serial dilution analysis was performed on HZET0300S001. The lead %D exceeded the control limit; therefore, lead detected in the samples was qualified as estimated, "J." The copper %D was within the method-established control limit.
- Internal Standards Performance: Review is not applicable at a Level V validation.
- Sample Result Verification: Review is not applicable at a Level V validation. As the samples in this SDG were validated at Level V, the QC information necessary to make an absolute determination of bias in the samples was not reviewed; therefore, when qualifications were applied, no bias was assigned. In order to report the analyte within the linear range of the instrument, copper was reported from 20× dilutions. Any result reported between the MDL and the reporting limit was qualified as estimated, "J." 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: FBQW2239 (235913) was the field blank and EBQW2246 was the equipment rinsate associated with the original soil samples in this SDG. There are no field QC samples associated with the STLC leachate samples.
- Field Duplicates: The samples in this SDG were identified as field duplicate samples. The copper RPD was 4.5% and the lead RPD was 13%.

Validated Sample Result Forms: 237085H

Analysis Method 6020-STLC

Sample Name HZET0300D001 **Matrix Type:** Soil **Result Type:** Primary Result
Lab Sample Name: 237085002 **Sample Date:** 9/1/2009 11:50:00 AM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Copper	7440508	13.2	0.2		0.066 mg/L			
Lead	7439921	2.11	0.02		0.005 mg/L	E	J	A

Sample Name HZET0300S001 **Matrix Type:** Soil **Result Type:** Primary Result
Lab Sample Name: 237085001 **Sample Date:** 9/1/2009 11:50:00 AM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Copper	7440508	13.8	0.2		0.066 mg/L			
Lead	7439921	1.85	0.02		0.005 mg/L	E	J	A

Chain of Custody and Supporting Documentation

Client: <i>SSFL</i>		SDG/ARCOC/Work Order: <i>237283</i>	
Received By: <i>Ricky Albee</i>		Date Received: <i>9/16/09</i>	
Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/>	Maximum Counts Observed*: <i>40 cpm</i>
Classified Radioactive II or III by RSO?		<input checked="" type="checkbox"/>	
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/>	
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

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 0 ≤ 6 deg. C?	<input checked="" type="checkbox"/>			Preservation Method: <i>3oz</i> <u>ice bags</u> blue ice dry ice none other (describe)
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: If Preservation added, Lot#:
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?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
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"/>			

Comments: *FedEx 9457 3161 4160*

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: ISRA Sampling, August 2009

Start: 8/24/2009

End: 9/30/2009

LTO DATE:

LTO NUMBER:

<p>Consultant Name: MWH Address: 2121 N. California Blvd. Ste. 600 Walnut Creek, CA 94596</p> <p>Contact Name: Sarah Von Raesfeld Phone Number: 925-627-4654 Fax Number: 925-627-4501 E-mail Address: Sarah.VonRaesfeld@mwhglobal.com</p>	<p>Contract Laboratory: GEL Address: 2040 Savage Rd. Charleston, SC 29407</p> <p>Lab Contact Name: Jackie Trudell Phone Number: 843-769-7388 Fax Number: 843-766-1178 E-mail Address: jacqueline.trudell@gel.com</p>
---	---

SAMPLE CONTAINER ORDER FORM

<p>Date Required: _____</p> <p>Date Sample Pickup: _____</p> <p>Ship Containers To: Project Site _____ (enter "X") Consultant Office _____ (enter "X") Other Location (specify in comments) _____ (enter "X")</p> <p>Container Information: Trip Blank (VOA only) <u>No</u> (Yes/No) Temp Blank (VOA Only) <u>No</u> (Yes/No) DI Water Required? <u>No</u> (Yes/No) MS/MSD Extra Bottles? <u>No</u> (Yes/No)</p> <p>Sample Matrix: Soil <u>X</u> (select all applicable) Water <u>X</u> (select all applicable) Vapor _____ (select all applicable)</p> <p>Est. Total # of Samples: <u>175</u> Est. Total # of EDDs <u>40</u></p>	<p>Requested Analyses: (Specify # of Samples)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Water</th> <th style="text-align: center;">Soil</th> <th style="text-align: center;">Contingent</th> </tr> </thead> <tbody> <tr> <td>Dioxins (1613B)</td> <td style="text-align: center;">15</td> <td style="text-align: center;">124</td> <td style="text-align: center;">0</td> </tr> <tr> <td>EPA 8015M (DRO)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8015M (JET FUEL)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8015M (CC)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>TCE (8260B)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">12</td> <td style="text-align: center;">0</td> </tr> <tr> <td>EPA 8270C SIM (SVOC)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8310 (PAH)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8082 (PCB)</td> <td style="text-align: center;">3</td> <td style="text-align: center;">5</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Nickel (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Chromium (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Silver (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Cadmium (6020)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">35</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Arsenic (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>% Moisture (D2216)</td> <td style="text-align: center;">0</td> <td style="text-align: center;">170</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Lead (6020)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">65</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Copper (6020)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">75</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Zinc (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">20</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Mercury by 7471A/7470A</td> <td style="text-align: center;">5</td> <td style="text-align: center;">25</td> <td style="text-align: center;">0</td> </tr> </tbody> </table>		Water	Soil	Contingent	Dioxins (1613B)	15	124	0	EPA 8015M (DRO)	--	--	--	EPA 8015M (JET FUEL)	--	--	--	EPA 8015M (CC)	--	--	--	TCE (8260B)	5	12	0	EPA 8270C SIM (SVOC)	--	--	--	EPA 8310 (PAH)	--	--	--	EPA 8082 (PCB)	3	5	0	Nickel (6020)	5	10	0	Chromium (6020)	5	10	0	Silver (6020)	5	10	0	Cadmium (6020)	10	35	0	Arsenic (6020)	5	10	0	% Moisture (D2216)	0	170	0	Lead (6020)	10	65	0	Copper (6020)	10	75	0	Zinc (6020)	5	20	0	Mercury by 7471A/7470A	5	25	0
	Water	Soil	Contingent																																																																										
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LABORATORY REPORTING REQUIREMENTS

<p>Project TAT: Normal: <u>X</u> (10 Business days) RUSH: <u>5</u> (Specify- 24 / 48 / 72HRS) Other : _____ (Specify # of Days) Report Due Date: _____</p> <p>Special Reporting Requirements: Contingent Analysis? <u>No</u> (Yes/No) TIC (VOC) Required? <u>No</u> (Yes/No) TIC (SVOC) Required? <u>No</u> (Yes/No) Data Validation Pckge.: <u>Tier III</u> (Boeing Tier I, II or III)</p>	<p>Laboratory Results/Reports Deliverables: Draft Results Fax?: _____ (Yes/No) Draft Results E-mail?: <u>Yes</u> (Yes/No) Specify Fax/E-mail Contact Name, #, E-mail Address: <u>Sarah.VonRaesfeld@mwhglobal.com</u> Send Original Reports To: Project Site _____ (enter "X") Consultant Office _____ (enter "X") Other Location (specify in comments) <u>X</u> (enter "X") # of Copies Reports Req.: <u>1</u></p>
--	--

SPECIAL INSTRUCTIONS/LTO NOTES

CONFIRMATION OF TRANSMITTAL & RECEIPT

<p>LTO Sent By: Name: <u>Sarah Von Raesfeld</u> Date: <u>09/02/09</u></p>	<p>LTO Received By-: Name: _____ Date: _____</p>
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Case Narrative

**Case Narrative
for
Boeing - SSFL (MWH)
Work Order: 237283
SDG: 237283**

September 25, 2009

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 September 16, 2009 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. There are no additional comments concerning sample receipt.

The laboratory received the following samples:

<u>Laboratory Identification</u>	<u>Sample Description</u>
237283001	HZET0213S001
237283002	HZET0214S001
237283003	HZET0215S001
237283004	HZET0216S001
237283005	HZET0217S001
237283006	HZET0218S001
237283007	HZET0219S001
237283008	HZET0220S001

Items of Note

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: Metals and Percent Moisture.

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 black ink that reads "Jacqueline A. Trudell". The signature is written in a cursive, flowing style.

Jacqueline Trudell

Project Manager

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 September 2009

State	Certification
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California – NELAP	01151CA
Colorado	GEL
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA Region 5	WG-15J
Florida – NELAP	E87156
Georgia	E87156 (FL/NELAP)
Georgia DW	967
Hawaii	N/A
ISO 17025	2567.01
Idaho	SC00012
Illinois – NELAP	200029
Indiana	C-SC-01
Kansas – NELAP	E-10332
Kentucky	90129
Louisiana – NELAP	03046
Maryland	270
Massachusetts	M-SC012
Nevada	SC00012
New Jersey – NELAP	SC002
New Mexico	FL NELAP E87156
New York – NELAP	11501
North Carolina	233
North Carolina DW	45709
Oklahoma	9904
Pennsylvania – NELAP	68-00485
South Carolina	10120001/10120002
Tennessee	TN 02934
Texas – NELAP	T104704235-07B-TX
U.S. Dept. of Agriculture	S-52597
Utah – NELAP	GEL
Vermont	VT87156
Virginia	00151
Washington	C1641



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: 237283

Prepared by

MEC^x, LP
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Boeing SSFL RFI ISRA
 Contract Task Order: 1261.500D.00
 Sample Delivery Group: 237283
 Project Manager: Dixie Hambrick
 Matrix: water/soil
 QC Level: V
 No. of Samples: 8
 No. of Reanalyses/Dilutions: 0
 Laboratory: GEL

Table 1. Sample Identification

<i>Sample Name</i>	<i>Lab Sample Name</i>	<i>Sub-Lab Sample Name</i>	<i>Matrix</i>	<i>Collection</i>	<i>Method</i>
HZET0213S001	237283001	N/A	SOIL	9/14/2009 12:39:00 PM	6020
HZET0214S001	237283002	N/A	SOIL	9/14/2009 12:45:00 PM	6020
HZET0215S001	237283003	N/A	SOIL	9/14/2009 12:55:00 PM	6020
HZET0216S001	237283004	N/A	SOIL	9/14/2009 1:07:00 PM	6020
HZET0217S001	237283005	N/A	SOIL	9/14/2009 1:28:00 PM	6020
HZET0218S001	237283006	N/A	SOIL	9/14/2009 1:35:00 PM	6020
HZET0219S001	237283007	N/A	SOIL	9/14/2009 1:40:00 PM	6020
HZET0220S001	237283008	N/A	SOIL	9/14/2009 1:45:00 PM	6020

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 or PCB congeners.	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.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

T-II	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a class of compound but not of sufficient identification quality to represent a specific compound.	Not applicable
T-III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
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.
*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 METHOD 6020—Lead

Reviewed By: P. Meeks

Date Reviewed: September 29, 2009

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC^x Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0)*, *EPA Method 6020*, and the *National Functional Guidelines for Inorganic Data Review (7/02)*.

- Holding Times: The analytical holding time, six months for ICP-MS, 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: Recoveries were within laboratory-established QC limits.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on HZET0215S001. The RPD was within the method-established control limit.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on HZET0215S001. The lead MS exceeded the control limit; therefore, lead detected in the samples was qualified as estimated, "J." The MSD recovery and the RPD were within method-established QC limits.
- Serial Dilution: Serial dilution analyses were performed on HZET0215S001. The %D was within the method-established control limit.
- Internal Standards Performance: Review is not applicable at a Level V validation.
- Sample Result Verification: Review is not applicable at a Level V validation. As the samples in this SDG were validated at Level V, the QC information necessary to make an absolute determination of bias in the samples was not reviewed; therefore, when qualifications were applied, no bias was assigned. The laboratory analyzed the samples at their standard 2x dilution for soils. Any result reported between the MDL and the reporting limit was qualified as estimated, "J." 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: FBQW2239 (235913) was the field blank associated with the samples in this SDG. Lead was not detected in the field blank. The samples in this SDG had no identified equipment rinsate.
- Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 237283

Analysis Method 6020

Sample Name	HZET0213S001	Matrix Type:	SOIL	Result Type:	Primary Result			
Lab Sample Name:	237283001	Sample Date:	9/14/2009 12:39:00 PM	Validation Level:	V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	15.2	0.426	0.106	mg/kg	N	J	Q
Sample Name	HZET0214S001	Matrix Type:	SOIL	Result Type:	Primary Result			
Lab Sample Name:	237283002	Sample Date:	9/14/2009 12:45:00 PM	Validation Level:	V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	3.16	0.447	0.112	mg/kg	N	J	Q
Sample Name	HZET0215S001	Matrix Type:	SOIL	Result Type:	Primary Result			
Lab Sample Name:	237283003	Sample Date:	9/14/2009 12:55:00 PM	Validation Level:	V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	4.1	0.457	0.114	mg/kg	N	J	Q
Sample Name	HZET0216S001	Matrix Type:	SOIL	Result Type:	Primary Result			
Lab Sample Name:	237283004	Sample Date:	9/14/2009 1:07:00 PM	Validation Level:	V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	4.97	0.457	0.114	mg/kg	N	J	Q
Sample Name	HZET0217S001	Matrix Type:	SOIL	Result Type:	Primary Result			
Lab Sample Name:	237283005	Sample Date:	9/14/2009 1:28:00 PM	Validation Level:	V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	6.92	0.442	0.11	mg/kg	N	J	Q
Sample Name	HZET0218S001	Matrix Type:	SOIL	Result Type:	Primary Result			
Lab Sample Name:	237283006	Sample Date:	9/14/2009 1:35:00 PM	Validation Level:	V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	5.24	0.563	0.141	mg/kg	N	J	Q
Sample Name	HZET0219S001	Matrix Type:	SOIL	Result Type:	Primary Result			
Lab Sample Name:	237283007	Sample Date:	9/14/2009 1:40:00 PM	Validation Level:	V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	3.56	0.456	0.114	mg/kg	N	J	Q

Analysis Method 6020

Sample Name	HZET0220S001	Matrix Type:	SOIL	Result Type:	Primary Result			
Lab Sample Name:	237283008	Sample Date:	9/14/2009 1:45:00 PM	Validation Level:	V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	5.64	0.396	0.0991	mg/kg	N	J	Q

Chain of Custody and Supporting Documentation



CHAIN OF CUSTODY RECORD

COC #: **237307**
 MW/HAG20090915_00
 Page: 1 of 2

Customer Information			Project Information			Project Information		
Site:	SSFL	Boeing	Collector:	A. Goldenbers		Boeing PM:		
Company:	MWH	ISRA Sampling, August 2009	Contact #:					
Report to:	Sarah Von Raesfeld		Project Number:	1891614.05462		Requested Analyses		
Address:	2121 N. California Blvd		Project Manager:	Benjamin Stewart		Legend: Numerical values for analyses equate to turn around time in days H - Hold EH - Extract/Extude & Hold Note: Values in the cells below are Turn Around Times.		
	Suite 600		PM Phone #:	(818) 266-1378				
	Walnut Creek		Field Contact:	Benjamin Stewart				
	CA		Field Contact #:	(818) 266-1378				
	94596		Lab Name:	GEL Laboratories, LLC				
Email:	sarah.vonraesfeld@mwhglobal.c		Lab Contact:	Jackie Trudell				
	sean.leffler@mwhglobal.com		Lab Address:	2040 Savage Road				
				Charleston, SC 29407				
			Lab Phone:	(843) 769-7388				
Sample Name	Matrix	Date	Time	No. of Containers				
HZET0221S001	Soil	9/15/2009	7:50	1	D2216 Moisture Soil			
HZET0222S001	Soil	9/15/2009	8:05	1	Metals 6020 Soil Lead			
HZET0223S001	Soil	9/15/2009	8:15	1				
HZET0224S001	Soil	9/15/2009	8:20	1				
HZET0225S001	Soil	9/15/2009	8:30	1				
HZET0226S001	Soil	9/15/2009	8:35	1				
HZET0227S001	Soil	9/15/2009	9:48	1				
HZET0228S001	Soil	9/15/2009	10:00	1				
HZET0229S001	Soil	9/15/2009	10:10	1				
HZET0302S001	Soil	9/15/2009	9:15	1	X			

1. Relinquished by:		2. Received by:		3. Relinquished by:		4. Received by:	
Date:	9-15-09	Date:	9/16/09	Date:		Date:	
Time:	10:34	Time:	0915	Time:		Time:	
Company:	MWH	Company:	GEE	Company:		Company:	

Comments: 5 Day TAT

Geotracker EDF
 Data Validation Package
 Level IV



SAMPLE RECEIPT & REVIEW FORM

Client: <u>SSR</u>		SDG/ARCOC/Work Order: <u>237307</u>	
Received By: <u>Ricky Abbee</u>		Date Received: <u>9/16/09</u>	
Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/>	Maximum Counts Observed*: <u>40 cpm</u>
Classified Radioactive II or III by RSO?		<input checked="" type="checkbox"/>	
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/>	
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

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 0 ≤ 6 deg. C?	<input checked="" type="checkbox"/>			Preservation Method: <u>ice bags</u> blue ice dry ice none other (describe) <u>40c</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: If Preservation added, Lot#:
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?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
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"/>			

Comments: Fedex 9457 3161 4170

Requesting Firm: MWH
Address: 2121 No. California Blvd.
Walnut Creek, CA 94596
Phone: 925-627-4654
Fax: 925-627-4501
E-mail: Sarah.VonRaesfeld@mwhglobal.com

Date: 09-17-09

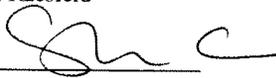
To: Jackie Trudell

Phone: 843-769-7388

Laboratory GEL Laboratories, LLC

E-mail:
jacqueline.trudell@gel.com

From: Sarah Von Raesfeld

Requestor signature: 

Subject: Chain-of-Custody Form Analytical Request Change **No. of Pages: 3**

Per Request:

Please make the changes listed below to the chain-of-custody analytical request form. Include this form with the final deliverables for these samples.

COC No.	Client Sample ID(s)	Date Collected	Originally Requested Analyses	Change (s) and Method (s) Now Requested
MWHAG20090915_00	HZET0302S001 HZET0303S001	09/15/09		Add copper.

The reason for these changes:

Incorrectly marked on COC form

Lack of sample volume

Change in analytical request

Other:

X

Thank you



CHAIN OF CUSTODY RECORD

COC #: 237307

MWHAG20090915_00

Page: 1 of 2

Customer Information		Project Information	
Site: SSFL	Client Name: Boeing	Collector: A. Goldenbers	Boeing PM:
Company: MWH	Sampling Event: ISRA Sampling, August 2009	Contact #:	
Report to: Sarah Von Raasfeld	Project Number: 1891614.05462	Requested Analyses	
Address: 2121 N. California Blvd	Project Manager: Benjamin Stewart	(1) Metals 6020 Soil Copper Metals 6020 Soil Lead D2216 Moisture Soil	
Suite 600	PM Phone #: (818) 266-1378		
Walnut Creek	Field Contact: Benjamin Stewart		
CA	Field Contact #: (818) 266-1378		
94596	Lab Name: GEL Laboratories, LLC		
Email: sarah.vonraasfeld@mwhglobal.c	Lab Contact: Jackie Trudell	Instructions/TAT	
	Lab Address: 2040 Savage Road	Legend: Numerical values for analyses equal to turn around time in days	
	Lab Phone: Charleston, SC 29407	H - Hold EH - Extract/Extrude & Hold	
		Note: Values in the cells below are Turn Around Times.	

Sample Name	Matrix	Date	Time	No. of Containers	Comments
HZET0221S001	Soil	9/15/2009	7:50	1	
HZET0222S001	Soil	9/15/2009	8:05	1	
HZET0223S001	Soil	9/15/2009	8:15	1	
HZET0224S001	Soil	9/15/2009	8:20	1	
HZET0225S001	Soil	9/15/2009	8:30	1	
HZET0226S001	Soil	9/15/2009	8:35	1	
HZET0227S001	Soil	9/15/2009	9:48	1	
HZET0228S001	Soil	9/15/2009	10:00	1	
HZET0229S001	Soil	9/15/2009	10:10	1	
HZET0302S001	Soil	9/15/2009	9:15	1	

1. Relinquished by: <i>Allyson M. Reed</i>	Date: 9-15-09	Time: 16:34	3. Relinquished by:	Date:	Time:
Company: MWH			4. Received by: <i>Richard Arden</i>	Date: 9/16/09	Time: 09:15
			Company: GEE		

Comments: 5 Day TAT

Geotracker EDF Data Validation Package Level IV

(1) SAR 09/17/09



CHAIN OF CUSTODY RECORD

COC #: 237307

MWHAG20090915_00

Page: 2 of 2

Customer Information		Project Information		Project Information			
Site:	SSFL	Client Name:	Boeing	Collector:	A. Goldenbers		
Company:	MWH	Sampling Event:	ISRA Sampling, August 2009	Contact #:			
Report to:	Sarah Von Raesfeld	Project Number:	1891614.05462	Requested Analyses			
Address:	2121 N. California Blvd	Project Manager:	Benjamin Stewart				
	Suite 600	PM Phone #:	(818) 266-1378	Metals 6020 Soil Copper Metals 6020 Soil Lead D2216 Moisture Soil			
	Walnut Creek	Field Contact:	Benjamin Stewart				
	CA	Field Contact #:	(818) 266-1378				
	94596	Lab Name:	GEL Laboratories, LLC				
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Jackie Trudell				
	sean.leffler@mwhglobal.com	Lab Address:	2040 Savage Road				
			Charleston, SC 29407				
		Lab Phone:	(843) 769-7388				
Sample Name		Matrix				Date	Time
HZET0303S001	Soil					9/15/2009	9:00
		No. of Containers			1		
				Instructions/TAT			
				Legend: Numerical values for analyses equate to turn around time in days H - Hold EH - Extract/Extrude & Hold Note: Values in the cells below are Turn Around Times.			
				Comments			

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
<i>[Signature]</i>	9-15-09	<i>[Signature]</i>	9/16/09				
Company:	Time:	Company:	Time:	Company:	Time:	Company:	Time:
MWH	16:34	GEL	0915				
Comments: 5 Day TAT							
<input type="checkbox"/> Geotracker EDF <input checked="" type="checkbox"/> Data Validation Package <input checked="" type="checkbox"/> Level IV							

① SWR 09/17/09

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: ISRA Sampling, August 2009

Start: 8/24/2009

End: 9/30/2009

LTO DATE:

LTO NUMBER:

<p>Consultant Name: MWH Address: 2121 N. California Blvd. Ste. 600 Walnut Creek, CA 94596</p> <p>Contact Name: Sarah Von Raesfeld Phone Number: 925-627-4654 Fax Number: 925-627-4501 E-mail Address: Sarah.VonRaesfeld@mwhglobal.com</p>	<p>Contract Laboratory: GEL Address: 2040 Savage Rd. Charleston, SC 29407</p> <p>Lab Contact Name: Jackie Trudell Phone Number: 843-769-7388 Fax Number: 843-766-1178 E-mail Address: jacqueline.trudell@gel.com</p>
---	---

SAMPLE CONTAINER ORDER FORM

<p>Date Required: _____</p> <p>Date Sample Pickup: _____</p> <p>Ship Containers To: Project Site _____ (enter "X") Consultant Office _____ (enter "X") Other Location (specify in comments) _____ (enter "X")</p> <p>Container Information: Trip Blank (VOA only) <u>No</u> (Yes/No) Temp Blank (VOA Only) <u>No</u> (Yes/No) DI Water Required? <u>No</u> (Yes/No) MS/MSD Extra Bottles? <u>No</u> (Yes/No)</p> <p>Sample Matrix: Soil <u>X</u> (select all applicable) Water <u>X</u> (select all applicable) Vapor _____ (select all applicable)</p> <p>Est. Total # of Samples: <u>175</u> Est. Total # of EDDs <u>40</u></p>	<p>Requested Analyses: (Specify # of Samples)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Water</th> <th style="text-align: center;">Soil</th> <th style="text-align: center;">Contingent</th> </tr> </thead> <tbody> <tr> <td>Dioxins (1613B)</td> <td style="text-align: center;">15</td> <td style="text-align: center;">124</td> <td style="text-align: center;">0</td> </tr> <tr> <td>EPA 8015M (DRO)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8015M (JET FUEL)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8015M (CC)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>TCE (8260B)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">12</td> <td style="text-align: center;">0</td> </tr> <tr> <td>EPA 8270C SIM (SVOC)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8310 (PAH)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8082 (PCB)</td> <td style="text-align: center;">3</td> <td style="text-align: center;">5</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Nickel (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Chromium (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Silver (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Cadmium (6020)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">35</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Arsenic (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>% Moisture (D2216)</td> <td style="text-align: center;">0</td> <td style="text-align: center;">170</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Lead (6020)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">65</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Copper (6020)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">75</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Zinc (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">20</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Mercury by 7471A/7470A</td> <td style="text-align: center;">5</td> <td style="text-align: center;">25</td> <td style="text-align: center;">0</td> </tr> </tbody> </table>		Water	Soil	Contingent	Dioxins (1613B)	15	124	0	EPA 8015M (DRO)	--	--	--	EPA 8015M (JET FUEL)	--	--	--	EPA 8015M (CC)	--	--	--	TCE (8260B)	5	12	0	EPA 8270C SIM (SVOC)	--	--	--	EPA 8310 (PAH)	--	--	--	EPA 8082 (PCB)	3	5	0	Nickel (6020)	5	10	0	Chromium (6020)	5	10	0	Silver (6020)	5	10	0	Cadmium (6020)	10	35	0	Arsenic (6020)	5	10	0	% Moisture (D2216)	0	170	0	Lead (6020)	10	65	0	Copper (6020)	10	75	0	Zinc (6020)	5	20	0	Mercury by 7471A/7470A	5	25	0
	Water	Soil	Contingent																																																																										
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LABORATORY REPORTING REQUIREMENTS

<p>Project TAT: Normal: <u>X</u> (10 Business days) RUSH: <u>5</u> (Specify- 24 / 48 / 72HRS) Other : _____ (Specify # of Days) Report Due Date: _____</p> <p>Special Reporting Requirements: Contingent Analysis? <u>No</u> (Yes/No) TIC (VOC) Required? <u>No</u> (Yes/No) TIC (SVOC) Required? <u>No</u> (Yes/No) Data Validation Pckge.: <u>Tier III</u> (Boeing Tier I, II or III)</p>	<p>Laboratory Results/Reports Deliverables: Draft Results Fax?: _____ (Yes/No) Draft Results E-mail?: <u>Yes</u> (Yes/No) Specify Fax/E-mail Contact Name, #, E-mail Address: <u>Sarah.VonRaesfeld@mwhglobal.com</u> Send Original Reports To: Project Site _____ (enter "X") Consultant Office _____ (enter "X") Other Location (specify in comments) <u>X</u> (enter "X") # of Copies Reports Req.: <u>1</u></p>
--	--

SPECIAL INSTRUCTIONS/LTO NOTES

CONFIRMATION OF TRANSMITTAL & RECEIPT

<p>LTO Sent By: Name: <u>Sarah Von Raesfeld</u> Date: <u>09/02/09</u></p>	<p>LTO Received By-: Name: _____ Date: _____</p>
--	---

Table of Contents

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Case Narrative

**Case Narrative
for
Boeing - SSFL (MWH)
Work Order: 237307
SDG: 237307**

September 25, 2009

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 September 16, 2009 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. There are no additional comments concerning sample receipt.

The laboratory received the following samples:

<u>Laboratory Identification</u>	<u>Sample Description</u>
237307001	HZET0221S001
237307002	HZET0222S001
237307003	HZET0223S001
237307004	HZET0224S001
237307005	HZET0225S001
237307006	HZET0226S001
237307007	HZET0227S001
237307008	HZET0228S001
237307009	HZET0229S001
237307010	HZET0302S001
237307011	HZET0303S001

Items of Note

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: Metals and Percent Moisture.

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 black ink that reads "Jacqueline A. Trudell". The signature is written in a cursive style with a large initial 'J'.

Jacqueline Trudell

Project Manager

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 September 2009

State	Certification
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California – NELAP	01151CA
Colorado	GEL
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA Region 5	WG-15J
Florida – NELAP	E87156
Georgia	E87156 (FL/NELAP)
Georgia DW	967
Hawaii	N/A
ISO 17025	2567.01
Idaho	SC00012
Illinois – NELAP	200029
Indiana	C-SC-01
Kansas – NELAP	E-10332
Kentucky	90129
Louisiana – NELAP	03046
Maryland	270
Massachusetts	M-SC012
Nevada	SC00012
New Jersey – NELAP	SC002
New Mexico	FL NELAP E87156
New York – NELAP	11501
North Carolina	233
North Carolina DW	45709
Oklahoma	9904
Pennsylvania – NELAP	68-00485
South Carolina	10120001/10120002
Tennessee	TN 02934
Texas – NELAP	T104704235-07B-TX
U.S. Dept. of Agriculture	S-52597
Utah – NELAP	GEL
Vermont	VT87156
Virginia	00151
Washington	C1641



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: 237307

Prepared by

MECX, LP
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Boeing SSFL RFI ISRA
 Contract Task Order: 1261.500D.00
 Sample Delivery Group: 237307
 Project Manager: Dixie Hambrick
 Matrix: water/soil
 QC Level: V
 No. of Samples: 11
 No. of Reanalyses/Dilutions: 0
 Laboratory: GEL

Table 1. Sample Identification

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
HZET0221S001	237307001	N/A	Soil	9/15/2009 7:50:00 AM	6020
HZET0222S001	237307002	N/A	Soil	9/15/2009 8:05:00 AM	6020
HZET0223S001	237307003	N/A	Soil	9/15/2009 8:15:00 AM	6020
HZET0224S001	237307004	N/A	Soil	9/15/2009 8:20:00 AM	6020
HZET0225S001	237307005	N/A	Soil	9/15/2009 8:30:00 AM	6020
HZET0226S001	237307006	N/A	Soil	9/15/2009 8:35:00 AM	6020
HZET0227S001	237307007	N/A	Soil	9/15/2009 9:48:00 AM	6020
HZET0228S001	237307008	N/A	Soil	9/15/2009 10:00:00 AM	6020
HZET0229S001	237307009	N/A	Soil	9/15/2009 10:10:00 AM	6020
HZET0302S001	237307010	N/A	Soil	9/15/2009 9:15:00 AM	6020
HZET0303S001	237307011	N/A	Soil	9/15/2009 9:00:00 AM	6020

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 or PCB congeners.	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.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

T-II	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a class of compound but not of sufficient identification quality to represent a specific compound.	Not applicable
T-III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
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.
*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 METHOD 6020—Metals

Reviewed By: P. Meeks

Date Reviewed: September 29, 2009

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC^x Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0)*, *EPA Method 6020*, and the *National Functional Guidelines for Inorganic Data Review (7/02)*.

- Holding Times: the analytical holding time, six months for ICP-MS 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 applicable 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: Laboratory duplicate analyses were performed on HZET0221S001. The RPD was within the method-established control limit.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on HZET0221S001. Recoveries and RPDs were within laboratory-established QC limits.
- Serial Dilution: Serial dilution analyses were performed on HZET0221S001. The %D for copper exceeded the control limit; therefore, copper detected in the samples was qualified as estimated, "J." The lead %D was within the method-established control limit.
- Internal Standards Performance: Review is not applicable at a Level V validation.
- Sample Result Verification: Review is not applicable at a Level V validation. As the samples in this SDG were validated at Level V, the QC information necessary to make an absolute determination of bias in the samples was not reviewed; therefore, when qualifications were applied, no bias was assigned. Any result reported between the MDL and the reporting limit was qualified as estimated, "J." 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: FBQW2239 (235913) was the field blank associated with the samples in this SDG. There were no detects in the field blank. The samples in this SDG had no identified equipment rinsate.
- Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 237307

Analysis Method 6020

Sample Name	HZET0221S001	Matrix Type: SOIL			Result Type: Primary Result			
Lab Sample Name:	237307001	Sample Date: 9/15/2009 7:50:00 AM			Validation Level: V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	4.98	0.392		0.0981 mg/kg			
Sample Name	HZET0222S001	Matrix Type: SOIL			Result Type: Primary Result			
Lab Sample Name:	237307002	Sample Date: 9/15/2009 8:05:00 AM			Validation Level: V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	4.17	0.393		0.0981 mg/kg			
Sample Name	HZET0223S001	Matrix Type: SOIL			Result Type: Primary Result			
Lab Sample Name:	237307003	Sample Date: 9/15/2009 8:15:00 AM			Validation Level: V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	35.9	0.401		0.1 mg/kg			
Sample Name	HZET0224S001	Matrix Type: SOIL			Result Type: Primary Result			
Lab Sample Name:	237307004	Sample Date: 9/15/2009 8:20:00 AM			Validation Level: V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	6.51	0.401		0.1 mg/kg			
Sample Name	HZET0225S001	Matrix Type: SOIL			Result Type: Primary Result			
Lab Sample Name:	237307005	Sample Date: 9/15/2009 8:30:00 AM			Validation Level: V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	5.33	0.389		0.0973 mg/kg			
Sample Name	HZET0226S001	Matrix Type: SOIL			Result Type: Primary Result			
Lab Sample Name:	237307006	Sample Date: 9/15/2009 8:35:00 AM			Validation Level: V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	4.97	0.395		0.0988 mg/kg			
Sample Name	HZET0227S001	Matrix Type: SOIL			Result Type: Primary Result			
Lab Sample Name:	237307007	Sample Date: 9/15/2009 9:48:00 AM			Validation Level: V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	6.57	0.404		0.101 mg/kg			

Analysis Method 6020

Sample Name HZET0228S001 **Matrix Type:** SOIL **Result Type:** Primary Result
Lab Sample Name: 237307008 **Sample Date:** 9/15/2009 10:00:00 AM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	4.86	0.414	0.103	mg/kg			

Sample Name HZET0229S001 **Matrix Type:** SOIL **Result Type:** Primary Result
Lab Sample Name: 237307009 **Sample Date:** 9/15/2009 10:10:00 AM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	7.38	0.412	0.103	mg/kg			

Sample Name HZET0302S001 **Matrix Type:** SOIL **Result Type:** Primary Result
Lab Sample Name: 237307010 **Sample Date:** 9/15/2009 9:15:00 AM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Copper	7440508	17.8	1	0.331	mg/kg		J	A
Lead	7439921	11	0.402	0.1	mg/kg			

Sample Name HZET0303S001 **Matrix Type:** SOIL **Result Type:** Primary Result
Lab Sample Name: 237307011 **Sample Date:** 9/15/2009 9:00:00 AM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Copper	7440508	40	1.03	0.339	mg/kg		J	A
Lead	7439921	20.2	0.411	0.103	mg/kg			

Chain of Custody and Supporting Documentation



CHAIN OF CUSTODY RECORD

COC #: **237620**

MWHAG20090921_00

Page: 1 of 2

Customer Information			Project Information		
Site:	SSFL	Boeing	Collector:	A. Goldenberg	
Company:	MWH	ISRA Sampling, August 2009	Contact #:		
Report to:	Sarah Von Raesfeld		Requested Analyses		
Address:	2121 N. California Blvd		Metals 6020 Soil Zinc		
	Suite 600		Metals 6020 Soil Lead		
	Walnut Creek		Metals 6020 Soil Cadmium		
	CA		Dioxin by 1613B - Soil		
	94596		D2216 Moisture Soil		
	GEL Laboratories, LLC				
	Jackie Trudell				
	2040 Savage Road				
	Charleston, SC 29407				
	(843) 769-7388				
Sample Name	Matrix	Date	Time	No. of Containers	Comments
HZET0100D001	Soil	9/21/2009	9:25	1	
HZET0100S001	Soil	9/21/2009	9:25	1	
HZET0101S001	Soil	9/21/2009	9:35	1	
HZET0101S002	Soil	9/21/2009	13:10	1	
HZET0102S001	Soil	9/21/2009	12:55	3	
HZET0103S001	Soil	9/21/2009	12:45	1	
HZET0103S002	Soil	9/21/2009	13:25	1	
HZET0600D001	Soil	9/21/2009	9:00	1	
HZET0600S001	Soil	9/21/2009	9:00	1	
HZET0601S001	Soil	9/21/2009	10:40	1	

1. Relinquished by:		2. Received by:		3. Relinquished by:		4. Received by:	
Date:	9-21-09	Date:	9/22/09	Date:		Date:	
Time:	10:50	Company:	Gel	Time:	9:20	Company:	
Company:	MWH	Company:	Gel	Company:		Company:	

Comments:

Geotracker EDF
 Data Validation Package
 Level IV



CHAIN OF CUSTODY RECORD

COC #: **237620**

MWHAG20090921_00

Page: 2 of 2

Customer Information		Project Information				Project Information	
Site:	SSFL	Client Name:	Boeing		Collector:	A. Goldenberg	
Company:	MWH	Sampling Event:	ISRA Sampling, August 2009		Contact #:		
Report to:	Sarah Von Raesfeld	Project Number:	1891614.05462		Requested Analyses		
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl				Instructions/TAT Legend: Numerical values for analyses equate to turn around time in days H - Hold EH - Extract/Extrude & Hold Note: Values in the cells below are Turn Around Times.
	Suite 600	PM Phone #:	(925) 627-4627				
	Walnut Creek	Field Contact:	Benjamin Stewart				
	CA	Field Contact #:	(818) 266-1378				
	94596	Lab Name:	GEL Laboratories, LLC				
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Jackie Trudell				
	sean.leffler@mwhglobal.com	Lab Address:	2040 Savage Road				
		Lab Phone:	(843) 769-7388				
Sample Name	Matrix	Date	Time	No. of Containers			Comments
HZET0602S001	Soil	9/21/2009	9:05	1	D2216 Moisture Soil	5	
HZET0603S001	Soil	9/21/2009	10:50	1	Metals 6020 Soil Lead	5	
HZET0604S001	Soil	9/21/2009	11:08	1	Metals 6020 Soil Cadmium	5	
HZET0605S001	Soil	9/21/2009	11:00	1	Metals 6020 Soil Zinc	5	

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
<i>Alan M. Raesfeld</i>	9-21-09	<i>R.M. Stelling</i>	9/21/09				
Company: MWH	Time: 16:50	Company: GEL	Time: 9:20	Company:	Time:	Company:	Time:
Comments: <input type="checkbox"/> Geotracker EDF <input checked="" type="checkbox"/> Data Validation Package <input checked="" type="checkbox"/> Level IV							



SAMPLE RECEIPT & REVIEW FORM

Client: <u>SFI</u>		SDG/ARCO/Work Order: <u>237620</u>	
Received By: <u>RMS</u>		Date Received: <u>9/22/07</u>	
Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/>	Maximum Counts Observed*:
Classified Radioactive II by RSO?		<input checked="" type="checkbox"/>	<u>30cpm</u>
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/>	
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

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 0 ≤ 6 deg. C?	<input checked="" type="checkbox"/>			Preservation Method: <u>(ice bags)</u> blue ice dry ice none other (describe) <u>3</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: If Preservation added, Lot#:
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?			<input checked="" type="checkbox"/>	(if yes, immediately deliver to Volatiles laboratory)
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"/>			

Comments: FEDEX#S

Ex: 9457 3161 4181

PM (or PMA) review: Initials JT Date 9/22/09

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: ISRA Sampling, August 2009

Start: 8/24/2009

End: 9/30/2009

LTO DATE:

LTO NUMBER:

<p>Consultant Name: MWH Address: 2121 N. California Blvd. Ste. 600 Walnut Creek, CA 94596</p> <p>Contact Name: Sarah Von Raesfeld Phone Number: 925-627-4654 Fax Number: 925-627-4501 E-mail Address: Sarah.VonRaesfeld@mwhglobal.com</p>	<p>Contract Laboratory: GEL Address: 2040 Savage Rd. Charleston, SC 29407</p> <p>Lab Contact Name: Jackie Trudell Phone Number: 843-769-7388 Fax Number: 843-766-1178 E-mail Address: jacqueline.trudell@gel.com</p>
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SAMPLE CONTAINER ORDER FORM

<p>Date Required: _____</p> <p>Date Sample Pickup: _____</p> <p>Ship Containers To: Project Site _____ (enter "X") Consultant Office _____ (enter "X") Other Location (specify in comments) _____ (enter "X")</p> <p>Container Information: Trip Blank (VOA only) <u>No</u> (Yes/No) Temp Blank (VOA Only) <u>No</u> (Yes/No) DI Water Required? <u>No</u> (Yes/No) MS/MSD Extra Bottles? <u>No</u> (Yes/No)</p> <p>Sample Matrix: Soil <u>X</u> (select all applicable) Water <u>X</u> (select all applicable) Vapor _____ (select all applicable)</p> <p>Est. Total # of Samples: <u>175</u> Est. Total # of EDDs <u>40</u></p>	<p>Requested Analyses: (Specify # of Samples)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Water</th> <th style="text-align: center;">Soil</th> <th style="text-align: center;">Contingent</th> </tr> </thead> <tbody> <tr> <td>Dioxins (1613B)</td> <td style="text-align: center;">15</td> <td style="text-align: center;">124</td> <td style="text-align: center;">0</td> </tr> <tr> <td>EPA 8015M (DRO)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8015M (JET FUEL)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8015M (CC)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>TCE (8260B)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">12</td> <td style="text-align: center;">0</td> </tr> <tr> <td>EPA 8270C SIM (SVOC)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8310 (PAH)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8082 (PCB)</td> <td style="text-align: center;">3</td> <td style="text-align: center;">5</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Nickel (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Chromium (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Silver (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Cadmium (6020)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">35</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Arsenic (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>% Moisture (D2216)</td> <td style="text-align: center;">0</td> <td style="text-align: center;">170</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Lead (6020)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">65</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Copper (6020)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">75</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Zinc (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">20</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Mercury by 7471A/7470A</td> <td style="text-align: center;">5</td> <td style="text-align: center;">25</td> <td style="text-align: center;">0</td> </tr> </tbody> </table>		Water	Soil	Contingent	Dioxins (1613B)	15	124	0	EPA 8015M (DRO)	--	--	--	EPA 8015M (JET FUEL)	--	--	--	EPA 8015M (CC)	--	--	--	TCE (8260B)	5	12	0	EPA 8270C SIM (SVOC)	--	--	--	EPA 8310 (PAH)	--	--	--	EPA 8082 (PCB)	3	5	0	Nickel (6020)	5	10	0	Chromium (6020)	5	10	0	Silver (6020)	5	10	0	Cadmium (6020)	10	35	0	Arsenic (6020)	5	10	0	% Moisture (D2216)	0	170	0	Lead (6020)	10	65	0	Copper (6020)	10	75	0	Zinc (6020)	5	20	0	Mercury by 7471A/7470A	5	25	0
	Water	Soil	Contingent																																																																										
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Arsenic (6020)	5	10	0																																																																										
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Mercury by 7471A/7470A	5	25	0																																																																										

LABORATORY REPORTING REQUIREMENTS

<p>Project TAT: Normal: <u>X</u> (10 Business days) RUSH: <u>5</u> (Specify- 24 / 48 / 72HRS) Other : _____ (Specify # of Days) Report Due Date: _____</p> <p>Special Reporting Requirements: Contingent Analysis? <u>No</u> (Yes/No) TIC (VOC) Required? <u>No</u> (Yes/No) TIC (SVOC) Required? <u>No</u> (Yes/No) Data Validation Pckge.: <u>Tier III</u> (Boeing Tier I, II or III)</p>	<p>Laboratory Results/Reports Deliverables: Draft Results Fax?: _____ (Yes/No) Draft Results E-mail?: <u>Yes</u> (Yes/No) Specify Fax/E-mail Contact Name, #, E-mail Address: <u>Sarah.VonRaesfeld@mwhglobal.com</u> Send Original Reports To: Project Site _____ (enter "X") Consultant Office _____ (enter "X") Other Location (specify in comments) <u>X</u> (enter "X") # of Copies Reports Req.: <u>1</u></p>
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SPECIAL INSTRUCTIONS/LTO NOTES

CONFIRMATION OF TRANSMITTAL & RECEIPT

<p>LTO Sent By: Name: <u>Sarah Von Raesfeld</u> Date: <u>09/02/09</u></p>	<p>LTO Received By-: Name: _____ Date: _____</p>
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Case Narrative

**Case Narrative
for
Boeing - SSFL (MWH)
Work Order: 237620
SDG: 237620**

October 08, 2009

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 September 22, 2009 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. There are no additional comments concerning sample receipt.

The laboratory received the following samples:

<u>Laboratory Identification</u>	<u>Sample Description</u>
237620001	HZET0100D001
237620002	HZET0100S001
237620003	HZET0101S001
237620004	HZET0101S002
237620005	HZET0102S001
237620006	HZET0103S001
237620007	HZET0103S002
237620008	HZET0600D001
237620009	HZET0600S001
237620010	HZET0601S001
237620011	HZET0602S001
237620012	HZET0603S001
237620013	HZET0604S001
237620014	HZET0605S001

Items of Note

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: Metals, Percent Moisture and Dioxins (Cape Fear Analytical).

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.



Jacqueline Trudell

Project Manager

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 29 September 2009

State	Certification
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California – NELAP	01151CA
Colorado	GEL
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA Region 5	WG-15J
Florida – NELAP	E87156
Georgia	E87156 (FL/NELAP)
Georgia DW	967
Hawaii	N/A
ISO 17025	2567.01
Idaho	SC00012
Illinois – NELAP	200029
Indiana	C-SC-01
Kansas – NELAP	E-10332
Kentucky	90129
Louisiana – NELAP	03046
Maryland	270
Massachusetts	M-SC012
Nevada	SC00012
New Jersey – NELAP	SC002
New Mexico	FL NELAP E87156
New York – NELAP	11501
North Carolina	233
North Carolina DW	45709
Oklahoma	9904
Pennsylvania – NELAP	68-00485
South Carolina	10120001/10120002
Tennessee	TN 02934
Texas – NELAP	T104704235-07B-TX
U.S. Dept. of Agriculture	S-52597
Utah – NELAP	GEL
Vermont	VT87156
Virginia	00151
Washington	C1641



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: 237620

Prepared by

MEC^x, LP
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Boeing SSFL RFI ISRA
 Contract Task Order: 1261.500D.00
 Sample Delivery Group: 237620
 Project Manager: Dixie Hambrick
 Matrix: water/soil
 QC Level: V
 No. of Samples: 14
 No. of Reanalyses/Dilutions: 0
 Laboratory: GEL

Table 1. Sample Identification

<i>Sample Name</i>	<i>Lab Sample Name</i>	<i>Sub-Lab Sample Name</i>	<i>Matrix</i>	<i>Collection</i>	<i>Method</i>
HZET0100D001	237620001	1068001	Soil	9/21/2009 09:25	1613B, 6020
HZET0100S001	237620002	1068002	Soil	9/21/2009 09:25	1613B, 6020
HZET0101S001	237620003	1068003	Soil	9/21/2009 09:35	1613B, 6020
HZET0101S002	237620004	1068004	Soil	9/21/2009 13:10	1613B, 6020
HZET0102S001	237620005	1068005	Soil	9/21/2009 12:55	1613B, 6020
HZET0103S001	237620006	1068006	Soil	9/21/2009 12:45	1613B, 6020
HZET0103S002	237620007	1068007	Soil	9/21/2009 13:25	1613B, 6020
HZET0600D001	237620008	N/A	Soil	9/21/2009 09:00	6020
HZET0600S001	237620009	N/A	Soil	9/21/2009 09:00	6020
HZET0601S001	237620010	N/A	Soil	9/21/2009 10:40	6020
HZET0602S001	237620011	N/A	Soil	9/21/2009 09:05	6020
HZET0603S001	237620012	N/A	Soil	9/21/2009 10:50	6020
HZET0604S001	237620013	N/A	Soil	9/21/2009 11:08	6020
HZET0605S001	237620014	N/A	Soil	9/21/2009 11:00	6020

II. Sample Management

No anomalies were observed regarding sample management. The samples in this SDG were received at the laboratories 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 or PCB congeners.	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.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

T-II	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a class of compound but not of sufficient identification quality to represent a specific compound.	Not applicable
T-III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
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.
*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 METHOD 1613—Dioxin/Furans

Reviewed By: P. Meeks

Date Reviewed: October 13, 2009

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC^x Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0)*, *USEPA Method 1613*, and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review (08/02)*.

- Holding Times: Extraction and analytical holding times were met. The samples were extracted and analyzed within one year of collection.
- Instrument Performance: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: The soil method blank had detects for all but two target compounds. Individual isomers detected below the reporting limit or at concentrations less than 5x the method blank concentration were qualified as nondetected, "U," at the reporting limit if detected below the reporting limit or at the level of contamination if detected above. All totals, except for TCDF, were qualified as estimated, "J," due to detects in the soil method blank.
- Blank Spikes and Laboratory Control Samples: Recoveries were within the acceptance criteria listed in Table 6 of Method 1613 and the RPDs were within the laboratory-established control limits.
- MS/MSD analyses were performed on HZER0102S001. Recoveries were within the acceptance criteria listed in Table 6 of Method 1613 and the RPDs were within the laboratory-established control 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: FBQW2239 (235913) was identified as the field blank associated with the samples in this SDG; however, the sample was not analyzed for dioxins. The samples in this SDG had no identified equipment rinsate.
 - Field Duplicates: HZET0100S001 and HZET0100D001 were identified as field duplicate samples. There were four common detects above the reporting limit for 1,2,3,4,6,7,8-HpCDD, TCDF, OCDD, and OCDF with RPDs of 108%, 21%, 112%, and 99%, respectively. There were also three compounds detected below the RL

in one sample and not detected in the other and one compound was detected above the RL but was not detected in the other.

- **Internal Standards Performance:** Internal standard recoveries are not routinely evaluated at a Level V validation; however, the recoveries were reported on the sample result summaries. The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613.
- **Compound Identification:** Review is not applicable at a Level V validation. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613. The laboratory performed and reported confirmation analyses for all TCDF detects. As the confirmation analyses resulted in results similar to the original analyses, the reviewer rejected, "R," the confirmation analyses in all samples except HZET0101S002 and HZET0102S001 in favor of the original analyses. The original TCDF results for HZET0101S002 and HZET0102S001 were reported as estimated maximum possible concentrations (EMPCs); however, as the confirmation results were not reported as an EMPCs, the reviewer rejected, "R," the original results in favor of the confirmation results in HZET0101S002 and HZET0102S001.
- **Compound Quantification and Reported Detection Limits:** Review is not applicable at a Level V validation. The laboratory calculated and reported compound-specific detection limits (EDLs). EMPCs were identified in the samples of this SDG and qualified with a "K" by the laboratory. Any EMPC was qualified as estimated, "UJ," in the samples of this SDG. EMPCs reported as totals were qualified as estimated, "J," as only a portion of the total was identified as an EMPC. Any detect below the laboratory lower calibration level was qualified as estimated, "J." Nondetects are valid to the estimated detection limit (EDL).

B. EPA METHOD 6020—Metals

Reviewed By: P. Meeks

Date Reviewed: October 13, 2009

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC^x Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0)*, *EPA Method 6020*, and the *National Functional Guidelines for Inorganic Data Review (7/02)*.

- **Holding Times:** The analytical holding time, six months for ICP-MS 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: Recoveries were within laboratory-established QC limits.
- Laboratory Duplicates: A laboratory duplicate analysis was performed on HZET0102S001. The RPDs were within the method established control limits.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on HZET0102S001. Recoveries and RPDs were within laboratory-established QC limits.
- Serial Dilution: A serial dilution analysis was performed on HZET0102S001. The %D for lead exceeded the control limit; therefore, lead detected in the samples was qualified as estimated, "J." The remaining %Ds were within the method-established control limit.
- Internal Standards Performance: Review is not applicable at a Level V validation.
- Sample Result Verification: Review is not applicable at a Level V validation. As the samples in this SDG were validated at Level V, the QC information necessary to make an absolute determination of bias in the samples was not reviewed; therefore, when qualifications were applied, no bias was assigned. All zinc results were reported from 10x dilutions in order to report the analyte within the linear range of the instrument. The remaining analytes were reported from the laboratory's standard 2x dilution for soils. Any result reported between the MDL and the reporting limit was qualified as estimated, "J." 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: FBQW2239 (235913) was the field blank associated with the samples in this SDG. There were no applicable detects in the field blank. The samples in this SDG had no identified equipment rinsate.
 - Field Duplicates: HZET0100S001 and HZET0100D001 and HZET0600S001 and HZET0600D001 were identified as field duplicate samples. All detects were in common and all RPDs were less than 100%.

Validated Sample Result Forms: 237620

Analysis Method 1613B

Sample Name	HZET0100D001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1068001	Sample	9/21/2009 9:25:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	15.4	2.42	0.646	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	2.42	2.42	2.42	pg/g	J	U	B, result changed from 1.8 and EDL from
1,2,3,4,7,8,9-HpCDF	55673897	0.432	2.42	0.432	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.268	2.42	0.268	pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	2.42	2.42	2.42	pg/g	JK	UJ	*III, result changed from 0.211 and
1,2,3,6,7,8-HxCDD	57653857	0.601	2.42	0.304	pg/g	J	J	
1,2,3,6,7,8-HxCDF	57117449	0.184	2.42	0.184	pg/g	U	U	
1,2,3,7,8,9-HxCDD	19408743	0.301	2.42	0.301	pg/g	U	U	
1,2,3,7,8,9-HxCDF	72918219	0.291	2.42	0.291	pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.206	2.42	0.206	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	0.189	2.42	0.189	pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.215	2.42	0.215	pg/g	U	U	
2,3,4,7,8-PeCDF	57117314	2.42	2.42	2.42	pg/g	J	U	B, result changed from 0.178 and EDL from
2,3,7,8-TCDD	1746016	0.178	0.485	0.178	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.436	0.485	0.215	pg/g	J	R	D
2,3,7,8-TCDF	51207319	0.481	0.485	0.24	pg/g	J	J	
OCDD	3268879	275	4.85	2.11	pg/g			
OCDF	39001020	5.77	4.85	1.78	pg/g			
Total HpCDD	37871004	68.7	2.42	0.646	pg/g		J	B
Total HpCDF	38998753	5.27	2.42	0.275	pg/g		J	B
Total HxCDD	34465468	3.79	2.42	0.268	pg/g		J	B
Total HxCDF	55684941	2.86	2.42	0.163	pg/g		J	B, *III
Total PeCDD	36088229	0.206	2.42	0.206	pg/g	U	U	
Total PeCDF	30402154	0.938	2.42	0.118	pg/g	J	J	B
Total TCDD	41903575	0.178	0.485	0.178	pg/g	U	U	
Total TCDFs	55722275	1.43	0.485	0.24	pg/g	B		

Analysis Method 1613B

Sample Name	HZET0100S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1068002	Sample	9/21/2009 9:25:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	51.7	2.47	0.555	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	5.17	2.47	0.152	pg/g			
1,2,3,4,7,8,9-HpCDF	55673897	2.47	2.47	2.47	pg/g	J	U	B, result changed from 0.525 and EDL from
1,2,3,4,7,8-HxCDD	39227286	0.527	2.47	0.172	pg/g	J	J	
1,2,3,4,7,8-HxCDF	70648269	0.507	2.47	0.124	pg/g	J	J	
1,2,3,6,7,8-HxCDD	57653857	2.09	2.47	0.191	pg/g	J	J	
1,2,3,6,7,8-HxCDF	57117449	2.47	2.47	2.47	pg/g	JK	UJ	*III, result changed from 0.375 and
1,2,3,7,8,9-HxCDD	19408743	2.47	2.47	2.47	pg/g	J	U	B, result changed from 1.01 and EDL from 0.19
1,2,3,7,8,9-HxCDF	72918219	2.47	2.47	2.47	pg/g	JK	UJ	*III, result changed from 0.294 and
1,2,3,7,8-PeCDD	40321764	2.47	2.47	2.47	pg/g	J	U	B, result changed from 0.363 and EDL from
1,2,3,7,8-PeCDF	57117416	2.47	2.47	2.47	pg/g	JK	UJ	*III, result changed from 0.268 and
2,3,4,6,7,8-HxCDF	60851345	0.434	2.47	0.136	pg/g	J	J	
2,3,4,7,8-PeCDF	57117314	2.47	2.47	2.47	pg/g	J	U	B, result changed from 0.44 and EDL from
2,3,7,8-TCDD	1746016	0.158	0.494	0.158	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.596	0.494	0.215	pg/g			
2,3,7,8-TCDF	51207319	0.456	0.494	0.187	pg/g	J	R	D
OCDD	3268879	969	4.94	1.21	pg/g			
OCDF	39001020	17.1	4.94	0.537	pg/g			

Analysis Method *1613B*

Total HpCDD	37871004	219	2.47	0.555 pg/g		J	B
Total HpCDF	38998753	17.6	2.47	0.152 pg/g		J	B
Total HxCDD	34465468	16.3	2.47	0.172 pg/g		J	B
Total HxCDF	55684941	11.2	2.47	0.124 pg/g		J	B, *III
Total PeCDD	36088229	2.16	2.47	0.146 pg/g	J	J	B
Total PeCDF	30402154	4.78	2.47	0.0784 pg/g		J	B, *III
Total TCDD	41903575	0.231	0.494	0.158 pg/g	J	J	B
Total TCDFs	55722275	2.45	0.494	0.215 pg/g	B		

Analysis Method 1613B

Sample Name	HZET0101S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1068003	Sample	9/21/2009 9:35:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	2.4	2.38	0.331	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	2.38	2.38	2.38	pg/g	J	U	B, result changed from 0.375 and EDL from
1,2,3,4,7,8,9-HpCDF	55673897	0.269	2.38	0.269	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.204	2.38	0.204	pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.12	2.38	0.12	pg/g	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.215	2.38	0.215	pg/g	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.121	2.38	0.121	pg/g	U	U	
1,2,3,7,8,9-HxCDD	19408743	0.221	2.38	0.221	pg/g	U	U	
1,2,3,7,8,9-HxCDF	72918219	0.175	2.38	0.175	pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.155	2.38	0.155	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	0.125	2.38	0.125	pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.123	2.38	0.123	pg/g	U	U	
2,3,4,7,8-PeCDF	57117314	0.119	2.38	0.119	pg/g	U	U	
2,3,7,8-TCDD	1746016	0.157	0.476	0.157	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.348	0.476	0.229	pg/g	J	J	
2,3,7,8-TCDF	51207319	0.368	0.476	0.161	pg/g	J	R	D
OCDD	3268879	41.1	4.76	0.95	pg/g			
OCDF	39001020	1.01	4.76	0.638	pg/g	J	J	
Total HpCDD	37871004	8.52	2.38	0.331	pg/g		J	B
Total HpCDF	38998753	0.885	2.38	0.154	pg/g	J	J	B
Total HxCDD	34465468	0.67	2.38	0.204	pg/g	J	J	B
Total HxCDF	55684941	0.68	2.38	0.12	pg/g	J	J	B
Total PeCDD	36088229	0.155	2.38	0.155	pg/g	U	U	
Total PeCDF	30402154	0.665	2.38	0.076	pg/g	J	J	B
Total TCDD	41903575	0.32	0.476	0.157	pg/g	J	J	B
Total TCDFs	55722275	1.25	0.476	0.229	pg/g	B		

Analysis Method 1613B

Sample Name	HZET0101S002	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1068004	Sample	9/21/2009 1:10:00 PM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	2.46	2.46	2.46	pg/g	JK	UJ	*III, result changed from 0.769 and
1,2,3,4,6,7,8-HpCDF	67562394	2.46	2.46	2.46	pg/g	J	U	B, result changed from 0.234 and EDL from
1,2,3,4,7,8,9-HpCDF	55673897	0.287	2.46	0.287	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.191	2.46	0.191	pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.131	2.46	0.131	pg/g	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.214	2.46	0.214	pg/g	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.136	2.46	0.136	pg/g	U	U	
1,2,3,7,8,9-HxCDD	19408743	0.212	2.46	0.212	pg/g	U	U	
1,2,3,7,8,9-HxCDF	72918219	0.202	2.46	0.202	pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.154	2.46	0.154	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	0.127	2.46	0.127	pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.143	2.46	0.143	pg/g	U	U	
2,3,4,7,8-PeCDF	57117314	0.128	2.46	0.128	pg/g	U	U	
2,3,7,8-TCDD	1746016	0.166	0.491	0.166	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.317	0.491	0.173	pg/g	J	J	
2,3,7,8-TCDF	51207319	0.259	0.491	0.197	pg/g	JK	R	D
OCDD	3268879	7.75	4.91	0.588	pg/g			
OCDF	39001020	0.615	4.91	0.615	pg/g	U	U	
Total HpCDD	37871004	2.22	2.46	0.336	pg/g	J	J	B, *III
Total HpCDF	38998753	0.493	2.46	0.159	pg/g	J	J	B
Total HxCDD	34465468	0.191	2.46	0.191	pg/g	U	U	
Total HxCDF	55684941	0.232	2.46	0.131	pg/g	J	J	B
Total PeCDD	36088229	0.154	2.46	0.154	pg/g	U	U	
Total PeCDF	30402154	0.472	2.46	0.0859	pg/g	J	J	B
Total TCDD	41903575	0.166	0.491	0.166	pg/g	U	U	
Total TCDFs	55722275	0.727	0.491	0.197	pg/g	B	J	*III

Analysis Method 1613B

Sample Name	HZET0102S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1068005	Sample	9/21/2009 12:55:00 PM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	2.47	2.47	2.47	pg/g	K	UJ	*III, RL changed from 2.45 and EDL from
1,2,3,4,6,7,8-HpCDF	67562394	2.45	2.45	2.45	pg/g	J	U	B, result changed from 0.412 and EDL from
1,2,3,4,7,8,9-HpCDF	55673897	0.406	2.45	0.406	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.212	2.45	0.212	pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.155	2.45	0.155	pg/g	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.247	2.45	0.247	pg/g	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.162	2.45	0.162	pg/g	U	U	
1,2,3,7,8,9-HxCDD	19408743	0.241	2.45	0.241	pg/g	U	U	
1,2,3,7,8,9-HxCDF	72918219	0.241	2.45	0.241	pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.173	2.45	0.173	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	0.136	2.45	0.136	pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.172	2.45	0.172	pg/g	U	U	
2,3,4,7,8-PeCDF	57117314	0.141	2.45	0.141	pg/g	U	U	
2,3,7,8-TCDD	1746016	0.172	0.49	0.172	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.314	0.49	0.231	pg/g	JK	R	D
2,3,7,8-TCDF	51207319	0.314	0.49	0.157	pg/g	J	J	
OCDD	3268879	39.4	4.9	0.973	pg/g			
OCDF	39001020	1.16	4.9	0.708	pg/g	J	J	
Total HpCDD	37871004	8.95	2.45	0.412	pg/g		J	B, *III
Total HpCDF	38998753	0.922	2.45	0.214	pg/g	J	J	B
Total HxCDD	34465468	0.249	2.45	0.212	pg/g	J	J	B
Total HxCDF	55684941	0.208	2.45	0.155	pg/g	J	J	B
Total PeCDD	36088229	0.173	2.45	0.173	pg/g	U	U	
Total PeCDF	30402154	0.145	2.45	0.0996	pg/g	J	J	B
Total TCDD	41903575	0.172	0.49	0.172	pg/g	U	U	
Total TCDFs	55722275	0.61	0.49	0.231	pg/g	B	J	*III

Analysis Method 1613B

Sample Name	HZET0103S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1068006	Sample	9/21/2009 12:45:00 PM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	14.5	2.48	0.432	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	2.48	2.48	2.48	pg/g	J	U	B, result changed from 1.48 and EDL from
1,2,3,4,7,8,9-HpCDF	55673897	0.323	2.48	0.323	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.208	2.48	0.208	pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	2.48	2.48	2.48	pg/g	JK	UJ	*III, result changed from 0.165 and
1,2,3,6,7,8-HxCDD	57653857	0.706	2.48	0.232	pg/g	J	J	
1,2,3,6,7,8-HxCDF	57117449	0.126	2.48	0.126	pg/g	U	U	
1,2,3,7,8,9-HxCDD	19408743	2.48	2.48	2.48	pg/g	JK	UJ	*III, result changed from 0.456 and
1,2,3,7,8,9-HxCDF	72918219	0.19	2.48	0.19	pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.141	2.48	0.141	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	0.145	2.48	0.145	pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	2.48	2.48	2.48	pg/g	JK	UJ	*III, result changed from 0.161 and
2,3,4,7,8-PeCDF	57117314	0.142	2.48	0.142	pg/g	U	U	
2,3,7,8-TCDD	1746016	0.174	0.496	0.174	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.311	0.496	0.232	pg/g	J	J	
2,3,7,8-TCDF	51207319	0.365	0.496	0.172	pg/g	J	R	D
OCDD	3268879	337	4.96	1.01	pg/g			
OCDF	39001020	5.02	4.96	0.87	pg/g			
Total HpCDD	37871004	70.6	2.48	0.432	pg/g		J	B
Total HpCDF	38998753	4.61	2.48	0.181	pg/g		J	B
Total HxCDD	34465468	5.28	2.48	0.208	pg/g		J	B, *III
Total HxCDF	55684941	2.73	2.48	0.123	pg/g		J	B, *III
Total PeCDD	36088229	0.272	2.48	0.141	pg/g	J	J	B
Total PeCDF	30402154	0.543	2.48	0.0864	pg/g	J	J	B
Total TCDD	41903575	0.174	0.496	0.174	pg/g	U	U	
Total TCDFs	55722275	1.24	0.496	0.232	pg/g	B		

Analysis Method 1613B

Sample Name	HZET0103S002	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1068007	Sample	9/21/2009 1:25:00 PM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	2.43	2.43	2.43	pg/g	JK	UJ	*III, result changed from 1.13 and EDL
1,2,3,4,6,7,8-HpCDF	67562394	2.43	2.43	2.43	pg/g	JK	UJ	*III, result changed from 0.725 and
1,2,3,4,7,8,9-HpCDF	55673897	0.816	2.43	0.816	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.449	2.43	0.449	pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.381	2.43	0.288	pg/g	J	J	
1,2,3,6,7,8-HxCDD	57653857	0.492	2.43	0.492	pg/g	U	U	
1,2,3,6,7,8-HxCDF	57117449	2.43	2.43	2.43	pg/g	JK	UJ	*III, result changed from 0.365 and
1,2,3,7,8,9-HxCDD	19408743	0.494	2.43	0.494	pg/g	U	U	
1,2,3,7,8,9-HxCDF	72918219	2.43	2.43	2.43	pg/g	J	U	B, result changed from 0.704 and EDL from
1,2,3,7,8-PeCDD	40321764	0.282	2.43	0.282	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	2.43	2.43	2.43	pg/g	JK	UJ	*III, result changed from 0.299 and
2,3,4,6,7,8-HxCDF	60851345	0.564	2.43	0.375	pg/g	J	J	
2,3,4,7,8-PeCDF	57117314	2.43	2.43	2.43	pg/g	J	U	B, result changed from 0.389 and EDL from
2,3,7,8-TCDD	1746016	0.315	0.486	0.315	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.348	0.486	0.348	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.299	0.486	0.278	pg/g	J	R	D
OCDD	3268879	5.32	5.32	5.32	pg/g	K	UJ	*III, RL changed from 4.86 and EDL from 3.09
OCDF	39001020	2.66	4.86	2.66	pg/g	U	U	

Analysis Method **1613B**

Total HpCDD	37871004	1.13	2.43	0.941 pg/g	J	J	B
Total HpCDF	38998753	0.725	2.43	0.488 pg/g	J	J	B, *III
Total HxCDD	34465468	0.449	2.43	0.449 pg/g	U	U	
Total HxCDF	55684941	2.01	2.43	0.288 pg/g	J	J	B, *III
Total PeCDD	36088229	0.282	2.43	0.282 pg/g	U	U	
Total PeCDF	30402154	0.688	2.43	0.251 pg/g	J	J	B, *III
Total TCDD	41903575	0.315	0.486	0.315 pg/g	U	U	
Total TCDFs	55722275	0.348	0.486	0.348 pg/g	U	U	

Analysis Method 6020

Sample Name	HZET0100D001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237620001	Sample	9/21/2009 9:25:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Cadmium	7440439	0.223	0.215	0.0215	mg/kg			
Lead	7439921	6.55	0.43	0.107	mg/kg		J	A
Zinc	7440666	59	10.7	2.15	mg/kg			
Sample Name	HZET0100S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237620002	Sample	9/21/2009 9:25:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Cadmium	7440439	0.329	0.204	0.0204	mg/kg			
Lead	7439921	9.43	0.409	0.102	mg/kg		J	A
Zinc	7440666	69.4	10.2	2.04	mg/kg			
Sample Name	HZET0101S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237620003	Sample	9/21/2009 9:35:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Cadmium	7440439	0.254	0.22	0.022	mg/kg			
Lead	7439921	5.93	0.439	0.11	mg/kg		J	A
Zinc	7440666	61.1	11	2.2	mg/kg			
Sample Name	HZET0101S002	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237620004	Sample	9/21/2009 1:10:00 PM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Cadmium	7440439	0.125	0.211	0.0211	mg/kg	J	J	
Lead	7439921	5.02	0.422	0.106	mg/kg		J	A
Zinc	7440666	48.5	10.6	2.11	mg/kg			
Sample Name	HZET0102S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237620005	Sample	9/21/2009 12:55:00 PM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Cadmium	7440439	0.158	0.213	0.0213	mg/kg	J	J	
Lead	7439921	5.53	0.427	0.107	mg/kg		J	A
Zinc	7440666	52	10.7	2.13	mg/kg			

Analysis Method 6020

Sample Name	HZET0103S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237620006	Sample	9/21/2009 12:45:00 PM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Cadmium	7440439	0.226	0.245	0.0245	mg/kg	J	J	
Lead	7439921	6.69	0.49	0.122	mg/kg		J	A
Zinc	7440666	82.2	12.2	2.45	mg/kg			
Sample Name	HZET0103S002	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237620007	Sample	9/21/2009 1:25:00 PM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Cadmium	7440439	0.149	0.202	0.0202	mg/kg	J	J	
Lead	7439921	5.3	0.403	0.101	mg/kg		J	A
Zinc	7440666	53.3	10.1	2.02	mg/kg			
Sample Name	HZET0600D001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237620008	Sample	9/21/2009 9:00:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Cadmium	7440439	0.113	0.214	0.0214	mg/kg	J	J	
Lead	7439921	5.45	0.427	0.107	mg/kg		J	A
Zinc	7440666	53	10.7	2.14	mg/kg			
Sample Name	HZET0600S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237620009	Sample	9/21/2009 9:00:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Cadmium	7440439	0.0846	0.213	0.0213	mg/kg	J	J	
Lead	7439921	4.39	0.426	0.107	mg/kg		J	A
Zinc	7440666	47.9	10.7	2.13	mg/kg			
Sample Name	HZET0601S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237620010	Sample	9/21/2009 10:40:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Cadmium	7440439	0.146	0.218	0.0218	mg/kg	J	J	
Lead	7439921	6.03	0.437	0.109	mg/kg		J	A
Zinc	7440666	46.6	10.9	2.18	mg/kg			

Analysis Method 6020

Sample Name HZET0602S001 **Matrix Type:** Soil **Result Type:** Primary
Lab Sample Name: 237620011 **Sample** 9/21/2009 9:05:00 AM **Validation** V

Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Cadmium	7440439	0.109	0.216	0.0216	mg/kg	J	J	
Lead	7439921	4.36	0.433	0.108	mg/kg		J	A
Zinc	7440666	38.8	10.8	2.16	mg/kg			

Sample Name HZET0603S001 **Matrix Type:** Soil **Result Type:** Primary
Lab Sample Name: 237620012 **Sample** 9/21/2009 10:50:00 AM **Validation** V

Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Cadmium	7440439	0.173	0.213	0.0213	mg/kg	J	J	
Lead	7439921	6.64	0.426	0.107	mg/kg		J	A
Zinc	7440666	48.8	10.7	2.13	mg/kg			

Sample Name HZET0604S001 **Matrix Type:** Soil **Result Type:** Primary
Lab Sample Name: 237620013 **Sample** 9/21/2009 11:08:00 AM **Validation** V

Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Cadmium	7440439	0.153	0.2	0.02	mg/kg	J	J	
Lead	7439921	8	0.4	0.0999	mg/kg		J	A
Zinc	7440666	51.9	9.99	2	mg/kg			

Sample Name HZET0605S001 **Matrix Type:** Soil **Result Type:** Primary
Lab Sample Name: 237620014 **Sample** 9/21/2009 11:00:00 AM **Validation** V

Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Cadmium	7440439	0.216	0.2	0.02	mg/kg			
Lead	7439921	10.1	0.4	0.1	mg/kg		J	A
Zinc	7440666	45.1	10	2	mg/kg			

Chain of Custody and Supporting Documentation



CHAIN OF CUSTODY RECORD

COC #: **2377677**

MWHAG20090923_00

Page: 1 of 1

Customer Information		Project Information		Project Information	
Site:	SSFL	Client Name:	Boeing	Collector:	A. Goldenberg
Company:	MWH	Sampling Event:	ISRA Sampling, August 2009	Contact #:	
Report to:	Sarah Von Raesfeld	Project Number:	1891614.05462	Requested Analyses	
Address:	2121 N. California Blvd Suite 600 Walnut Creek CA 94596	Project Manager:	Alex Fischl (925) 627-4627 Benjamin Stewart (818) 266-1378 GEL Laboratories, LLC	Instructions/TAT	
Email:	sarah.vonraesfeld@mwhglobal.c sean.leffler@mwhglobal.com	Lab Contact:	Jackie Trudell 2040 Savage Road Charleston, SC 29407 (843) 769-7388	Legend: Numerical values for analyses equate to turn around time in days H - Hold EH - Extract/Extrude & Hold Note: Values in the cells below are Turn Around Times.	

Sample Name	Matrix	Date	Time	No. of Containers	Comments
CNET0100S001	Soil	9/23/2009	9:33	1	
HZET0800S001	Soil	9/23/2009	10:10	1	
HZET0801S001	Soil	9/23/2009	10:15	1	
HZET0802S001	Soil	9/23/2009	9:10	1	
HZET0803S001	Soil	9/23/2009	10:50	1	
HZET0804S001	Soil	9/23/2009	10:40	1	
HZET0805D001	Soil	9/23/2009	10:25	1	
HZET0805S001	Soil	9/23/2009	10:25	1	
HZET0806S001	Soil	9/23/2009	9:20	1	
					D2216 Moisture Soil 5
					Dioxin by 1613B - Soil 5
					Metals 6020 Soil Lead 5

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
<i>Alton M. Radd</i>	9-23-09	<i>R.M. Stelling</i>	9/24/09				
Company: MWH	Time: 10:27	Company: GEL	Time: 900	Company:	Time:	Company:	Time:

Comments: Geotracker EDF Data Validation Package Level IV



SAMPLE RECEIPT & REVIEW FORM

Client: <u>SEI</u>		SDG/ARCO/Work Order: <u>237767</u>	
Received By: <u>RMS</u>		Date Received: <u>9/24/09</u>	
Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/>	Maximum Counts Observed*:
Classified Radioactive II or III by RSO?		<input checked="" type="checkbox"/>	<u>4cpm</u>
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/>	
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

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 0 ≤ 6 deg. C?	<input checked="" type="checkbox"/>			Preservation Method: <u>ice bags</u> blue ice dry ice none other (describe) <u>3°</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: If Preservation added, Lot#:
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?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
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"/>			

Comments:
Fr: 9457 3163 0979

PM (or PMA) review: Initials JT Date 9/24/09

Date: 10/12/09

Requesting Firm: MWH
Address: 9444 Farnham Suite 300
San Diego, CA 92123
Phone: 858-751-1217
Fax: 858-751-1201
E-mail: Sean.leffler@mwhglobal.com

To: Jackie Trudell
Laboratory GEL Laboratories, LLC

Phone: 843-769-7388
E-mail:
jacqueline.trudell@gel.com

From: Sean Leffler
Requestor signature: 

Subject: Chain-of-Custody Form Analytical Request Change No. of Pages: 2

Per Request:

Please make the changes listed below to the chain-of-custody analytical request form. Include this form with the final deliverables for these samples.

COC No.	Client Sample ID(s)	Date Collected	Originally Requested Analyses	Change (s) and Method (s) Now Requested
MWHAG2 0090923_0 0	CNET0100S00 1	9/23/09		Add copper by 6020

The reason for these changes:

Incorrectly marked on COC form

Lack of sample volume

Change in analytical request

Other:

X

Thank you

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: ISRA Sampling, August 2009 _____

Start: 8/24/2009 _____

End: 9/30/2009 _____

LTO DATE:

LTO NUMBER:

<p>Consultant Name: <u>MWH</u> Address: <u>2121 N. California Blvd. Ste. 600</u> <u>Walnut Creek, CA 94596</u></p> <p>Contact Name: <u>Sarah Von Raesfeld</u> Phone Number: <u>925-627-4654</u> Fax Number: <u>925-627-4501</u> E-mail Address: <u>Sarah.VonRaesfeld@mwhglobal.com</u></p>	<p>Contract Laboratory: <u>GEL</u> Address: <u>2040 Savage Rd.</u> <u>Charleston, SC 29407</u></p> <p>Lab Contact Name: <u>Jackie Trudell</u> Phone Number: <u>843-769-7388</u> Fax Number: <u>843-766-1178</u> E-mail Address: <u>jacqueline.trudell@gel.com</u></p>
--	--

SAMPLE CONTAINER ORDER FORM

<p>Date Required: _____</p> <p>Date Sample Pickup: _____</p> <p>Ship Containers To: Project Site _____ (enter "X") Consultant Office _____ (enter "X") Other Location (specify in comments) _____ (enter "X")</p> <p>Container Information: Trip Blank (VOA only) <u>No</u> (Yes/No) Temp Blank (VOA Only) <u>No</u> (Yes/No) DI Water Required? <u>No</u> (Yes/No) MS/MSD Extra Bottles? <u>No</u> (Yes/No)</p> <p>Sample Matrix: Soil <u>X</u> (select all applicable) Water <u>X</u> (select all applicable) Vapor _____ (select all applicable)</p> <p>Est. Total # of Samples: <u>175</u> Est. Total # of EDDs <u>40</u></p>	<p>Requested Analyses: (Specify # of Samples)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Water</th> <th style="text-align: center;">Soil</th> <th style="text-align: center;">Contingent</th> </tr> </thead> <tbody> <tr> <td>Dioxins (1613B)</td> <td style="text-align: center;">15</td> <td style="text-align: center;">124</td> <td style="text-align: center;">0</td> </tr> <tr> <td>EPA 8015M (DRO)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8015M (JET FUEL)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8015M (CC)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>TCE (8260B)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">12</td> <td style="text-align: center;">0</td> </tr> <tr> <td>EPA 8270C SIM (SVOC)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8310 (PAH)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8082 (PCB)</td> <td style="text-align: center;">3</td> <td style="text-align: center;">5</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Nickel (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Chromium (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Silver (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Cadmium (6020)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">35</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Arsenic (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>% Moisture (D2216)</td> <td style="text-align: center;">0</td> <td style="text-align: center;">170</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Lead (6020)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">65</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Copper (6020)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">75</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Zinc (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">20</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Mercury by 7471A/7470A</td> <td style="text-align: center;">5</td> <td style="text-align: center;">25</td> <td style="text-align: center;">0</td> </tr> </tbody> </table>		Water	Soil	Contingent	Dioxins (1613B)	15	124	0	EPA 8015M (DRO)	--	--	--	EPA 8015M (JET FUEL)	--	--	--	EPA 8015M (CC)	--	--	--	TCE (8260B)	5	12	0	EPA 8270C SIM (SVOC)	--	--	--	EPA 8310 (PAH)	--	--	--	EPA 8082 (PCB)	3	5	0	Nickel (6020)	5	10	0	Chromium (6020)	5	10	0	Silver (6020)	5	10	0	Cadmium (6020)	10	35	0	Arsenic (6020)	5	10	0	% Moisture (D2216)	0	170	0	Lead (6020)	10	65	0	Copper (6020)	10	75	0	Zinc (6020)	5	20	0	Mercury by 7471A/7470A	5	25	0
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LABORATORY REPORTING REQUIREMENTS

<p>Project TAT: Normal: <u>X</u> (10 Business days) RUSH: <u>5</u> (Specify- 24 / 48 / 72HRS) Other : _____ (Specify # of Days) Report Due Date: _____</p> <p>Special Reporting Requirements: Contingent Analysis? <u>No</u> (Yes/No) TIC (VOC) Required? <u>No</u> (Yes/No) TIC (SVOC) Required? <u>No</u> (Yes/No) Data Validation Pckge.: <u>Tier III</u> (Boeing Tier I, II or III)</p>	<p>Laboratory Results/Reports Deliverables: Draft Results Fax?: _____ (Yes/No) Draft Results E-mail?: <u>Yes</u> (Yes/No) Specify Fax/E-mail Contact Name, #, E-mail Address: <u>Sarah.VonRaesfeld@mwhglobal.com</u> Send Original Reports To: Project Site _____ (enter "X") Consultant Office _____ (enter "X") Other Location (specify in comments) <u>X</u> (enter "X") # of Copies Reports Req.: <u>1</u></p>
--	--

SPECIAL INSTRUCTIONS/LTO NOTES

CONFIRMATION OF TRANSMITTAL & RECEIPT

<p>LTO Sent By: Name: <u>Sarah Von Raesfeld</u> Date: <u>09/02/09</u></p>	<p>LTO Received By-: Name: _____ Date: _____</p>
--	---

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Case Narrative

**Case Narrative
for
Boeing - SSFL (MWH)
Work Order: 237767
SDG: 237767**

October 08, 2009

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 September 24, 2009 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. There are no additional comments concerning sample receipt.

The laboratory received the following samples:

<u>Laboratory Identification</u>	<u>Sample Description</u>
237767001	CNET0100S001
237767002	HZET0800S001
237767003	HZET0801S001
237767004	HZET0802S001
237767005	HZET0803S001
237767006	HZET0804S001
237767007	HZET0805D001
237767008	HZET0805S001
237767009	HZET0806S001

Items of Note

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: Metals, Percent Moisture and

Dioxins (Cape Fear Analytical).

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 black ink that reads "Jacqueline A. Trudell". The signature is written in a cursive style with a large initial 'J' and 'T'.

Jacqueline Trudell

Project Manager

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 30 September 2009

State	Certification
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California – NELAP	01151CA
Colorado	GEL
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA Region 5	WG-15J
Florida – NELAP	E87156
Georgia	E87156 (FL/NELAP)
Georgia DW	967
Hawaii	N/A
ISO 17025	2567.01
Idaho	SC00012
Illinois – NELAP	200029
Indiana	C-SC-01
Kansas – NELAP	E-10332
Kentucky	90129
Louisiana – NELAP	03046
Maryland	270
Massachusetts	M-SC012
Nevada	SC00012
New Jersey – NELAP	SC002
New Mexico	FL NELAP E87156
New York – NELAP	11501
North Carolina	233
North Carolina DW	45709
Oklahoma	9904
Pennsylvania – NELAP	68-00485
South Carolina	10120001/10120002
Tennessee	TN 02934
Texas – NELAP	T104704235-07B-TX
U.S. Dept. of Agriculture	S-52597
Utah – NELAP	GEL
Vermont	VT87156
Virginia	00151
Washington	C1641



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: 237767

Prepared by

MEC^x, LP
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Boeing SSFL RFI ISRA
 Contract Task Order: 1261.500D.00
 Sample Delivery Group: 237767
 Project Manager: Dixie Hambrick
 Matrix: soil
 QC Level: V
 No. of Samples: 9
 No. of Reanalyses/Dilutions: 0
 Laboratory: GEL

Table 1. Sample Identification

<i>Sample Name</i>	<i>Lab Sample Name</i>	<i>Sub-Lab Sample Name</i>	<i>Matrix</i>	<i>Collection</i>	<i>Method</i>
CNET0100S001	237767001	N/A	SOIL	9/23/2009 9:33:00 AM	6020
HZET0800S001	1072009	N/A	SOIL	9/23/2009 10:10:00 AM	1613B
HZET0801S001	1072002	N/A	SOIL	9/23/2009 10:10:00 AM	1613B
HZET0802S001	1072003	N/A	SOIL	9/23/2009 10:15:00 AM	1613B
HZET0803S001	1072004	N/A	SOIL	9/23/2009 9:10:00 AM	1613B
HZET0804S001	1072005	N/A	SOIL	9/23/2009 10:50:00 AM	1613B
HZET0805D001	1072006	N/A	SOIL	9/23/2009 10:40:00 AM	1613B
HZET0805S001	1072007	N/A	SOIL	9/23/2009 10:25:00 AM	1613B
HZET0806S001	1072008	N/A	SOIL	9/23/2009 10:25:00 AM	1613B

II. Sample Management

No anomalies were observed regarding sample management. The samples in this SDG were received at the laboratories 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 or PCB congeners.	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.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

T-II	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a class of compound but not of sufficient identification quality to represent a specific compound.	Not applicable
T-III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
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.
*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 METHOD 1613—Dioxin/Furans

Reviewed By: P. Meeks

Date Reviewed: October 19, 2009

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0)*, *USEPA Method 1613*, and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review (08/02)*.

- Holding Times: Extraction and analytical holding times were met. The samples were extracted and analyzed within one year of collection.
- Instrument Performance: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Detects or EMPCs were reported for all but three target compounds in the method blank. All detects not qualified as EMPCs (see Compound Quantification and Reported Detection Limits) for 1,2,3,6,7,8-HxCDD, TCDF, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, and 1,2,3,6,7,8-HxCDF and all detects for 1,2,3,4,6,7,8-HpCDF except for HZET0802S001 were qualified as nondetected, "U," at the level of contamination if detected below the EDL or at the EDL if detected above. Detects for all totals were qualified as estimated, "J," due to detects in the soil method blank.
- Blank Spikes and Laboratory Control Samples: Recoveries were within the acceptance criteria listed in Table 6 of Method 1613. RPDs were within the laboratory-established control 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: FBQW2239 (235913) was identified as the field blank associated with the samples in this SDG; however, this sample was not analyzed for dioxins. This SDG had no identified equipment rinsate.
 - Field Duplicates: HZET0805S001 and HZET0805D001 were identified as field duplicate samples. There were common detects above the EDL for 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,7,8-HxCDF, OCDD, and OCDF with RPDs of 32%, %, 59%, and 70%, respectively.
- Internal Standards Performance: Internal standard recoveries are not routinely evaluated at a Level V validation; however, the recoveries were reported on the sample result

summaries. The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613.

- **Compound Identification:** Review is not applicable at a Level V validation. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613. The laboratory performed and reported confirmation analyses for all TCDF detects. As the confirmation analyses resulted in results similar to the original analyses, the reviewer rejected, "R," the confirmation analyses in all samples except HZET0801S001 in favor of the original analyses. The original TCDF result for HZET0801S001 was reported as an estimated maximum possible concentration (EMPC); however, as the confirmation result was not reported as an EMPC, the reviewer rejected, "R," the original result in favor of the confirmation result in HZET0801S001.
- **Compound Quantification and Reported Detection Limits:** Review is not applicable at a Level V validation. The laboratory calculated and reported compound-specific detection limits. EMPCs were identified in the samples of this SDG and qualified with a "K" by the laboratory. Any EMPC was qualified as estimated, "UJ," in the samples of this SDG. EMPCs reported as totals were qualified as estimated, "J," as only a portion of the total was identified as an EMPC. Any detect below the laboratory lower calibration level was qualified as estimated, "J." Nondetects are valid to the estimated detection limit (EDL).

B. EPA METHOD 6020—Metals

Reviewed By: P. Meeks

Date Reviewed: October 19, 2009

The sample listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC^X 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 (7/02)*.

- **Holding Times:** The analytical holding time, six months for ICP-MS, 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:** Recoveries were within laboratory-established QC limits.

- Laboratory Duplicates: No laboratory duplicate analyses were performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on the sample in this SDG. Method accuracy was evaluated based on LCS results.
- Serial Dilution: No serial dilution analyses were performed on the sample in this SDG.
- Internal Standards Performance: Review is not applicable at a Level V validation.
- Sample Result Verification: Review is not applicable at a Level V validation. As the sample in this SDG was validated at Level V, the QC information necessary to make an absolute determination of bias in the sample was not reviewed; therefore, when qualifications were applied, no bias was assigned. The sample in this SDG was analyzed at the laboratory's standard 2x dilution for soils. Any result reported between the MDL and the reporting limit was qualified as estimated, "J." 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: FBQW2239 (235913) was identified as the field blank associated with the sample in this SDG. There were no detects in this sample. This SDG had no identified equipment rinsate.
 - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 237767

Analysis Method 1613B

Sample Name	HZET0800S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1072009	Sample	9/23/2009 10:10:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	2.08	2.08	2.08	pg/g	JK	UJ	*III, result changed from 0.38 and EDL
1,2,3,4,6,7,8-HpCDF	67562394	0.101	2.08	0.101	pg/g	U	U	
1,2,3,4,7,8,9-HpCDF	55673897	0.187	2.08	0.187	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.123	2.08	0.123	pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.0678	2.08	0.0678	pg/g	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.134	2.08	0.134	pg/g	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.0698	2.08	0.0698	pg/g	U	U	
1,2,3,7,8,9-HxCDD	19408743	0.135	2.08	0.135	pg/g	U	U	
1,2,3,7,8,9-HxCDF	72918219	0.104	2.08	0.104	pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.0959	2.08	0.0959	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	0.0801	2.08	0.0801	pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.0761	2.08	0.0761	pg/g	U	U	
2,3,4,7,8-PeCDF	57117314	2.08	2.08	2.08	pg/g	JK	UJ	*III, result changed from 0.103 and
2,3,7,8-TCDD	1746016	0.103	0.416	0.103	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.408	0.416	0.128	pg/g	J	R	D
2,3,7,8-TCDF	51207319	0.416	0.416	0.416	pg/g	J	U	B, result changed from 0.403 and EDL from
OCDD	3268879	2.4	4.16	0.55	pg/g	J	J	
OCDF	39001020	0.385	4.16	0.385	pg/g	U	U	
Total HpCDD	37871004	0.75	2.08	0.185	pg/g	J	J	B, *III
Total HpCDF	38998753	0.101	2.08	0.101	pg/g	U	U	
Total HxCDD	34465468	0.123	2.08	0.123	pg/g	U	U	
Total HxCDF	55684941	0.0999	2.08	0.0678	pg/g	J	J	B
Total PeCDD	36088229	0.0959	2.08	0.0959	pg/g	U	U	
Total PeCDF	30402154	0.103	2.08	0.0458	pg/g	J	J	B, *III
Total TCDD	41903575	0.138	0.416	0.103	pg/g	J	J	
Total TCDFs	55722275	0.776	0.416	0.154	pg/g	B	J	B

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Analysis Method 1613B

Sample Name	HZET0801S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1072002	Sample	9/23/2009 10:15:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	0.465	2.06	0.244	pg/g	J	J	
1,2,3,4,6,7,8-HpCDF	67562394	2.06	2.06	2.06	pg/g	JK	UJ	*III, result changed from 0.163 and
1,2,3,4,7,8,9-HpCDF	55673897	0.185	2.06	0.185	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.131	2.06	0.131	pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.0757	2.06	0.0757	pg/g	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.143	2.06	0.143	pg/g	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.0852	2.06	0.0852	pg/g	U	U	
1,2,3,7,8,9-HxCDD	19408743	0.144	2.06	0.144	pg/g	U	U	
1,2,3,7,8,9-HxCDF	72918219	0.135	2.06	0.135	pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.0772	2.06	0.0772	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	0.0823	2.06	0.0823	pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.091	2.06	0.091	pg/g	U	U	
2,3,4,7,8-PeCDF	57117314	2.06	2.06	2.06	pg/g	J	U	B, result changed from 0.0824 and EDL from
2,3,7,8-TCDD	1746016	0.0951	0.412	0.0951	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.246	0.412	0.132	pg/g	JK	R	D
2,3,7,8-TCDF	51207319	0.412	0.412	0.412	pg/g	J	U	B, result changed from 0.279 and EDL from
OCDD	3268879	5.32	4.12	0.465	pg/g			
OCDF	39001020	0.516	4.12	0.516	pg/g	U	U	
Total HpCDD	37871004	1.2	2.06	0.244	pg/g	J	J	B
Total HpCDF	38998753	0.163	2.06	0.112	pg/g	J	J	B, *III
Total HxCDD	34465468	0.131	2.06	0.131	pg/g	U	U	
Total HxCDF	55684941	0.106	2.06	0.0757	pg/g	J	J	B
Total PeCDD	36088229	0.0772	2.06	0.0772	pg/g	U	U	
Total PeCDF	30402154	0.0824	2.06	0.0503	pg/g	J	J	B
Total TCDD	41903575	0.246	0.412	0.0951	pg/g	J	J	
Total TCDFs	55722275	0.503	0.412	0.132	pg/g	B	J	B, *III

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Analysis Method 1613B

Sample Name	HZET0802S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1072003	Sample	9/23/2009 9:10:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	95.1	2.09	0.469	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	5.65	2.09	0.128	pg/g			
1,2,3,4,7,8,9-HpCDF	55673897	0.495	2.09	0.242	pg/g	J	J	
1,2,3,4,7,8-HxCDD	39227286	0.642	2.09	0.121	pg/g	J	J	
1,2,3,4,7,8-HxCDF	70648269	2.09	2.09	2.09	pg/g	JK	UJ	*III, result changed from 0.279 and
1,2,3,6,7,8-HxCDD	57653857	2.09	2.09	2.09	pg/g	J	U	B, result changed from 1.81 and EDL from
1,2,3,6,7,8-HxCDF	57117449	2.09	2.09	2.09	pg/g	J	U	B, result changed from 0.241 and EDL from
1,2,3,7,8,9-HxCDD	19408743	1	2.09	0.132	pg/g	J	J	
1,2,3,7,8,9-HxCDF	72918219	0.301	2.09	0.2	pg/g	J	J	
1,2,3,7,8-PeCDD	40321764	2.09	2.09	2.09	pg/g	JK	UJ	*III, result changed from 0.247 and
1,2,3,7,8-PeCDF	57117416	2.09	2.09	2.09	pg/g	JK	UJ	*III, result changed from 0.139 and
2,3,4,6,7,8-HxCDF	60851345	0.324	2.09	0.161	pg/g	J	J	
2,3,4,7,8-PeCDF	57117314	2.09	2.09	2.09	pg/g	J	U	B, result changed from 0.324 and EDL from
2,3,7,8-TCDD	1746016	0.116	0.418	0.116	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.356	0.418	0.125	pg/g	J	R	D
2,3,7,8-TCDF	51207319	0.418	0.418	0.418	pg/g	J	U	B, result changed from 0.366 and EDL from
OCDD	3268879	1280	4.18	0.722	pg/g			
OCDF	39001020	37.6	4.18	0.391	pg/g			

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Analysis Method *1613B*

Total HpCDD	37871004	392	2.09	0.469 pg/g		J	B
Total HpCDF	38998753	23.8	2.09	0.128 pg/g		J	B
Total HxCDD	34465468	22	2.09	0.121 pg/g		J	B
Total HxCDF	55684941	6.58	2.09	0.133 pg/g		J	B, *III
Total PeCDD	36088229	2.06	2.09	0.0842 pg/g	J	J	B, *III
Total PeCDF	30402154	3.08	2.09	0.0503 pg/g		J	B, *III
Total TCDD	41903575	0.528	0.418	0.116 pg/g			
Total TCDFs	55722275	2.25	0.418	0.149 pg/g	B	J	B

Analysis Method 1613B

Sample Name	HZET0803S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1072004	Sample	9/23/2009 10:50:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	2.48	2.35	0.293	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	2.35	2.35	2.35	pg/g	J	U	B, result changed from 0.611 and EDL from
1,2,3,4,7,8,9-HpCDF	55673897	0.282	2.35	0.282	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.17	2.35	0.17	pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.171	2.35	0.111	pg/g	J	J	
1,2,3,6,7,8-HxCDD	57653857	2.35	2.35	2.35	pg/g	JK	UJ	*III, result changed from 0.227 and
1,2,3,6,7,8-HxCDF	57117449	2.35	2.35	2.35	pg/g	JK	UJ	*III, result changed from 0.261 and
1,2,3,7,8,9-HxCDD	19408743	2.35	2.35	2.35	pg/g	JK	UJ	*III, result changed from 0.216 and
1,2,3,7,8,9-HxCDF	72918219	0.197	2.35	0.197	pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.132	2.35	0.132	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	2.35	2.35	2.35	pg/g	JK	UJ	*III, result changed from 0.128 and
2,3,4,6,7,8-HxCDF	60851345	0.38	2.35	0.135	pg/g	J	J	
2,3,4,7,8-PeCDF	57117314	2.35	2.35	2.35	pg/g	J	U	B, result changed from 0.712 and EDL from
2,3,7,8-TCDD	1746016	0.107	0.47	0.107	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.172	0.47	0.172	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.374	0.47	0.143	pg/g	JK	R	D
OCDD	3268879	31.2	4.7	0.904	pg/g			
OCDF	39001020	1.72	4.7	0.971	pg/g	J	J	
Total HpCDD	37871004	6.25	2.35	0.293	pg/g		J	B
Total HpCDF	38998753	1.23	2.35	0.167	pg/g	J	J	B

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Analysis Method *1613B*

Total HxCDD	34465468	1.25	2.35	0.17 pg/g	J	J	B, *III
Total HxCDF	55684941	4.58	2.35	0.111 pg/g		J	B, *III
Total PeCDD	36088229	0.314	2.35	0.132 pg/g	J	J	B
Total PeCDF	30402154	7.59	2.35	0.0552 pg/g		J	B, *III
Total TCDD	41903575	0.256	0.47	0.107 pg/g	J	J	
Total TCDFs	55722275	3.33	0.47	0.172 pg/g	B	J	B

Analysis Method 1613B

Sample Name	HZET0804S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1072005	Sample	9/23/2009 10:40:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	3.79	2.05	0.207	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	2.05	2.05	2.05	pg/g	J	U	B, result changed from 0.769 and EDL from
1,2,3,4,7,8,9-HpCDF	55673897	0.177	2.05	0.177	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.167	2.05	0.167	pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	2.05	2.05	2.05	pg/g	JK	UJ	*III, result changed from 0.133 and
1,2,3,6,7,8-HxCDD	57653857	2.05	2.05	2.05	pg/g	JK	UJ	*III, result changed from 0.226 and
1,2,3,6,7,8-HxCDF	57117449	2.05	2.05	2.05	pg/g	J	U	B, result changed from 0.167 and EDL from
1,2,3,7,8,9-HxCDD	19408743	0.19	2.05	0.19	pg/g	U	U	
1,2,3,7,8,9-HxCDF	72918219	2.05	2.05	2.05	pg/g	JK	UJ	*III, result changed from 0.213 and
1,2,3,7,8-PeCDD	40321764	0.0859	2.05	0.0859	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	0.124	2.05	0.124	pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	2.05	2.05	2.05	pg/g	JK	UJ	*III, result changed from 0.208 and
2,3,4,7,8-PeCDF	57117314	2.05	2.05	2.05	pg/g	J	U	B, result changed from 0.299 and EDL from
2,3,7,8-TCDD	1746016	0.107	0.41	0.107	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.41	0.41	0.41	pg/g	J	U	B, result changed from 0.39 and EDL from 0.2

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Analysis Method *1613B*

2,3,7,8-TCDF	51207319	0.384	0.41	0.133 pg/g	J	R	D
OCDD	3268879	44.4	4.1	0.431 pg/g			
OCDF	39001020	3.18	4.1	0.323 pg/g	J	J	
Total HpCDD	37871004	11.6	2.05	0.207 pg/g		J	B
Total HpCDF	38998753	1.88	2.05	0.0932 pg/g	J	J	B
Total HxCDD	34465468	1.23	2.05	0.167 pg/g	J	J	B, *III
Total HxCDF	55684941	2.16	2.05	0.0959 pg/g		J	B, *III
Total PeCDD	36088229	0.0859	2.05	0.0859 pg/g	U	U	
Total PeCDF	30402154	2.36	2.05	0.0482 pg/g		J	B
Total TCDD	41903575	0.321	0.41	0.107 pg/g	J	J	
Total TCDFs	55722275	1.66	0.41	0.2 pg/g	B	J	B

Analysis Method 1613B

Sample Name	HZET0805D001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1072006	Sample	9/23/2009 10:25:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	5.43	2.12	0.201	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	2.12	2.12	2.12	pg/g	J	U	B, result changed from 1.27 and EDL from
1,2,3,4,7,8,9-HpCDF	55673897	0.188	2.12	0.188	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.139	2.12	0.139	pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.245	2.12	0.0723	pg/g	J	J	
1,2,3,6,7,8-HxCDD	57653857	2.12	2.12	2.12	pg/g	J	U	B, result changed from 0.269 and EDL from
1,2,3,6,7,8-HxCDF	57117449	2.12	2.12	2.12	pg/g	JK	UJ	*III, result changed from 0.22 and EDL
1,2,3,7,8,9-HxCDD	19408743	2.12	2.12	2.12	pg/g	JK	UJ	*III, result changed from 0.261 and
1,2,3,7,8,9-HxCDF	72918219	2.12	2.12	2.12	pg/g	JK	UJ	*III, result changed from 0.173 and
1,2,3,7,8-PeCDD	40321764	0.0988	2.12	0.0988	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	2.12	2.12	2.12	pg/g	JK	UJ	*III, result changed from 0.188 and
2,3,4,6,7,8-HxCDF	60851345	2.12	2.12	2.12	pg/g	JK	UJ	*III, result changed from 0.227 and
2,3,4,7,8-PeCDF	57117314	2.12	2.12	2.12	pg/g	J	U	B, result changed from 0.405 and EDL from
2,3,7,8-TCDD	1746016	0.0917	0.423	0.0917	pg/g	U	U	

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Analysis Method *1613B*

2,3,7,8-TCDF	51207319	0.432	0.432	0.432	pg/g		U	B, RL changed from 0.423 and EDL from
2,3,7,8-TCDF	51207319	0.405	0.423	0.117	pg/g	J	R	D
OCDD	3268879	75.4	4.23	0.462	pg/g			
OCDF	39001020	5.13	4.23	0.347	pg/g			
Total HpCDD	37871004	16.4	2.12	0.201	pg/g		J	B
Total HpCDF	38998753	3.26	2.12	0.109	pg/g		J	B
Total HxCDD	34465468	2.01	2.12	0.139	pg/g	J	J	B, *III
Total HxCDF	55684941	3.19	2.12	0.0723	pg/g		J	B, *III
Total PeCDD	36088229	0.14	2.12	0.0988	pg/g	J	J	B
Total PeCDF	30402154	4.29	2.12	0.045	pg/g		J	B, *III
Total TCDD	41903575	0.579	0.423	0.0917	pg/g			
Total TCDFs	55722275	2.47	0.423	0.191	pg/g	B	J	B

Analysis Method 1613B

Sample Name	HZET0805S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1072007	Sample	9/23/2009 10:25:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	3.94	2.25	0.209	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	2.25	2.25	2.25	pg/g	JK	UJ	*III, result changed from 0.895 and
1,2,3,4,7,8,9-HpCDF	55673897	0.172	2.25	0.172	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.142	2.25	0.142	pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.233	2.25	0.086	pg/g	J	J	
1,2,3,6,7,8-HxCDD	57653857	2.25	2.25	2.25	pg/g	J	U	B, result changed from 0.267 and EDL from
1,2,3,6,7,8-HxCDF	57117449	2.25	2.25	2.25	pg/g	JK	UJ	*III, result changed from 0.211 and
1,2,3,7,8,9-HxCDD	19408743	0.234	2.25	0.158	pg/g	J	J	
1,2,3,7,8,9-HxCDF	72918219	0.269	2.25	0.13	pg/g	J	J	
1,2,3,7,8-PeCDD	40321764	0.106	2.25	0.106	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	2.25	2.25	2.25	pg/g	J	U	B, result changed from 0.206 and EDL from
2,3,4,6,7,8-HxCDF	60851345	2.25	2.25	2.25	pg/g	JK	UJ	*III, result changed from 0.28 and EDL
2,3,4,7,8-PeCDF	57117314	2.25	2.25	2.25	pg/g	J	U	B, result changed from 0.503 and EDL from
2,3,7,8-TCDD	1746016	0.113	0.451	0.113	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.628	0.628	0.628	pg/g		U	B, RL changed from 0.451 and EDL from
2,3,7,8-TCDF	51207319	0.566	0.451	0.146	pg/g		R	D
OCDD	3268879	41.1	4.51	0.35	pg/g			
OCDF	39001020	2.48	4.51	0.426	pg/g	J	J	

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Analysis Method **1613B**

Total HpCDD	37871004	10.5	2.25	0.209 pg/g		J	B
Total HpCDF	38998753	1.74	2.25	0.0862 pg/g	J	J	B, *III
Total HxCDD	34465468	1.7	2.25	0.142 pg/g	J	J	B
Total HxCDF	55684941	3.12	2.25	0.086 pg/g		J	B, *III
Total PeCDD	36088229	0.184	2.25	0.106 pg/g	J	J	B
Total PeCDF	30402154	4.88	2.25	0.0474 pg/g		J	B
Total TCDD	41903575	0.747	0.451	0.113 pg/g			
Total TCDFs	55722275	4.5	0.451	0.245 pg/g	B	J	B

Analysis Method 1613B

Sample Name	HZET0806S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1072008	Sample	9/23/2009 9:20:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	19.5	2.13	0.334	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	2.13	2.13	2.13	pg/g	J	U	B, result changed from 1.87 and EDL from
1,2,3,4,7,8,9-HpCDF	55673897	0.175	2.13	0.175	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.276	2.13	0.158	pg/g	J	J	
1,2,3,4,7,8-HxCDF	70648269	0.175	2.13	0.102	pg/g	J	J	
1,2,3,6,7,8-HxCDD	57653857	2.13	2.13	2.13	pg/g	J	U	B, result changed from 1.09 and EDL from 0.16
1,2,3,6,7,8-HxCDF	57117449	2.13	2.13	2.13	pg/g	JK	UJ	*III, result changed from 0.165 and
1,2,3,7,8,9-HxCDD	19408743	0.714	2.13	0.167	pg/g	J	J	
1,2,3,7,8,9-HxCDF	72918219	0.37	2.13	0.161	pg/g	J	J	
1,2,3,7,8-PeCDD	40321764	2.13	2.13	2.13	pg/g	JK	UJ	*III, result changed from 0.189 and
1,2,3,7,8-PeCDF	57117416	2.13	2.13	2.13	pg/g	JK	UJ	*III, result changed from 0.133 and
2,3,4,6,7,8-HxCDF	60851345	0.204	2.13	0.116	pg/g	J	J	
2,3,4,7,8-PeCDF	57117314	2.13	2.13	2.13	pg/g	J	U	B, result changed from 0.278 and EDL from
2,3,7,8-TCDD	1746016	0.105	0.426	0.105	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.426	0.426	0.426	pg/g	J	U	B, result changed from 0.342 and EDL from
2,3,7,8-TCDF	51207319	0.317	0.426	0.136	pg/g	J	R	D
OCDD	3268879	346	4.26	0.608	pg/g			
OCDF	39001020	7.77	4.26	0.55	pg/g			

Tuesday, October 20, 2009

Analysis Method *1613B*

Total HpCDD	37871004	61.9	2.13	0.334	pg/g		J	B
Total HpCDF	38998753	5.78	2.13	0.0937	pg/g		J	B
Total HxCDD	34465468	6.17	2.13	0.158	pg/g		J	B
Total HxCDF	55684941	4.08	2.13	0.102	pg/g		J	B, *III
Total PeCDD	36088229	0.716	2.13	0.109	pg/g	J	J	B, *III
Total PeCDF	30402154	2.53	2.13	0.0487	pg/g		J	B, *III
Total TCDD	41903575	0.322	0.426	0.105	pg/g	J	J	
Total TCDFs	55722275	1.99	0.426	0.184	pg/g	B	J	B

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Analysis Method 6020

Sample Name	CNET0100S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237767001	Sample	9/23/2009 9:33:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Lead	7439921	4.03	0.418	0.105	mg/kg			

Tuesday, October 20, 2009

Chain of Custody and Supporting Documentation



CHAIN OF CUSTODY RECORD

COC #: **237844**
 MWHAG20090924_00
 Page: 2 of 2

Customer Information		Project Information			Project Information	
Site:	SSFL	Client Name:	Boeing	Collector:	A. Goldenberg	Boeing PM:
Company:	MWH	Sampling Event:	ISRA Sampling, August 2009	Contact #:		
Report to:	Sarah Von Raesfeld	Project Number:	1891614.05462	Requested Analyses		
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl			
	Suite 600	PM Phone #:	(925) 627-4627			
	Walnut Creek	Field Contact:	Benjamin Stewart			
	CA	Field Contact #:	(818) 266-1378			
	94596	Lab Name:	GEL Laboratories, LLC			
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Jackie Trudell			
	sean.leffler@mwhglobal.com	Lab Address:	2040 Savage Road			
			Charleston, SC 29407			
		Lab Phone:	(843) 769-7388			
Sample Name	Matrix	Date	Time	No. of Containers		Instructions/TAT
HZET0711S001	Soil	9/24/2009	10:55	2	D2216 Moisture Soil	Legend: Numerical values for analyses equate to turn around time in days H - Hold EH - Extract/Extrude & Hold Note: Values in the cells below are Turn Around Times.
HZET0712S001	Soil	9/24/2009	10:40	2	Dioxin by 1613B - Soil	
HZET0713S001	Soil	9/24/2009	10:35	2	Metals 6020 Soil Copper	
HZET0714S001	Soil	9/24/2009	9:45	4		
HZET0715S001	Soil	9/24/2009	13:37	2		
HZET0716S001	Soil	9/24/2009	13:40	2		
						Comments
						HVS-3
						HVS-3
						HVS-3
						MS/MSD HVS-3
						HVS-3
						HVS-3

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
<i>Alan J. P...</i>	9-24-09	<i>R.M. Stelling</i>	9/25/09				
Company:	Time:	Company:	Time:	Company:	Time:	Company:	Time:
MWH	15:55	Gel	850				
Comments: Sample volume for dioxin analysis shipped directly to CFA, sample volume for metals analysis shipped to GEL							
				<input type="checkbox"/> Geotracker EDF <input checked="" type="checkbox"/> Data Validation Package Level IV			



SAMPLE RECEIPT & REVIEW FORM

Client: <u>SSFI</u>		SDG/ARCO/Work Order: <u>237844</u>	
Received By: <u>RMS</u>		Date Received: <u>9/25/09</u>	
Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/>	Maximum Counts Observed*:
Classified Radioactive II or III by RSO?		<input checked="" type="checkbox"/>	<u>30cpm</u>
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/>	
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

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 0 ≤ 6 deg. C?	<input checked="" type="checkbox"/>			Preservation Method: <u>ice bags</u> blue ice dry ice none other (describe) <u>2c</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: If Preservation added, Lot#:
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?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
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: <u>only received 1 container</u> <u>per ID except ID H2et07145001 received</u>
12 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			

Comments:
Ex: 9457 3163 0957

PM (or PMA) review: Initials JT Date 9/25/09

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: ISRA Sampling, August 2009

Start: 8/24/2009

End: 9/30/2009

LTO DATE:

LTO NUMBER:

<p>Consultant Name: MWH Address: 2121 N. California Blvd. Ste. 600 Walnut Creek, CA 94596</p> <p>Contact Name: Sarah Von Raesfeld Phone Number: 925-627-4654 Fax Number: 925-627-4501 E-mail Address: Sarah.VonRaesfeld@mwhglobal.com</p>	<p>Contract Laboratory: GEL Address: 2040 Savage Rd. Charleston, SC 29407</p> <p>Lab Contact Name: Jackie Trudell Phone Number: 843-769-7388 Fax Number: 843-766-1178 E-mail Address: jacqueline.trudell@gel.com</p>
---	---

SAMPLE CONTAINER ORDER FORM

<p>Date Required: _____</p> <p>Date Sample Pickup: _____</p> <p>Ship Containers To: Project Site _____ (enter "X") Consultant Office _____ (enter "X") Other Location (specify in comments) _____ (enter "X")</p> <p>Container Information: Trip Blank (VOA only) <u>No</u> (Yes/No) Temp Blank (VOA Only) <u>No</u> (Yes/No) DI Water Required? <u>No</u> (Yes/No) MS/MSD Extra Bottles? <u>No</u> (Yes/No)</p> <p>Sample Matrix: Soil <u>X</u> (select all applicable) Water <u>X</u> (select all applicable) Vapor _____ (select all applicable)</p> <p>Est. Total # of Samples: <u>175</u> Est. Total # of EDDs <u>40</u></p>	<p>Requested Analyses: (Specify # of Samples)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Water</th> <th style="text-align: center;">Soil</th> <th style="text-align: center;">Contingent</th> </tr> </thead> <tbody> <tr> <td>Dioxins (1613B)</td> <td style="text-align: center;">15</td> <td style="text-align: center;">124</td> <td style="text-align: center;">0</td> </tr> <tr> <td>EPA 8015M (DRO)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8015M (JET FUEL)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8015M (CC)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>TCE (8260B)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">12</td> <td style="text-align: center;">0</td> </tr> <tr> <td>EPA 8270C SIM (SVOC)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8310 (PAH)</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> <tr> <td>EPA 8082 (PCB)</td> <td style="text-align: center;">3</td> <td style="text-align: center;">5</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Nickel (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Chromium (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Silver (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Cadmium (6020)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">35</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Arsenic (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> </tr> <tr> <td>% Moisture (D2216)</td> <td style="text-align: center;">0</td> <td style="text-align: center;">170</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Lead (6020)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">65</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Copper (6020)</td> <td style="text-align: center;">10</td> <td style="text-align: center;">75</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Zinc (6020)</td> <td style="text-align: center;">5</td> <td style="text-align: center;">20</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Mercury by 7471A/7470A</td> <td style="text-align: center;">5</td> <td style="text-align: center;">25</td> <td style="text-align: center;">0</td> </tr> </tbody> </table>		Water	Soil	Contingent	Dioxins (1613B)	15	124	0	EPA 8015M (DRO)	--	--	--	EPA 8015M (JET FUEL)	--	--	--	EPA 8015M (CC)	--	--	--	TCE (8260B)	5	12	0	EPA 8270C SIM (SVOC)	--	--	--	EPA 8310 (PAH)	--	--	--	EPA 8082 (PCB)	3	5	0	Nickel (6020)	5	10	0	Chromium (6020)	5	10	0	Silver (6020)	5	10	0	Cadmium (6020)	10	35	0	Arsenic (6020)	5	10	0	% Moisture (D2216)	0	170	0	Lead (6020)	10	65	0	Copper (6020)	10	75	0	Zinc (6020)	5	20	0	Mercury by 7471A/7470A	5	25	0
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LABORATORY REPORTING REQUIREMENTS

<p>Project TAT: Normal: <u>X</u> (10 Business days) RUSH: <u>5</u> (Specify- 24 / 48 / 72HRS) Other : _____ (Specify # of Days) Report Due Date: _____</p> <p>Special Reporting Requirements: Contingent Analysis? <u>No</u> (Yes/No) TIC (VOC) Required? <u>No</u> (Yes/No) TIC (SVOC) Required? <u>No</u> (Yes/No) Data Validation Pckge.: <u>Tier III</u> (Boeing Tier I, II or III)</p>	<p>Laboratory Results/Reports Deliverables: Draft Results Fax?: _____ (Yes/No) Draft Results E-mail?: <u>Yes</u> (Yes/No) Specify Fax/E-mail Contact Name, #, E-mail Address: <u>Sarah.VonRaesfeld@mwhglobal.com</u> Send Original Reports To: Project Site _____ (enter "X") Consultant Office _____ (enter "X") Other Location (specify in comments) <u>X</u> (enter "X") # of Copies Reports Req.: <u>1</u></p>
--	--

SPECIAL INSTRUCTIONS/LTO NOTES

CONFIRMATION OF TRANSMITTAL & RECEIPT

<p>LTO Sent By: Name: <u>Sarah Von Raesfeld</u> Date: <u>09/02/09</u></p>	<p>LTO Received By-: Name: _____ Date: _____</p>
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Case Narrative

**Case Narrative
for
Boeing - SSFL (MWH)
Work Order: 237844
SDG: 237844**

October 12, 2009

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 September 25, 2009 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. There are no additional comments concerning sample receipt.

The laboratory received the following samples:

<u>Laboratory Identification</u>	<u>Sample Description</u>
237844001	HZET0700S001
237844002	HZET0701S001
237844003	HZET0702S001
237844004	HZET0703S001
237844005	HZET0704S001
237844006	HZET0705S001
237844007	HZET0706S001
237844008	HZET0707S001
237844009	HZET0708S001
237844010	HZET0709S001
237844011	HZET0711S001
237844012	HZET0712S001
237844013	HZET0713S001
237844014	HZET0714S001
237844015	HZET0715S001
237844016	HZET0716S001

Items of Note

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: Metals, Percent Moisture and Dioxins (Cape Fear Analytical).

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.



Jacqueline Trudell

Project Manager

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 02 October 2009

State	Certification
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California – NELAP	01151CA
Colorado	GEL
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA Region 5	WG-15J
Florida – NELAP	E87156
Georgia	E87156 (FL/NELAP)
Georgia DW	967
Hawaii	N/A
ISO 17025	2567.01
Idaho	SC00012
Illinois – NELAP	200029
Indiana	C-SC-01
Kansas – NELAP	E-10332
Kentucky	90129
Louisiana – NELAP	03046
Maryland	270
Massachusetts	M-SC012
Nevada	SC00012
New Jersey – NELAP	SC002
New Mexico	FL NELAP E87156
New York – NELAP	11501
North Carolina	233
North Carolina DW	45709
Oklahoma	9904
Pennsylvania – NELAP	68-00485
South Carolina	10120001/10120002
Tennessee	TN 02934
Texas – NELAP	T104704235-07B-TX
U.S. Dept. of Agriculture	S-52597
Utah – NELAP	GEL
Vermont	VT87156
Virginia	00151
Washington	C1641



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: 237844

Prepared by

MEC^x, LP
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Boeing SSFL RFI ISRA
 Contract Task Order: 1261.500D.00
 Sample Delivery Group: 237844
 Project Manager: Dixie Hambrick
 Matrix: soil
 QC Level: V
 No. of Samples: 16
 No. of Reanalyses/Dilutions: 0
 Laboratory: GEL

Table 1. Sample Identification

<i>Sample Name</i>	<i>Lab Sample Name</i>	<i>Sub-Lab Sample Name</i>	<i>Matrix</i>	<i>Collection</i>	<i>Method</i>
HZET0700S001	237844001	1073001	Soil	9/24/2009 1:39:00 PM	1613B, 6020
HZET0701S001	237844002	1073002	Soil	9/24/2009 1:41:00 PM	1613B, 6020
HZET0702S001	237844003	1073003	Soil	9/24/2009 1:42:00 PM	1613B, 6020
HZET0703S001	237844004	1073004	Soil	9/24/2009 1:45:00 PM	1613B, 6020
HZET0704S001	237844005	1073005	Soil	9/24/2009 1:47:00 PM	1613B, 6020
HZET0705S001	237844006	1073006	Soil	9/24/2009 1:15:00 PM	1613B, 6020
HZET0706S001	237844007	1073007	Soil	9/24/2009 11:25:00 AM	1613B, 6020
HZET0707S001	237844008	1073008	Soil	9/24/2009 11:10:00 AM	1613B, 6020
HZET0708S001	237844009	1073009	Soil	9/24/2009 11:05:00 AM	1613B, 6020
HZET0709S001	237844010	1073010	Soil	9/24/2009 11:00:00 AM	1613B, 6020
HZET0711S001	237844011	1073011	Soil	9/24/2009 10:55:00 AM	1613B, 6020
HZET0712S001	237844012	1073012	Soil	9/24/2009 10:40:00 AM	1613B, 6020
HZET0713S001	237844013	1073013	Soil	9/24/2009 10:35:00 AM	1613B, 6020
HZET0714S001	237844014	1073014	Soil	9/24/2009 9:45:00 AM	1613B, 6020
HZET0715S001	237844015	1073015	Soil	9/24/2009 1:37:00 PM	1613B, 6020
HZET0716S001	237844016	1073016	Soil	9/24/2009 1:40:00 PM	1613B, 6020

II. Sample Management

No anomalies were observed regarding sample management. The samples in this SDG were received at the laboratories 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 or PCB congeners.	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.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

T-II	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a class of compound but not of sufficient identification quality to represent a specific compound.	Not applicable
T-III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
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.
*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 METHOD 1613—Dioxin/Furans

Reviewed By: P. Meeks

Date Reviewed: October 21, 2009

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC^x Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0)*, *USEPA Method 1613*, and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review (08/02)*.

- Holding Times: Extraction and analytical holding times were met. The samples were extracted and analyzed within one year of collection.
- Instrument Performance: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: The soil method blank associated with samples HZET0700S001 through HZET0708S001 had detects for all but two individual isomers and all totals except total TCDD. The method blank associated with the remaining samples had detects for all but four individual isomers and all totals, except TCDD and HxCDD. Individual isomers detected below the reporting limit or at concentrations less than 5x the method blank concentration were qualified as nondetected, "U," at the reporting limit if detected below the reporting limit or at the level of contamination if detected above. When total concentrations were the same as the individual isomer concentration, the total was also qualified as nondetected, "U," at the reporting limit if detected below the reporting limit or at the level of contamination if detected above. Remaining totals were qualified as estimated, "J."
- Blank Spikes and Laboratory Control Samples: Recoveries were within the acceptance criteria listed in Table 6 of Method 1613 and the RPDs were within the laboratory-established control limits.
- MS/MSD analyses were performed on HZET0714S001. Recoveries were within the acceptance criteria listed in Table 6 of Method 1613 and the RPDs were within the laboratory-established control 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: (235913) was identified as the field blank associated with the samples in this SDG; however, the sample was not analyzed for dioxins. The samples in this SDG had no identified equipment rinsate.

- Field Duplicates: There were no field duplicate samples identified for this SDG.
- Internal Standards Performance: Internal standard recoveries are not routinely evaluated at a Level V validation; however, the recoveries were reported on the sample result summaries. The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613.
- Compound Identification: Review is not applicable at a Level V validation. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613. The laboratory performed and reported confirmation analyses for all TCDF detects. As the confirmation analyses yielded results similar to the original analyses, the reviewer rejected, “R,” the confirmation analyses in all samples except HZET0705S001, HZET0708S001, and HZET0714S001 in favor of the original analyses. The original TCDF results for HZET0705S001, HZET0708S001, and HZET0714S001 were reported as estimated maximum possible concentrations (EMPCs); however, as the confirmation results were not reported as EMPCs, the reviewer rejected, “R,” the original results in favor of the confirmation results for HZET0705S001, HZET0708S001, and HZET0714S001.
- Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation. The laboratory calculated and reported compound-specific detection limits. EMPCs were identified in the samples of this SDG and qualified with a “K” by the laboratory. Any EMPC was qualified as estimated, “UJ,” in the samples of this SDG. EMPCs reported as totals were qualified as estimated, “J,” as only a portion of the total was identified as an EMPC. Totals were qualified even when the individual isomer results were not retained. Any detect below the laboratory lower calibration level was qualified as estimated, “J.” Nondetects are valid to the estimated detection limit (EDL).

B. EPA METHOD 6020—Copper

Reviewed By: P. Meeks

Date Reviewed: October 21, 2009

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0)*, *EPA Method 6020*, and the *National Functional Guidelines for Inorganic Data Review (7/02)*.

- Holding Times: The analytical holding time, six months for ICP-MS, 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: Recoveries were within laboratory-established QC limits.
- Laboratory Duplicates: A laboratory duplicate analysis was performed on HZET0714S001. The RPD was within the method-established control limit.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on HZET0714S001. The MS recovery was above the control limit and the RPD exceeded the control limit; therefore, copper detected in the samples was qualified as estimated, "J." The MSD recovery was within laboratory-established QC limits.
- Serial Dilution: A serial dilution analysis was performed on HZET0714S001. The %D was within the method-established control limit.
- Internal Standards Performance: Review is not applicable at a Level V validation.
- Sample Result Verification: Review is not applicable at a Level V validation. As the samples in this SDG were validated at Level V, the QC information necessary to make an absolute determination of bias in the samples was not reviewed; therefore, when qualifications were applied, no bias was assigned. The samples in this SDG were analyzed at the laboratory's standard 2x dilution for soils. Any result reported between the MDL and the reporting limit was qualified as estimated, "J." 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: FBQW2239 (235913) was the field blank associated with the samples in this SDG. Copper was not detected in this sample. The samples in this SDG had no identified equipment rinsate.
 - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 237844

Analysis Method 1613B

Sample Name	HZET0700S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1073001	Sample	9/24/2009 1:39:00 PM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	10.9	2.17	0.265	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	1.49	2.17	0.0989	pg/g	J	J	
1,2,3,4,7,8,9-HpCDF	55673897	0.189	2.17	0.189	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	2.17	2.17	2.17	pg/g	JK	UJ	*III, result changed from 0.126 and EDL from 0.125
1,2,3,4,7,8-HxCDF	70648269	2.17	2.17	2.17	pg/g	JK	UJ	*III, result changed from 0.109 and EDL from 0.0733
1,2,3,6,7,8-HxCDD	57653857	2.17	2.17	2.17	pg/g	J	U	B, result changed from 0.504 and EDL from 0.144
1,2,3,6,7,8-HxCDF	57117449	2.17	2.17	2.17	pg/g	JK	UJ	*III, result changed from 0.102 and EDL from 0.0771
1,2,3,7,8,9-HxCDD	19408743	2.17	2.17	2.17	pg/g	JK	UJ	*III, result changed from 0.459 and EDL from 0.141
1,2,3,7,8,9-HxCDF	72918219	0.12	2.17	0.12	pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	2.17	2.17	2.17	pg/g	JK	UJ	*III, result changed from 0.123 and EDL from 0.0809
1,2,3,7,8-PeCDF	57117416	0.103	2.17	0.103	pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	2.17	2.17	2.17	pg/g	JK	UJ	*III, result changed from 0.126 and EDL from 0.087
2,3,4,7,8-PeCDF	57117314	2.17	2.17	2.17	pg/g	J	U	B, result changed from 0.107 and EDL from 0.107
2,3,7,8-TCDD	1746016	0.106	0.433	0.106	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.397	0.433	0.117	pg/g	J	R	D
2,3,7,8-TCDF	51207319	0.433	0.433	0.433	pg/g	J	U	B, result changed from 0.31 and EDL from 0.142
OCDD	3268879	131	4.33	0.532	pg/g			
OCDF	39001020	8.1	4.33	0.589	pg/g			
Total HpCDD	37871004	38.7	2.17	0.265	pg/g		J	B
Total HpCDF	38998753	4.43	2.17	0.0989	pg/g		J	B
Total HxCDD	34465468	4.26	2.17	0.125	pg/g		J	B, *III
Total HxCDF	55684941	1.59	2.17	0.0733	pg/g	J	J	B, *III
Total PeCDD	36088229	0.374	2.17	0.0809	pg/g	J	J	B, *III
Total PeCDF	30402154	0.547	2.17	0.0504	pg/g	J	J	B
Total TCDD	41903575	0.535	0.433	0.106	pg/g			
Total TCDFs	55722275	1.09	0.433	0.142	pg/g	B	J	B

Analysis Method 1613B

Sample Name	HZET0701S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1073002	Sample	9/24/2009 1:41:00 PM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	47.7	1.99		0.37 pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	5.7	1.99		0.116 pg/g			
1,2,3,4,7,8,9-HpCDF	55673897	1.99	1.99		1.99 pg/g	JK	UJ	*III, result changed from 0.289 and EDL from 0.218
1,2,3,4,7,8-HxCDD	39227286	1.99	1.99		1.99 pg/g	JK	UJ	*III, result changed from 0.372 and EDL from 0.197
1,2,3,4,7,8-HxCDF	70648269	0.205	1.99		0.0942 pg/g	J	J	
1,2,3,6,7,8-HxCDD	57653857	1.99	1.99		1.99 pg/g	J	U	B, result changed from 1.27 and EDL from 0.21
1,2,3,6,7,8-HxCDF	57117449	1.99	1.99		1.99 pg/g	J	U	B, result changed from 0.191 and EDL from 0.1
1,2,3,7,8,9-HxCDD	19408743	0.887	1.99		0.214 pg/g	J	J	
1,2,3,7,8,9-HxCDF	72918219	0.149	1.99		0.149 pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.178	1.99		0.127 pg/g	J	J	
1,2,3,7,8-PeCDF	57117416	1.99	1.99		1.99 pg/g	J	U	B, result changed from 0.106 and EDL from 0.0861
2,3,4,6,7,8-HxCDF	60851345	0.195	1.99		0.0988 pg/g	J	J	
2,3,4,7,8-PeCDF	57117314	1.99	1.99		1.99 pg/g	J	U	B, result changed from 0.189 and EDL from 0.074
2,3,7,8-TCDD	1746016	0.11	0.397		0.11 pg/g	U	U	
2,3,7,8-TCDF	51207319	0.156	0.397		0.156 pg/g	U	U	
2,3,7,8-TCDF	51207319	0.356	0.397		0.109 pg/g	J	R	D
OCDD	3268879	556	3.97		0.725 pg/g			
OCDF	39001020	31.5	3.97		0.454 pg/g			
Total HpCDD	37871004	171	1.99		0.37 pg/g		J	B
Total HpCDF	38998753	19.1	1.99		0.116 pg/g		J	B, *III
Total HxCDD	34465468	13.6	1.99		0.197 pg/g		J	B, *III
Total HxCDF	55684941	4.32	1.99		0.0942 pg/g		J	B
Total PeCDD	36088229	0.728	1.99		0.127 pg/g	J	J	B
Total PeCDF	30402154	1.65	1.99		0.0489 pg/g	J	J	B
Total TCDD	41903575	0.11	0.397		0.11 pg/g	U	U	
Total TCDFs	55722275	1.68	0.397		0.156 pg/g	B	J	B

Analysis Method 1613B

Sample Name	HZET0702S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1073003	Sample	9/24/2009 1:42:00 PM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	613	2.17		1.29 pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	77.5	2.17		0.296 pg/g			
1,2,3,4,7,8,9-HpCDF	55673897	3.31	2.17		0.567 pg/g			
1,2,3,4,7,8-HxCDD	39227286	12.6	2.17		0.365 pg/g			
1,2,3,4,7,8-HxCDF	70648269	0.927	2.17		0.15 pg/g	J	J	
1,2,3,6,7,8-HxCDD	57653857	5.46	2.17		0.395 pg/g			
1,2,3,6,7,8-HxCDF	57117449	2.17	2.17		2.17 pg/g	JK	UJ	*III, result changed from 0.675 and EDL from 0.169
1,2,3,7,8,9-HxCDD	19408743	8.67	2.17		0.4 pg/g			
1,2,3,7,8,9-HxCDF	72918219	0.231	2.17		0.231 pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	2.42	2.17		0.121 pg/g			
1,2,3,7,8-PeCDF	57117416	2.17	2.17		2.17 pg/g	J	U	B, result changed from 0.202 and EDL from 0.102
2,3,4,6,7,8-HxCDF	60851345	2.17	2.17		2.17 pg/g	JK	UJ	*III, result changed from 1.2 and EDL 0.173
2,3,4,7,8-PeCDF	57117314	2.17	2.17		2.17 pg/g	J	U	B, result changed from 0.393 and EDL from 0.0932
2,3,7,8-TCDD	1746016	0.487	0.435		0.164 pg/g			
2,3,7,8-TCDF	51207319	0.555	0.435		0.134 pg/g		R	D
2,3,7,8-TCDF	51207319	0.518	0.518		0.518 pg/g		U	B, RL changed from 0.435 and EDL from 0.195
OCDD	3268879	6360	4.35		1.13 pg/g			
OCDF	39001020	412	4.35		0.555 pg/g			
Total HpCDD	37871004	2190	2.17		1.29 pg/g		J	B
Total HpCDF	38998753	289	2.17		0.296 pg/g		J	B
Total HxCDD	34465468	171	2.17		0.365 pg/g		J	B
Total HxCDF	55684941	38.5	2.17		0.15 pg/g		J	B, *III
Total PeCDD	36088229	24.2	2.17		0.121 pg/g		J	B
Total PeCDF	30402154	4.23	2.17		0.0567 pg/g		J	B
Total TCDD	41903575	7.76	0.435		0.164 pg/g			
Total TCDFs	55722275	2.08	0.435		0.195 pg/g	B	J	B

Analysis Method 1613B

Sample Name	HZET0703S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1073004	Sample	9/24/2009 1:45:00 PM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	4.22	2.18	0.228	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	0.583	2.18	0.0916	pg/g	J	J	
1,2,3,4,7,8,9-HpCDF	55673897	0.168	2.18	0.168	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.149	2.18	0.149	pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.0888	2.18	0.0888	pg/g	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.169	2.18	0.169	pg/g	U	U	
1,2,3,6,7,8-HxCDF	57117449	2.18	2.18	2.18	pg/g	J	U	B, result changed from 0.12 and EDL from 0.0951
1,2,3,7,8,9-HxCDD	19408743	0.167	2.18	0.167	pg/g	U	U	
1,2,3,7,8,9-HxCDF	72918219	0.132	2.18	0.132	pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.104	2.18	0.104	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	0.0858	2.18	0.0858	pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.106	2.18	0.0949	pg/g	J	J	
2,3,4,7,8-PeCDF	57117314	2.18	2.18	2.18	pg/g	JK	UJ	*III, result changed from 0.118 and EDL from 0.0778
2,3,7,8-TCDD	1746016	0.116	0.435	0.116	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.245	0.435	0.122	pg/g	J	R	D
2,3,7,8-TCDF	51207319	0.435	0.435	0.435	pg/g	J	U	B, result changed from 0.24 and EDL from 0.143
OCDD	3268879	46.8	4.35	0.432	pg/g			
OCDF	39001020	4.35	4.35	4.35	pg/g	JK	UJ	*III, result changed from 2.77 and EDL from 0.477
Total HpCDD	37871004	13.8	2.18	0.228	pg/g		J	B
Total HpCDF	38998753	1.66	2.18	0.0916	pg/g	J	J	B
Total HxCDD	34465468	0.905	2.18	0.149	pg/g	J	J	B
Total HxCDF	55684941	0.63	2.18	0.0888	pg/g	J	J	B
Total PeCDD	36088229	0.104	2.18	0.104	pg/g	U	U	
Total PeCDF	30402154	0.118	2.18	0.0487	pg/g	J	J	B, *III
Total TCDD	41903575	0.116	0.435	0.116	pg/g	U	U	
Total TCDFs	55722275	0.439	0.435	0.143	pg/g	B	J	B

Analysis Method 1613B

Sample Name	HZET0704S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1073005	Sample	9/24/2009 1:47:00 PM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	29.5	2.11	0.495	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	3.71	2.11	0.125	pg/g			
1,2,3,4,7,8,9-HpCDF	55673897	0.25	2.11	0.25	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	1.13	2.11	0.153	pg/g	J	J	
1,2,3,4,7,8-HxCDF	70648269	2.11	2.11	2.11	pg/g	JK	UJ	*III, result changed from 0.235 and EDL from 0.0945
1,2,3,6,7,8-HxCDD	57653857	2.11	2.11	2.11	pg/g	J	U	B, result changed from 0.365 and EDL from 0181
1,2,3,6,7,8-HxCDF	57117449	2.11	2.11	2.11	pg/g	J	U	B, result changed from 0.226 and EDL from 0.101
1,2,3,7,8,9-HxCDD	19408743	0.875	2.11	0.174	pg/g	J	J	
1,2,3,7,8,9-HxCDF	72918219	0.157	2.11	0.145	pg/g	J	J	
1,2,3,7,8-PeCDD	40321764	0.176	2.11	0.129	pg/g	J	J	
1,2,3,7,8-PeCDF	57117416	0.0882	2.11	0.0882	pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.206	2.11	0.103	pg/g	J	J	
2,3,4,7,8-PeCDF	57117314	2.11	2.11	2.11	pg/g	JK	UJ	*III, result changed from 0.152 and EDL from 0.0784
2,3,7,8-TCDD	1746016	0.103	0.423	0.103	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.248	0.423	0.11	pg/g	J	R	D
2,3,7,8-TCDF	51207319	0.423	0.423	0.423	pg/g	J	U	B, result changed from 0.215 and EDL from 0.176
OCDD	3268879	625	4.23	0.708	pg/g			
OCDF	39001020	18.1	4.23	0.439	pg/g			
Total HpCDD	37871004	117	2.11	0.495	pg/g		J	B
Total HpCDF	38998753	11.6	2.11	0.125	pg/g		J	B
Total HxCDD	34465468	8.22	2.11	0.153	pg/g		J	B
Total HxCDF	55684941	4.49	2.11	0.0945	pg/g		J	B, *III
Total PeCDD	36088229	0.575	2.11	0.129	pg/g	J	J	B
Total PeCDF	30402154	1.19	2.11	0.0571	pg/g	J	J	B, *III
Total TCDD	41903575	0.169	0.423	0.103	pg/g	J	J	
Total TCDFs	55722275	0.392	0.423	0.176	pg/g	BJ	J	B

Analysis Method 1613B

Sample Name	HZET0705S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1073006	Sample	9/24/2009 1:15:00 PM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	9.36	2.21	0.422	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	1.15	2.21	0.141	pg/g	J	J	
1,2,3,4,7,8,9-HpCDF	55673897	0.258	2.21	0.258	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	2.21	2.21	2.21	pg/g	JK	UJ	*III, result changed from 0.503 and EDL from 0.203
1,2,3,4,7,8-HxCDF	70648269	0.0953	2.21	0.0893	pg/g	J	J	
1,2,3,6,7,8-HxCDD	57653857	0.224	2.21	0.224	pg/g	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.0966	2.21	0.0966	pg/g	U	U	
1,2,3,7,8,9-HxCDD	19408743	0.224	2.21	0.224	pg/g	U	U	
1,2,3,7,8,9-HxCDF	72918219	0.156	2.21	0.156	pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.109	2.21	0.109	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	0.0973	2.21	0.0973	pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.105	2.21	0.105	pg/g	U	U	
2,3,4,7,8-PeCDF	57117314	2.21	2.21	2.21	pg/g	JK	UJ	*III, result changed from 0.111 and EDL from 0.0846
2,3,7,8-TCDD	1746016	0.112	0.441	0.112	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.222	0.441	0.147	pg/g	JK	R	D
2,3,7,8-TCDF	51207319	0.441	0.441	0.441	pg/g	J	U	B, result changed from 0.254 and EDL from 0.108
OCDD	3268879	305	4.41	0.962	pg/g			
OCDF	39001020	5.47	4.41	1.02	pg/g			
Total HpCDD	37871004	54.5	2.21	0.422	pg/g		J	B
Total HpCDF	38998753	3.65	2.21	0.141	pg/g		J	B
Total HxCDD	34465468	2.6	2.21	0.203	pg/g		J	B, *III
Total HxCDF	55684941	1.65	2.21	0.0893	pg/g	J	J	B
Total PeCDD	36088229	0.109	2.21	0.109	pg/g	U	U	
Total PeCDF	30402154	0.464	2.21	0.0607	pg/g	J	J	B, *III
Total TCDD	41903575	0.365	0.441	0.112	pg/g	J	J	
Total TCDFs	55722275	0.403	0.441	0.147	pg/g	BJ	J	B, *III

Analysis Method 1613B

Sample Name	HZET0706S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1073007	Sample	9/24/2009 11:25:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	14.7	1.97	0.444	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	1.5	1.97	0.149	pg/g	J	J	
1,2,3,4,7,8,9-HpCDF	55673897	0.285	1.97	0.285	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.721	1.97	0.194	pg/g	J	J	
1,2,3,4,7,8-HxCDF	70648269	0.104	1.97	0.0887	pg/g	J	J	
1,2,3,6,7,8-HxCDD	57653857	1.97	1.97	1.97	pg/g	JK	UJ	*III, result changed from 0.313 and EDL from 0.208
1,2,3,6,7,8-HxCDF	57117449	0.0955	1.97	0.0955	pg/g	U	U	
1,2,3,7,8,9-HxCDD	19408743	1.97	1.97	1.97	pg/g	JK	UJ	*III, result changed from 0.499 and EDL from 0.211
1,2,3,7,8,9-HxCDF	72918219	0.138	1.97	0.138	pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	1.97	1.97	1.97	pg/g	JK	UJ	*III, result changed from 0.123 and EDL from 0.105
1,2,3,7,8-PeCDF	57117416	0.0979	1.97	0.0979	pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.0979	1.97	0.0979	pg/g	U	U	
2,3,4,7,8-PeCDF	57117314	0.082	1.97	0.082	pg/g	U	U	
2,3,7,8-TCDD	1746016	0.115	0.393	0.115	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.304	0.393	0.104	pg/g	J	R	D
2,3,7,8-TCDF	51207319	0.393	0.393	0.393	pg/g	J	U	B, result changed from 0.252 and EDL from 0.167
OCDD	3268879	474	3.93	0.771	pg/g			
OCDF	39001020	7.11	3.93	0.626	pg/g			
Total HpCDD	37871004	78.1	1.97	0.444	pg/g		J	B
Total HpCDF	38998753	4.56	1.97	0.149	pg/g		J	B
Total HxCDD	34465468	4.59	1.97	0.194	pg/g		J	B, *III
Total HxCDF	55684941	1.81	1.97	0.0887	pg/g	J	J	B
Total PeCDD	36088229	0.304	1.97	0.105	pg/g	J	J	B, *III
Total PeCDF	30402154	0.165	1.97	0.0552	pg/g	J	J	B
Total TCDD	41903575	0.115	0.393	0.115	pg/g	U	U	

Analysis Method 1613B

Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Total TCDFs		55722275	0.485	0.393	0.167 pg/g	B	J	B
Sample Name	HZET0707S001		Matrix Type:		Soil	Result Type:		Primary
Lab Sample Name:	1073008	Sample	9/24/2009 11:10:00 AM		Validation		V	
1,2,3,4,6,7,8-HpCDD	35822469	0.951	2	0.275	pg/g	J	J	
1,2,3,4,6,7,8-HpCDF	67562394	2	2	2	pg/g	JK	UJ	*III, result changed from 0.202 and EDL from 0.129
1,2,3,4,7,8,9-HpCDF	55673897	0.253	2	0.253	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.15	2	0.15	pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.0943	2	0.0943	pg/g	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.165	2	0.165	pg/g	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.1	2	0.1	pg/g	U	U	
1,2,3,7,8,9-HxCDD	19408743	0.165	2	0.165	pg/g	U	U	
1,2,3,7,8,9-HxCDF	72918219	0.144	2	0.144	pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.093	2	0.093	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	0.101	2	0.101	pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.104	2	0.104	pg/g	U	U	
2,3,4,7,8-PeCDF	57117314	0.0896	2	0.0896	pg/g	U	U	
2,3,7,8-TCDD	1746016	0.119	0.4	0.119	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.4	0.4	0.4	pg/g	J	U	B, result changed from 0.221 and EDL from 0.176
2,3,7,8-TCDF	51207319	0.234	0.4	0.107	pg/g	J	R	D
OCDD	3268879	17.8	4	1.35	pg/g			
OCDF	39001020	0.509	4	0.509	pg/g	U	U	
Total HpCDD	37871004	3.84	2	0.275	pg/g		J	B
Total HpCDF	38998753	0.387	2	0.129	pg/g	J	J	B, *III
Total HxCDD	34465468	0.15	2	0.15	pg/g	U	U	
Total HxCDF	55684941	0.157	2	0.0943	pg/g	J	J	B
Total PeCDD	36088229	0.093	2	0.093	pg/g	U	U	
Total PeCDF	30402154	0.134	2	0.0607	pg/g	J	J	B
Total TCDD	41903575	0.119	0.4	0.119	pg/g	U	U	
Total TCDFs	55722275	0.4	0.4	0.4	pg/g	BJ	U	B, result changed from 0.221 and EDL from 0.176

Analysis Method 1613B

Sample Name	HZET0708S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1073009	Sample	9/24/2009 11:05:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	0.273	2.1	0.273	pg/g	U	U	
1,2,3,4,6,7,8-HpCDF	67562394	0.133	2.1	0.133	pg/g	U	U	
1,2,3,4,7,8,9-HpCDF	55673897	0.258	2.1	0.258	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.159	2.1	0.159	pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.0953	2.1	0.0953	pg/g	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.17	2.1	0.17	pg/g	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.104	2.1	0.104	pg/g	U	U	
1,2,3,7,8,9-HxCDD	19408743	0.173	2.1	0.173	pg/g	U	U	
1,2,3,7,8,9-HxCDF	72918219	0.151	2.1	0.151	pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.116	2.1	0.116	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	0.112	2.1	0.112	pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.101	2.1	0.101	pg/g	U	U	
2,3,4,7,8-PeCDF	57117314	0.0884	2.1	0.0884	pg/g	U	U	
2,3,7,8-TCDD	1746016	0.138	0.421	0.138	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.421	0.421	0.421	pg/g	J	U	B, result changed from 0.236 and EDL from 0.121
2,3,7,8-TCDF	51207319	0.288	0.421	0.168	pg/g	JK	R	D
OCDD	3268879	1.78	4.21	0.636	pg/g	J	J	
OCDF	39001020	0.518	4.21	0.518	pg/g	U	U	
Total HpCDD	37871004	0.355	2.1	0.273	pg/g	J	J	B
Total HpCDF	38998753	0.133	2.1	0.133	pg/g	U	U	
Total HxCDD	34465468	0.159	2.1	0.159	pg/g	U	U	
Total HxCDF	55684941	0.0953	2.1	0.0953	pg/g	U	U	
Total PeCDD	36088229	0.116	2.1	0.116	pg/g	U	U	
Total PeCDF	30402154	0.0672	2.1	0.0672	pg/g	U	U	
Total TCDD	41903575	0.138	0.421	0.138	pg/g	U	U	
Total TCDFs	55722275	0.537	0.421	0.168	pg/g	B	J	B, *III

Analysis Method 1613B

Sample Name	HZET0709S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1073010	Sample	9/24/2009 11:00:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	68.6	2.44	0.417	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	10	2.44	0.133	pg/g			
1,2,3,4,7,8,9-HpCDF	55673897	0.674	2.44	0.247	pg/g	J	J	
1,2,3,4,7,8-HxCDD	39227286	1.88	2.44	0.152	pg/g	J	J	
1,2,3,4,7,8-HxCDF	70648269	2.44	2.44	2.44	pg/g	J	U	B, result changed from 0.561 and EDL from 0.1
1,2,3,6,7,8-HxCDD	57653857	0.727	2.44	0.162	pg/g	J	J	
1,2,3,6,7,8-HxCDF	57117449	0.563	2.44	0.103	pg/g	J	J	
1,2,3,7,8,9-HxCDD	19408743	1.32	2.44	0.165	pg/g	J	J	
1,2,3,7,8,9-HxCDF	72918219	0.323	2.44	0.139	pg/g	J	J	
1,2,3,7,8-PeCDD	40321764	2.44	2.44	2.44	pg/g	JK	UJ	*III, result changed from 0.396 and EDL from 0.125
1,2,3,7,8-PeCDF	57117416	2.44	2.44	2.44	pg/g	J	U	B, result changed from 0.427 and EDL from 0.135
2,3,4,6,7,8-HxCDF	60851345	2.44	2.44	2.44	pg/g	J	U	B, result changed from 0.575 and EDL from 0.108
2,3,4,7,8-PeCDF	57117314	2.44	2.44	2.44	pg/g	JK	UJ	*III, result changed from 0.495 and EDL from 0.149
2,3,7,8-TCDD	1746016	0.128	0.487	0.128	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.516	0.516	0.516	pg/g		U	B, RL changed from 0.487 and EDL from 0.226
2,3,7,8-TCDF	51207319	0.359	0.487	0.148	pg/g	J	R	D
OCDD	3268879	799	4.87	0.561	pg/g			
OCDF	39001020	42.3	4.87	0.366	pg/g			
Total HpCDD	37871004	227	2.44	0.417	pg/g		J	B
Total HpCDF	38998753	32.6	2.44	0.133	pg/g		J	B
Total HxCDD	34465468	18.2	2.44	0.152	pg/g			
Total HxCDF	55684941	11.8	2.44	0.1	pg/g		J	B
Total PeCDD	36088229	2.11	2.44	0.125	pg/g	J	J	B, *III
Total PeCDF	30402154	5.22	2.44	0.0579	pg/g		J	B, *III
Total TCDD	41903575	0.128	0.487	0.128	pg/g	U	U	
Total TCDFs	55722275	2.65	0.487	0.226	pg/g	B	J	B

Analysis Method 1613B

Sample Name	HZET0711S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1073011	Sample	9/24/2009 10:55:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	2.44	2.44	2.44	pg/g	J	U	B, result changed from 2.11 and EDL from 0.191
1,2,3,4,6,7,8-HpCDF	67562394	2.44	2.44	2.44	pg/g	J	U	B, result changed from 0.338 and EDL from 0.104
1,2,3,4,7,8,9-HpCDF	55673897	0.183	2.44	0.183	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	2.44	2.44	2.44	pg/g	JK	UJ	*III, result changed from 0.5 and EDL from 0.16
1,2,3,4,7,8-HxCDF	70648269	0.0811	2.44	0.0811	pg/g	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.182	2.44	0.182	pg/g	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.561	2.44	0.0801	pg/g	J	J	
1,2,3,7,8,9-HxCDD	19408743	0.633	2.44	0.179	pg/g	J	J	
1,2,3,7,8,9-HxCDF	72918219	0.227	2.44	0.117	pg/g	J	J	
1,2,3,7,8-PeCDD	40321764	0.093	2.44	0.093	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	0.0932	2.44	0.0932	pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.0813	2.44	0.0813	pg/g	U	U	
2,3,4,7,8-PeCDF	57117314	0.0901	2.44	0.0901	pg/g	U	U	
2,3,7,8-TCDD	1746016	0.112	0.489	0.112	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.489	0.489	0.489	pg/g	J	U	B, result changed from 0.297 and EDL from 0.133
2,3,7,8-TCDF	51207319	0.293	0.489	0.124	pg/g	J	R	D
OCDD	3268879	21.4	4.89	0.352	pg/g			
OCDF	39001020	4.89	4.89	4.89	pg/g	JK	UJ	*III, result changed from 0.825 and EDL from 0.334
Total HpCDD	37871004	5.99	2.44	0.191	pg/g		J	B
Total HpCDF	38998753	0.835	2.44	0.104	pg/g	J	J	B
Total HxCDD	34465468	1.59	2.44	0.16	pg/g	J	J	*III
Total HxCDF	55684941	1.21	2.44	0.0801	pg/g	J	J	B
Total PeCDD	36088229	0.093	2.44	0.093	pg/g	U	U	
Total PeCDF	30402154	0.0555	2.44	0.0555	pg/g	U	U	
Total TCDD	41903575	0.112	0.489	0.112	pg/g	U	U	
Total TCDFs	55722275	0.547	0.489	0.133	pg/g	B	J	B

Analysis Method 1613B

Sample Name	HZET0712S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1073012	Sample	9/24/2009 10:40:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	2.34	2.34	2.34	pg/g	J	U	B, result changed from 0.325 and EDL from 0.176
1,2,3,4,6,7,8-HpCDF	67562394	2.34	2.34	2.34	pg/g	JK	UJ	*III, result changed from 0.185 and EDL from 0.0948
1,2,3,4,7,8,9-HpCDF	55673897	0.174	2.34	0.174	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.132	2.34	0.132	pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.0864	2.34	0.0864	pg/g	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.148	2.34	0.148	pg/g	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.0898	2.34	0.0851	pg/g	J	J	
1,2,3,7,8,9-HxCDD	19408743	0.147	2.34	0.147	pg/g	U	U	
1,2,3,7,8,9-HxCDF	72918219	0.127	2.34	0.123	pg/g	J	J	
1,2,3,7,8-PeCDD	40321764	0.103	2.34	0.103	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	0.0845	2.34	0.0845	pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.0911	2.34	0.0911	pg/g	U	U	
2,3,4,7,8-PeCDF	57117314	0.0845	2.34	0.0845	pg/g	U	U	
2,3,7,8-TCDD	1746016	0.161	0.468	0.161	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.34	0.468	0.106	pg/g	J	R	D
2,3,7,8-TCDF	51207319	0.468	0.468	0.468	pg/g	J	U	B, result changed from 0.325 and EDL from 0.148
OCDD	3268879	4.68	4.68	4.68	pg/g	J	U	B, result changed from 2.64 and EDL from 0.38
OCDF	39001020	0.367	4.68	0.367	pg/g	U	U	
Total HpCDD	37871004	0.739	2.34	0.176	pg/g	J	J	B
Total HpCDF	38998753	0.185	2.34	0.0948	pg/g	J	J	B, *III
Total HxCDD	34465468	0.132	2.34	0.132	pg/g	U	U	
Total HxCDF	55684941	0.327	2.34	0.0851	pg/g	J	J	B
Total PeCDD	36088229	0.103	2.34	0.103	pg/g	U	U	
Total PeCDF	30402154	0.0578	2.34	0.0578	pg/g	U	U	
Total TCDD	41903575	0.161	0.468	0.161	pg/g	U	U	
Total TCDFs	55722275	0.595	0.468	0.149	pg/g	B	J	B

Analysis Method 1613B

Sample Name	HZET0713S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1073013	Sample	9/24/2009 10:35:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	2.42	2.42	2.42	pg/g	JK	UJ	*III, result changed from 0.219 and EDL from 0.196
1,2,3,4,6,7,8-HpCDF	67562394	2.42	2.42	2.42	pg/g	J	U	B, result changed from 0.173 and EDL from 0.0964
1,2,3,4,7,8,9-HpCDF	55673897	0.174	2.42	0.174	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.127	2.42	0.127	pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.077	2.42	0.077	pg/g	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.149	2.42	0.149	pg/g	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.0832	2.42	0.0832	pg/g	U	U	
1,2,3,7,8,9-HxCDD	19408743	0.145	2.42	0.145	pg/g	U	U	
1,2,3,7,8,9-HxCDF	72918219	0.125	2.42	0.125	pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.0937	2.42	0.0937	pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	0.0846	2.42	0.0846	pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.0865	2.42	0.0865	pg/g	U	U	
2,3,4,7,8-PeCDF	57117314	2.42	2.42	2.42	pg/g	J	U	B, result changed from 0.0931 and EDL from 0.0873
2,3,7,8-TCDD	1746016	0.104	0.485	0.104	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.27	0.485	0.113	pg/g	J	R	D
2,3,7,8-TCDF	51207319	0.485	0.485	0.485	pg/g	J	U	B, result changed from 0.252 and EDL from 0.143
OCDD	3268879	4.85	4.85	4.85	pg/g	J	U	B, result changed from 1.42 and EDL from 0.518
OCDF	39001020	0.334	4.85	0.334	pg/g	U	U	
Total HpCDD	37871004	0.456	2.42	0.196	pg/g	J	J	B, *III
Total HpCDF	38998753	2.42	2.42	2.42	pg/g	J	U	B, result changed from 0.173 and EDL from 0.0964
Total HxCDD	34465468	0.127	2.42	0.127	pg/g	U	U	
Total HxCDF	55684941	0.077	2.42	0.077	pg/g	U	U	
Total PeCDD	36088229	0.0937	2.42	0.0937	pg/g	U	U	
Total PeCDF	30402154	2.42	2.42	2.42	pg/g	J	U	B, result changed from 0.0931 and EDL from 0.0846
Total TCDD	41903575	0.153	0.485	0.104	pg/g	J	J	
Total TCDFs	55722275	0.468	0.485	0.143	pg/g	BJ	J	B

Analysis Method 1613B

Sample Name	HZET0714S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1073014	Sample	9/24/2009 9:45:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	9.55	2.25		0.346 pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	2.25	2.25		2.25 pg/g	JK	UJ	*III, result changed from 0.896 and EDL from 0.153
1,2,3,4,7,8,9-HpCDF	55673897	0.292	2.25		0.292 pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.207	2.25		0.207 pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.142	2.25		0.142 pg/g	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.213	2.25		0.213 pg/g	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.147	2.25		0.147 pg/g	U	U	
1,2,3,7,8,9-HxCDD	19408743	0.236	2.25		0.22 pg/g	J	J	
1,2,3,7,8,9-HxCDF	72918219	0.209	2.25		0.209 pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.127	2.25		0.127 pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	0.104	2.25		0.104 pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.152	2.25		0.152 pg/g	U	U	
2,3,4,7,8-PeCDF	57117314	0.0879	2.25		0.0879 pg/g	U	U	
2,3,7,8-TCDD	1746016	0.134	0.451		0.134 pg/g	U	U	
2,3,7,8-TCDF	51207319	0.451	0.451		0.451 pg/g	J	U	B, result changed from 0.335 and EDL from 0.121
2,3,7,8-TCDF	51207319	0.328	0.451		0.154 pg/g	JK	R	D
OCDD	3268879	94.5	4.51		0.726 pg/g			
OCDF	39001020	4.51	4.51		4.51 pg/g	JK	UJ	*III, result changed from 0.784 and EDL from 0.562
Total HpCDD	37871004	29.1	2.25		0.346 pg/g		J	B
Total HpCDF	38998753	2.75	2.25		0.153 pg/g		J	B, *III
Total HxCDD	34465468	1.96	2.25		0.207 pg/g	J	J	
Total HxCDF	55684941	2.03	2.25		0.142 pg/g	J	J	B
Total PeCDD	36088229	0.127	2.25		0.127 pg/g	U	U	
Total PeCDF	30402154	0.276	2.25		0.0661 pg/g	J	J	B
Total TCDD	41903575	0.134	0.451		0.134 pg/g	U	U	
Total TCDFs	55722275	0.629	0.451		0.154 pg/g	B	J	B, *III

Analysis Method 1613B

Sample Name	HZET0715S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1073015	Sample	9/24/2009 1:37:00 PM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	29.4	2.29	0.371	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	4.44	2.29	0.123	pg/g			
1,2,3,4,7,8,9-HpCDF	55673897	0.241	2.29	0.241	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	1.02	2.29	0.142	pg/g	J	J	
1,2,3,4,7,8-HxCDF	70648269	2.29	2.29	2.29	pg/g	J	U	B, result changed from 0.366 and EDL from 0.102
1,2,3,6,7,8-HxCDD	57653857	0.386	2.29	0.164	pg/g	J	J	
1,2,3,6,7,8-HxCDF	57117449	0.318	2.29	0.107	pg/g	J	J	
1,2,3,7,8,9-HxCDD	19408743	0.808	2.29	0.16	pg/g	J	J	
1,2,3,7,8,9-HxCDF	72918219	0.254	2.29	0.146	pg/g	J	J	
1,2,3,7,8-PeCDD	40321764	2.29	2.29	2.29	pg/g	JK	UJ	*III, result changed from 0.265 and EDL from 0.165
1,2,3,7,8-PeCDF	57117416	2.29	2.29	2.29	pg/g	J	U	B, result changed from 0.247 and EDL from 0.159
2,3,4,6,7,8-HxCDF	60851345	2.29	2.29	2.29	pg/g	J	U	B, result changed from 0.371 and EDL from 0.113
2,3,4,7,8-PeCDF	57117314	2.29	2.29	2.29	pg/g	JK	UJ	*III, result changed from 0.382 and EDL from 0.156
2,3,7,8-TCDD	1746016	0.118	0.457	0.118	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.457	0.457	0.457	pg/g	J	U	B, result changed from 0.399 and EDL from 0.229
2,3,7,8-TCDF	51207319	0.435	0.457	0.161	pg/g	J	R	D
OCDD	3268879	408	4.57	0.611	pg/g			
OCDF	39001020	17.4	4.57	0.336	pg/g			
Total HpCDD	37871004	104	2.29	0.371	pg/g		J	B
Total HpCDF	38998753	13.2	2.29	0.123	pg/g		J	B
Total HxCDD	34465468	9.69	2.29	0.142	pg/g			
Total HxCDF	55684941	6.58	2.29	0.102	pg/g		J	B
Total PeCDD	36088229	1.73	2.29	0.165	pg/g	J	J	B, *III
Total PeCDF	30402154	4.34	2.29	0.0574	pg/g		J	B, *III
Total TCDD	41903575	0.57	0.457	0.118	pg/g			
Total TCDFs	55722275	3.71	0.457	0.229	pg/g	B	J	B

Analysis Method 1613B

Sample Name	HZET0716S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	1073016	Sample	9/24/2009 1:40:00 PM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	47.4	2.25		0.49 pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	7.62	2.25		0.122 pg/g			
1,2,3,4,7,8,9-HpCDF	55673897	2.25	2.25		2.25 pg/g	JK	UJ	*III, result changed from 0.615 and EDL from 0.227
1,2,3,4,7,8-HxCDD	39227286	1.35	2.25		0.166 pg/g	J	J	
1,2,3,4,7,8-HxCDF	70648269	2.25	2.25		2.25 pg/g	J	U	B, result changed from 0.97 and EDL from 0.182
1,2,3,6,7,8-HxCDD	57653857	0.712	2.25		0.195 pg/g	J	J	
1,2,3,6,7,8-HxCDF	57117449	0.485	2.25		0.187 pg/g	J	J	
1,2,3,7,8,9-HxCDD	19408743	1.04	2.25		0.189 pg/g	J	J	
1,2,3,7,8,9-HxCDF	72918219	0.279	2.25		0.265 pg/g	J	J	
1,2,3,7,8-PeCDD	40321764	2.25	2.25		2.25 pg/g	JK	UJ	*III, result changed from 0.458 and EDL from 0.187
1,2,3,7,8-PeCDF	57117416	2.25	2.25		2.25 pg/g	J	U	B, result changed from 1.61 and EDL from 0.148
2,3,4,6,7,8-HxCDF	60851345	2.25	2.25		2.25 pg/g	J	U	B, result changed from 0.478 and EDL from 0.198
2,3,4,7,8-PeCDF	57117314	2.25	2.25		2.25 pg/g	J	U	B, result changed from 0.845 and EDL from 0.147
2,3,7,8-TCDD	1746016	0.125	0.451		0.125 pg/g	U	U	
2,3,7,8-TCDF	51207319	2.84	0.451		0.389 pg/g			
2,3,7,8-TCDF	51207319	1.49	0.451		0.162 pg/g		R	D
OCDD	3268879	569	4.51		0.685 pg/g			
OCDF	39001020	27.5	4.51		0.434 pg/g			
Total HpCDD	37871004	190	2.25		0.49 pg/g		J	B
Total HpCDF	38998753	24.2	2.25		0.122 pg/g		J	B, *III
Total HxCDD	34465468	17.3	2.25		0.166 pg/g			
Total HxCDF	55684941	11.8	2.25		0.182 pg/g		J	B
Total PeCDD	36088229	2.46	2.25		0.187 pg/g		J	B, *III
Total PeCDF	30402154	12.5	2.25		0.0618 pg/g		J	B
Total TCDD	41903575	0.431	0.451		0.125 pg/g	J	J	
Total TCDFs	55722275	13.7	0.451		0.389 pg/g		J	B

Analysis Method 6020

Sample Name	HZET0700S001	Matrix Type:	Soil	Result Type:	Primary		
Lab Sample Name:	237844001	Sample	9/24/2009 1:39:00 PM	Validation	V		
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Copper	7440508	6.74	0.207	0.0684 mg/kg	*N	J	Q, *III
Sample Name	HZET0701S001	Matrix Type:	Soil	Result Type:	Primary		
Lab Sample Name:	237844002	Sample	9/24/2009 1:41:00 PM	Validation	V		
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Copper	7440508	28.7	0.44	0.145 mg/kg	*N	J	Q, *III
Sample Name	HZET0702S001	Matrix Type:	Soil	Result Type:	Primary		
Lab Sample Name:	237844003	Sample	9/24/2009 1:42:00 PM	Validation	V		
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Copper	7440508	11.9	0.214	0.0705 mg/kg	*N	J	Q, *III
Sample Name	HZET0703S001	Matrix Type:	Soil	Result Type:	Primary		
Lab Sample Name:	237844004	Sample	9/24/2009 1:45:00 PM	Validation	V		
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Copper	7440508	5.49	0.2	0.0659 mg/kg	*N	J	Q, *III
Sample Name	HZET0704S001	Matrix Type:	Soil	Result Type:	Primary		
Lab Sample Name:	237844005	Sample	9/24/2009 1:47:00 PM	Validation	V		
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Copper	7440508	5.13	0.193	0.0637 mg/kg	*N	J	Q, *III
Sample Name	HZET0705S001	Matrix Type:	Soil	Result Type:	Primary		
Lab Sample Name:	237844006	Sample	9/24/2009 1:15:00 PM	Validation	V		
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Copper	7440508	5.53	0.206	0.0679 mg/kg	*N	J	Q, *III
Sample Name	HZET0706S001	Matrix Type:	Soil	Result Type:	Primary		
Lab Sample Name:	237844007	Sample	9/24/2009 11:25:00 AM	Validation	V		
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Copper	7440508	7.06	0.203	0.067 mg/kg	*N	J	Q, *III

Analysis Method 6020

Sample Name	HZET0707S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237844008	Sample	9/24/2009 11:10:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Copper	7440508	5.26	0.195	0.0642	mg/kg	*N	J	Q, *III
Sample Name	HZET0708S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237844009	Sample	9/24/2009 11:05:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Copper	7440508	8.34	0.205	0.0678	mg/kg	*N	J	Q, *III
Sample Name	HZET0709S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237844010	Sample	9/24/2009 11:00:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Copper	7440508	23.1	0.392	0.129	mg/kg	*N	J	Q, *III
Sample Name	HZET0711S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237844011	Sample	9/24/2009 10:55:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Copper	7440508	11.2	0.201	0.0664	mg/kg	*N	J	Q, *III
Sample Name	HZET0712S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237844012	Sample	9/24/2009 10:40:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Copper	7440508	9.03	0.209	0.0688	mg/kg	*N	J	Q, *III
Sample Name	HZET0713S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237844013	Sample	9/24/2009 10:35:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Copper	7440508	9.99	0.21	0.0694	mg/kg	*N	J	Q, *III
Sample Name	HZET0714S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237844014	Sample	9/24/2009 9:45:00 AM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Copper	7440508	6.49	0.216	0.0713	mg/kg	*N	J	Q, *III

Analysis Method 6020

Sample Name	HZET0715S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237844015	Sample	9/24/2009 1:37:00 PM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Copper	7440508	6.57	0.198	0.0652	mg/kg	*N	J	Q, *III
Sample Name	HZET0716S001	Matrix Type:	Soil	Result Type:	Primary			
Lab Sample Name:	237844016	Sample	9/24/2009 1:40:00 PM	Validation	V			
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Copper	7440508	7.83	0.216	0.0713	mg/kg	*N	J	Q, *III