

# **Chain of Custody and Supporting Documentation**



# CHAIN OF CUSTODY RECORD

COC #: **233444**

MWHMM20090714\_00

Page: 1 of 2

Customer Information		Project Information				Project Information	
Site:	SSFL	Client Name:	Boeing	Collector:	M. Milman-Barris	Boeing PM:	
Company:	MWH	Sampling Event:	ISRA Sampling, June 2009	Contact #:			
Report to:	Sarah Von Raesfeld	Project Number:	1891614.054521	Requested Analyses			
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl				
	Suite 600	PM Phone #:	(925) 627-4627				
	Walnut Creek	Field Contact:	Shelby Valenzuela				
	CA	Field Contact #:	(626) 255-0503				
	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	Requested Analyses	Instructions/TAT	Comments
ENBS0089S001	Soil	7/14/2009	12:17	1	D2216 Moisture Soil		
ENBS0090S001	Soil	7/14/2009	12:22	1	Dioxin by 1613B - Soil		
ENBS0091S001	Soil	7/14/2009	12:14	1	Metals 6020 Soil Lead		
ENBS0094S001	Soil	7/14/2009	11:23	1			MS/MSD
ENBS0095S001	Soil	7/14/2009	11:30	1			
ENBS0096S001	Soil	7/14/2009	11:38	1			
HZBS0129S001	Soil	7/14/2009	8:17	1			
HZBS0131S001	Soil	7/14/2009	8:35	1			
HZBS0133S001	Soil	7/14/2009	8:47	1			
HZBS0135S001	Soil	7/14/2009	9:00	1			MS/MSD

1. Relinquished by:		Date:	7/14/09	2. Received by:		Date:	7/15/09	3. Relinquished by:		Date:		4. Received by:		Date:	
Company:	MWH	Time:	1450	Company:	GEL	Time:	0900	Company:		Time:		Company:		Time:	

Comments:

Geotracker EDF

Data Validation Package  Level IV



# CHAIN OF CUSTODY RECORD

COC #: **233444**

MWHMM20090714\_00

Page: 2 of 2

Customer Information		Project Information				Project Information	
Site:	SSFL	Client Name:	Boeing		Collector:	M. Milman-Barris	
Company:	MWH	Sampling Event:	ISRA Sampling, June 2009		Contact #:		
Report to:	Sarah Von Raesfeld	Project Number:	1891614.054521		Requested Analyses		
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl				
	Suite 600	PM Phone #:	(925) 627-4627				
	Walnut Creek	Field Contact:	Shelby Valenzuela				
	CA	Field Contact #:	(626) 255-0503				
	94596	Lab Name:	GEL Laboratories, LLC		Instructions/TAT		
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Jackie Trudell				
	sean.levler@mwhglobal.com	Lab Address:	2040 Savage Road				
		Lab Phone:	(843) 769-7388				
Sample Name	Matrix	Date	Time	No. of Containers			
HZBS0137S001	Soil	7/14/2009	9:20	1	D2216 Moisture Soil	5	
HZBS0139S001	Soil	7/14/2009	9:37	1	Dioxin by 1613B - Soil	5	
HZBS0141S001	Soil	7/14/2009	9:50	1	Metals 6020 Soil Lead	5	
HZBS0143S001	Soil	7/14/2009	10:18	1		5	

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.

1. Relinquished by:		Date:	7/14/09
Company:	MWH	Time:	1450
2. Received by:		Date:	7/15/09
Company:	GEL	Time:	0900
3. Relinquished by:		Date:	
Company:		Time:	
4. Received by:		Date:	
Company:		Time:	

Comments:

Geotracker EDF  
 Data Validation Package Level IV





# CHAIN OF CUSTODY RECORD

COC #:

MWHSV20090714\_00

Page: 2 of 2

Customer Information		Project Information				Project Information	
Site:	SSFL	Client Name:	Boeing	Collector:	S. Valenzuela	Boeing PM:	
Company:	MWH	Sampling Event:	ISRA Sampling, June 2009	Contact #:			
Report to:	Sarah Von Raesfeld	Project Number:	1891614.054521	Requested Analyses			
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl				
	Suite 600	PM Phone #:	(925) 627-4627				
	Walnut Creek	Field Contact:	Shelby Valenzuela				
	CA	Field Contact #:	(626) 255-0503				
	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			
HZBS0140S001	Soil	7/14/2009	9:17	1	D2216 Moisture Soil	5	
HZBS0142S001	Soil	7/14/2009	9:32	1	Metals 6020 Cd Water	5	
HZBS0144S001	Soil	7/14/2009	9:37	1	Metals 6020 Cu Water	5	
HZBS0145S001	Soil	7/14/2009	9:47	1	Metals 6020 Soil Arsenic	5	
					Metals 6020 Soil Cadmium	5	
					Metals 6020 Soil Copper	5	
					Metals 6020 Soil Lead	5	
					Metals 6020 Soil Zinc	5	
					Metals 6020 Water Arsenic		
					Metals 6020 Water Lead		
					Metals 6020 Zn Water		
					TPH by SW8015BM - Soil		
					TPH by SW8015BM - Water		

**Instructions/TAT**

Legend:  
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 Note: Values in the cells below are Turn Around Times.

Comments

1. Relinquished by:		Date:	7/14/09	2. Received by:		Date:	7/15/09	3. Relinquished by:		Date:		4. Received by:		Date:	
Company:	MWH	Time:	1450	Company:	GEL	Time:	0900	Company:		Time:		Company:		Time:	
Comments:															
<input type="checkbox"/> Geotracker EDF <input checked="" type="checkbox"/> Data Validation Package <input type="checkbox"/> Level IV															

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# SAMPLE RECEIPT & REVIEW FORM

Client: <u>SSFL</u>		SDG/ARCOC/Work Order: <u>233444</u>	
Received By: <u>JP</u>		Date Received: <u>7/15/09</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"/>			60 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"/>			Sample ID's affected: *
12	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			

Comments: Fed Ex 9457 315.8 0710

PM (or PMA) review: Initials JP Date 7/15/09

**Subject:** FW: ISRA COCs for 7/14/09  
**From:** Sarah Von Raesfeld <Sarah.E.VonRaesfeld@us.mwhglobal.com>  
**Date:** Tue, 14 Jul 2009 16:07:25 -0600  
**To:** Jackie Trudell <jacqueline.trudell@gel.com>  
**CC:** Sean Leffler <Sean.S.Leffler@us.mwhglobal.com>

Hi Jackie,

Please combine these two COCs into one SDG. Also, please add dioxins to FBQW2235 and EBQW2220.

Thanks,  
Sarah

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**From:** Sean Leffler  
**Sent:** Tuesday, July 14, 2009 2:58 PM  
**To:** Jackie Trudell  
**Cc:** Sarah Von Raesfeld  
**Subject:** ISRA COCs for 7/14/09



**BUILDING A BETTER WORLD**

**Sean Leffler**  
Environmental Scientist

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www.mwhglobal.com

Direct Line: 858 751 1217  
Telephone: 858 751 1200  
Facsimile: 858 751 1201  
sean.s.leffler@us.mwhglobal.com

<b>COC GEL ISRA 7-14-09 MMB.pdf</b>	<b>Content-Description:</b> COC GEL ISRA 7-14-09 MMB.pdf <b>Content-Type:</b> application/pdf <b>Content-Encoding:</b> base64
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<b>COC GEL ISRA 7-14-09 SV.pdf</b>	<b>Content-Description:</b> COC GEL ISRA 7-14-09 SV.pdf <b>Content-Type:</b> application/pdf <b>Content-Encoding:</b> base64
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Date: 7/23/09

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: Jackie.trudell@gel.com

From: Sean Leffler

Requestor signature: 

Subject: Chain-of-Custody Form Analytical Request Change No. of Pages: 5

**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
MWHSV20 090714 00	EBQW2220 FBQW2235	7/14/09		Add Dioxins by 1613B

The reason for these changes:

- Incorrectly marked on COC form* X
- Lack of sample volume* \_\_\_\_\_
- Change in analytical request* \_\_\_\_\_
- Other:* \_\_\_\_\_

Thank you



# CHAIN OF CUSTODY RECORD

COC #: 233444

MWHMM20090714\_00  
Page: 1 of 2

Customer Information			Project Information			Project Information			
Site:	SSFL	Client Name:	Boeing	Collector:	M. Milman-Barris	Boeing PM:			
Company:	MWH	Sampling Event:	ISRA Sampling, June 2009	Contact #:					
Report to:	Sarah Von Raesfeld	Project Number:	1891614.054521	Requested Analyses					Instructions/TAT
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl					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:	Shelby Valenzuela						
	CA	Field Contact #:	(626) 255-0503						
	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	
ENBS0098S001	Soil	7/14/2009	12:17	1					
ENBS0098S001	Soil	7/14/2009	12:22	1					
ENBS0098S001	Soil	7/14/2009	12:14	1					
ENBS0098S001	Soil	7/14/2009	11:23	1					
ENBS0098S001	Soil	7/14/2009	11:30	1					
ENBS0098S001	Soil	7/14/2009	11:38	1					
HZBS0129S001	Soil	7/14/2009	8:17	1					
HZBS0131S001	Soil	7/14/2009	8:35	1					
HZBS0133S001	Soil	7/14/2009	8:47	1					
HZBS0135S001	Soil	7/14/2009	9:00	1					

1. Relinquished by:		Date:	7/14/09	2. Received by:		Date:	7/15/09
Company:	MWH	Time:	1450	Company:	GEL	Time:	0900
3. Relinquished by:		Date:		4. Received by:		Date:	
Company:		Time:		Company:		Time:	

Comments:

Geotracker EDF  Data Validation Package  Level IV



# CHAIN OF CUSTODY RECORD

COC #: **233444**

MWHMM20090714\_00

Page: 2 of 2

Customer Information		Project Information				Project Information	
Site:	SSFL	Client Name:	Boeing		Collector:	M. Milman-Barris	
Company:	MWH	Sampling Event:	ISRA Sampling, June 2009		Contact #:		
Report to:	Sarah Von Raesfeld	Project Number:	1891614.054521		Requested Analyses		
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl				
	Suite 600	PM Phone #:	(925) 627-4627				
	Walnut Creek	Field Contact:	Shelby Valenzuela				
	CA	Field Contact #:	(626) 255-0503				
	94596	Lab Name:	GEL Laboratories, LLC				
Email:	sarah.vonraesfeld@mwhglobal.com	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			
HZBS0137S001	Soil	7/14/2009	9:20	1	Metals 6020 Soil Lead	5	
HZBS0139S001	Soil	7/14/2009	9:37	1	Dioxin by 1613B - Soil	5	
HZBS0141S001	Soil	7/14/2009	9:50	1	D2216 Moisture Soil	5	
HZBS0143S001	Soil	7/14/2009	10:18	1		5	

**Legend:**  
 Numerical values for analyses equate to turn around time in days  
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**Instructions/TAT**

**Comments**

1. Relinquished by:		Date:	7/14/09	2. Received by:		Date:	7/15/09	3. Relinquished by:		Date:		4. Received by:		Date:	
Company:	MWH	Time:	1450	Company:	GEL	Time:	0900	Company:		Time:		Company:		Time:	

Comments:  Geotracker EDF  Data Validation Package  Level IV



# CHAIN OF CUSTODY RECORD

COC #:

MWHSV20090714\_00

Page: 1 of 2

Customer Information			Project Information				Project Information	
Site:	SSFL	Client Name:	Boeing	Collector:	S. Valenzuela	Boeing PM:		
Company:	MWH	Sampling Event:	ISRA Sampling, June 2009	Contact #:				
Report to:	Sarah Von Raesfeld	Project Number:	1891814.054521	Requested Analyses				
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl	D2216 Moisture Soil	10			
	Suite 600	PM Phone #:	(925) 627-4627	Metals 6020 Cu Water	10	10		
	Walnut Creek	Field Contact:	Shelby Valenzuela	Metals 6020 Cd Water	10	10		
	CA	Field Contact #:	(626) 255-0503	Metals 6020 Soil Zinc	10	10		
	94596	Lab Name:	GEL Laboratories, LLC	Metals 6020 Soil Lead	10	10		
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Jackie Trudell	Metals 6020 Soil Copper	10	10		
	sean.leffler@mwhglobal.com	Lab Address:	2040 Savage Road	Metals 6020 Soil Arsenic	10	10		
		Lab Phone:	Charleston, SC 29407	Metals 6020 Soil Cadmium	10	10		
			(843) 769-7388	Metals 6020 Zn Water	10	10		
Sample Name	Matrix	Date	Time	No. of Containers				
BIBS0081AS001	Soil	7/14/2009	12:29	1				
EBQW2220	Water	7/14/2009	13:16	3				
ENBS0097S001	Soil	7/14/2009	11:28	1				
ENBS0098S001	Soil	7/14/2009	11:37	1				
FBQW2235	Water	7/14/2009	13:20	3				
HZBS0130S001	Soil	7/14/2009	8:22	1	5			
HZBS0132S001	Soil	7/14/2009	8:31	1	5			
HZBS0134S001	Soil	7/14/2009	8:39	1	5			
HZBS0136S001	Soil	7/14/2009	8:55	1	5			
HZBS0138S001	Soil	7/14/2009	9:02	1	5			
1. Relinquished by:		Date:	2. Received by:		Date:	3. Relinquished by:		
		7/14/09			7/15/09	4. Received by:		
Company:		Time:	Company:		Time:	Date:		
MWH		1450	GEL		0900			

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

Geotracker EDF   
 Data Validation Package  Level IV

055L 7/23/09





# CHAIN OF CUSTODY RECORD

COC #: 6341-590  
233444 ✓

Customer Information			Project Information			Requested Analyses			Instructions/TAT			
Site:	SSFL /	Client Name:	Boeing	Collector:	M. Milman-Barris	Boeing PM:						
Company:	MWH	Sampling Event:	ISRA Sampling, June 2009	Contact #:								
Report to:	Sarah Von Raesfeld	Project Number:	1891614.054521									
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl									
	Suite 600	PM Phone #:	(925) 627-4627									
	Walnut Creek	Field Contact:	Shelby Valenzuela									
	CA	Field Contact #:	(626) 255-0503									
	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	Requested Analyses	Instructions/TAT	Comments	MS/MSD	MS/MSD	MS/MSD	MS/MSD	
ENBS0089S001	Soil	7/14/2009	12:17	1	D2216 Moisture Soil							
ENBS0090S001	Soil	7/14/2009	12:22	1	Dioxin by 1613B - Soil							
ENBS0091S001	Soil	7/14/2009	12:14	1	Metals 6020 Soil Lead							
ENBS0094S001	Soil	7/14/2009	11:23	1								
ENBS0095S001	Soil	7/14/2009	11:30	1								
ENBS0096S001	Soil	7/14/2009	11:38	1								
HZBS0129S001	Soil	7/14/2009	8:17	1								
HZBS0131S001	Soil	7/14/2009	8:35	1								
HZBS0133S001	Soil	7/14/2009	8:47	1								
HZBS0135S001	Soil	7/14/2009	9:00	1								
1. Relinquished by:		Date:	7/14/09	2. Received by:		Date:	7/15/09	4. Received by:		Date:	7/16/09	
		Time:	1450	Company:		Company:	Gel	Company:		Company:	565	
Company:		MWH		Date:		7/15/09	Time:	1600	Date:		7/16/09	
Comments:				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
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				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
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				Date:		7/15/09	Time:	0900	Date:		7/16/09	
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				Date:		7/15/09	Time:	0900	Date:		7/16/09	
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				Company:		Company:	Gel	Company:		Company:	565	
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				Date:		7/15/09	Time:	0900	Date:		7/16/09	
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				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:	565	
				Date:		7/15/09	Time:	0900	Date:		7/16/09	
				Company:		Company:	Gel	Company:		Company:		

G 341-590



**CHAIN OF CUSTODY RECORD**

MWHMM20090714\_00  
COC #: 233444  
Page: 2 of 2

Customer Information		Project Information				Project Information	
Site:	SSFL	Client Name:	Boeing	Collector:	M. Milman-Barris	Boeing PM:	
Company:	MWH	Sampling Event:	ISRA Sampling, June 2009	Contact #:			
Report to:	Sarah Von Raesfeld	Project Number:	1891614.054521	Requested Analyses			
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl				<b>Instructions/TAT</b>  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:	Shelby Valenzuela				
	CA	Field Contact #:	(626) 255-0503				
	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			Comments
HZBS0137S001	Soil	7/14/2009	9:20	1	D2216 Moisture Soil	5	
HZBS0139S001	Soil	7/14/2009	9:37	1	Dioxin by 1613B - Soil	5	
HZBS0141S001	Soil	7/14/2009	9:50	1	Metals 6020 Soil Lead	5	
HZBS0143S001	Soil	7/14/2009	10:18	1		5	

1. Relinquished by:		2. Received by:		3. Relinquished by:		4. Received by:	
Date:	7/14/09	Date:	7/15/09	Date:	7/15/09	Date:	7/16/09
Time:	1:50	Time:	0900	Time:	1600	Time:	10:00
Company:	MWH	Company:	GEL	Company:	Erel	Company:	4:3 45 seal intact
Comments:		Comments:		Comments:		Comments:	

GeoTracker EDF   
 Data Validation Package  Level IV





# CHAIN OF CUSTODY RECORD

6341-590

COC #:

MWHSV20090714\_00

Page: 2 of 2

Customer Information		Project Information				
Site:	SSFL	Client Name:	Boeing			
Company:	MWH	Collector:	S. Valenzuela			
Report to:	Sarah Von Raesfeld	Contact #:				
Address:	2121 N. California Blvd Suite 600 Walnut Creek CA 94596	Boeing PM:				
Email:	sarah.vonraesfeld@mwglobal.com	Requested Analyses				
	sean.leffler@mwglobal.com					
Project Manager:	Alex Fischl	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.				
PM Phone #:	(925) 627-4627					
Field Contact:	Shelby Valenzuela					
Field Contact #:	(626) 255-0503					
Lab Name:	GEL Laboratories, LLC					
Lab Contact:	Jackie Trudell					
Lab Address:	2040 Savage Road Charleston, SC 29407					
Lab Phone:	(843) 769-7388					
Sample Name	Matrix			Date	Time	No. of Containers
HZBS0140S001	Soil			7/14/2009	9:17	1
HZBS0142S001	Soil	7/14/2009	9:32	1		
HZBS0144S001	Soil	7/14/2009	9:37	1		
HZBS0145S001	Soil	7/14/2009	9:47	1		
D2216 Moisture Soil 5 Metals 6020 Cd Water 5 Metals 6020 Cu Water 5 Metals 6020 Soil Arsenic 5 Metals 6020 Soil Cadmium 5 Metals 6020 Soil Copper 5 Metals 6020 Soil Lead 5 Metals 6020 Soil Zinc 5 Metals 6020 Water Arsenic 5 Metals 6020 Water Lead 5 Metals 6020 Zn Water 5 TPH by SW8015BM - Soil 5 TPH by SW8015BM - Water 5						
Comments						

1. Relinquished by:	Date:	7/14/09	Time:	1450	2. Received by:	Date:	7/15/09	Time:	0900
Company:					Company:				
MWH					GEL				
Comments:					3. Relinquished by:	Date:	7/15/09	Time:	1000
					Company:				
					GEL				
					4. Received by:	Date:	7/16/09	Time:	10:00
					Company:				
					SGS				

Geotracker EDF  
 Data Validation Package  
 Level IV

Cust Proj ID: SSFL 233444

Due Date: 2009-07-29 17:00:00

Client Name: General Engineering Labs PO:

Login Date: 2009-07-16 11:08:36

# G341-590

Sample ID	Cust Sample ID	PRI	Date Collected	Date Received	Date Due	Matrix	LOC	Report	Analysis	Status
G341-590-1	A ENBS0089S001	RUSH	2009-07-14 12:17:00	2009-07-16	2009-07-29	Soil	W2	Full	1613	LG::REVW
G341-590-2	A ENBS0090S001	RUSH	2009-07-14 12:22:00	2009-07-16	2009-07-29	Soil	W2	Full	1613	LG::REVW
G341-590-3	A ENBS0091S001	RUSH	2009-07-14 12:14:00	2009-07-16	2009-07-29	Soil	W2	Full	1613	LG::REVW
G341-590-4	MS A ENBS0091S001	RUSH	2009-07-14 12:14:00	2009-07-16	2009-07-29	Soil	W2	Full	1613	LG::REVW
G341-590-5	MSD A ENBS0091S001	RUSH	2009-07-14 12:14:00	2009-07-16	2009-07-29	Soil	W2	Full	1613	LG::REVW
G341-590-6	A EBQW2220	RUSH	2009-07-14 13:16:00	2009-07-16	2009-07-29	Water	W2	Full	1613	LG::REVW
G341-590-7	A FBQW2235	RUSH	2009-07-14 13:20:00	2009-07-16	2009-07-29	Water	W2	Full	1613	LG::REVW

# Sample Receipt Checklist (SRC)

SGS Environmental Services Inc.

Client: **General Engineering Labs**

Lab Proj. ID: **G341-590**

Client Proj. ID: **SSFL 233444**

- 1.  Shipped  
 Hand Delivered  
Notes: \_\_\_\_\_
  
- 2.  Proper, full, and complete documentation  
(unique sample identification on durable label with indelible ink, location of collection, date/time of collection, collector's name, preservation type, sample type (method/matrix))  
 Acceptable documentation (but, incomplete)  
 Unacceptable documentation  
Notes: \_\_\_\_\_
  
- 3.  Custody Tape on Container  
 No Custody Tape  
Notes: \_\_\_\_\_
  
- 4.  Samples Intact\*  
(are in appropriate container, are not damaged, and do not show signs of contamination)  
 Samples Broken / Leaking  
 VOA Vials Checked for Air Bubbles  
Notes: \_\_\_\_\_
  
- 5.  Chilled on Receipt\*      Actual Temp.(s) in °C: 4.3  
 Ambient on Receipt  
 Walk-in on Ice; Coming down to temp.  
 Received out of temperature protocol  
Notes: \_\_\_\_\_
  
- 6.  Sufficient Sample Submitted  
 Insufficient Sample Submitted  
Notes: \_\_\_\_\_
  
- 7.  Samples Preserved Correctly\*  
(see preservative checklist where applicable)  
 Improper Preservative(s)  
 None recommended (N/A)  
Notes: \_\_\_\_\_
  
- 8.  Received Within Holding Time  
 Not Received Within Holding Time  
 N/A  
Notes: \_\_\_\_\_
  
- 9.  No Discrepancies Noted  
 Discrepancies Noted  
Notes: \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\* = Rejection of sample is required when not marked; Contact client services immediately for a resolution.

DC27.091503.3

Inspected and Logged in by: \_\_\_\_\_  
Date / Time: Thu-7/16/09 11:09

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# **Case Narrative**

**Case Narrative  
for  
Boeing - SSFL (MWH)  
Work Order: 233444  
SDG: 233444**

**July 24, 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 July 15, 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:

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
233444001	ENBS0089S001
233444002	ENBS0090S001
233444003	ENBS0091S001
233444004	ENBS0094S001
233444005	ENBS0095S001
233444006	ENBS0096S001
233444007	HZBS0129S001
233444008	HZBS0131S001
233444009	HZBS0133S001
233444010	HZBS0135S001
233444011	HZBS0137S001
233444012	HZBS0139S001
233444013	HZBS0141S001
233444014	HZBS0143S001
233444015	B1BS0081AS001
233444016	EBQW2220
233444017	ENBS0097S001
233444018	ENBS0098S001
233444019	FBQW2235
233444020	HZBS0130S001
233444021	HZBS0132S001
233444022	HZBS0134S001
233444023	HZBS0136S001
233444024	HZBS0138S001

233444025 HZBS0140S001  
233444026 HZBS0142S001  
233444027 HZBS0144S001  
233444028 HZBS0145S001

**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: FID Flame Ionization Detector, Metals, Percent Moisture and Dioxins (SGS Laboratories).

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 21 July 2009**

<b>State</b>	<b>Certification</b>
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

# **Subcontract Data**

## **Dioxins**



## Laboratory Results

Ms. Jacqueline Trudell  
General Engineering Labs  
2040 Savage Rd.  
Charleston SC 29407

Phone: 843-556-8171  
Fax:

Dear Ms. Trudell:

Enclosed is a full data package containing the final results for samples received by SGS Environmental Services, Inc. on July 16, 2009 under your project name "SSFL 233444". The samples were analyzed by Method 1613 following SGS's Standard Operating Procedures and are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards.

Number of Samples Received:	7
Your Project Reference:	SSFL 233444
PAL Project Number:	G341-590

We appreciate your business and look forward to working with you again. Please contact me at 910-350-1903 if you have questions or need additional technical support.

Sincerely,



Lori Lockamy  
Project Manager

29 July 2009  
Date

DC138.033007.7





## Table of Contents

### **Section 1: Cover Letter/Case Narrative**

Contains the Table of Contents, a project narrative, the client and SGS project identifiers, the number and type of samples, the methodology used to process the samples, and a summary table of sample results. A listing of current certifications by state, a table of abbreviations and qualifiers and the Toxic Equivalent Factors (TEF) are also supplied.

### **Section 2: Project Information**

Contains the chain-of-custody(s), internal chain-of-custody(s) if applicable, sample login summary, sample receipt checklist, and any other project/client specific information.

### **Section 3: Sample Analytical Results**

Contains results for client samples. Sample results include two pages of summarized analytical data and the associated raw data. The raw data includes a quantitation report from the instrumentation used that lists, ion areas, ratios, retention times, concentrations, and signal-to-noise ratios. It also has the selected ion current profiles (SICPs) for all homolog groups and any manual integrations.

### **Section 4: Quality Control Analytical Results**

Contains results for each analytical workgroup associated with the submitted samples. A workgroup consists of the Lab Method Blank (LMB) and the Ongoing Precision and Recovery sample (OPR). All sample preparation data, including dry weight determinations, extraction logs, clean-up logs and observation notes are also documented. Any other supporting QC data will be documented here upon client request.

### **Section 5: Initial Calibration**

Contains a table summarizing calibration data such as relative response factors, concentrations, and percent relative standard deviation. This section also contains related daily instrument QC information: GC performance data, mass resolution check, windows defining mix, and SICPs for all homolog groups and any manual integrations as well as the injection prep and instrument run logs.

### **Section 6: Continuing Calibration Data**

Contains all daily instrument quality control information. This includes mass resolution checks, a table summarizing the window defining peaks, SICPs for the first and last eluters for each homolog group, SICPs documenting GC performance, a summary quantitation report showing RRFs for the Ccal and Ical, and SICPs for all homolog groups and any manual integrations, injection prep and instrumentation runlogs.



## List of Qualifiers: Dioxin's

B Analyte was detected in the Lab Method Blank at a level above the Reporting Limit.

EDL "Estimated Detection Limit"

EMPC "Estimated Maximum Possible Concentration"

RL Report Limit

CL Control Limit

U Undetected

ppt Parts-per-trillion (pg/g; ng/L)

V Recovery is below quality control limit. The data has been validated based on a favorable signal-to-noise and detection limit.

# Outside quality control limits

\* Indicates that the ion-ratio fails high or low; analyte reported as an EMPC

An average uncertainty of 30% can be routinely achieved as concluded from the evaluation of HRGC-HRMS standard operating procedures. The following flags warn the data user of situations where the uncertainty may be greater than stated.

A Amount detected is less than the Lower Method Calibration Limit.

J Amount detected is between the Method Detection Limit and the Lower Calibration Limit.

O The recovery of this analyte in the OPR is above the Method QC Limits and the reported concentration in the sample may be biased high.

E Amount detected is greater than the Upper Calibration Limit.

S The amount of analyte present has saturated the detector. This situation results in an underestimation of the affected analyte(s).

Q Indicates the presence of a quantitative interference. This situation may result in an underestimation of the affected analyte(s).

I Indicates the presence of a qualitative interference that could cause a false positive or an overestimation of the affected analyte(s).

DPE Indicates the presence of a peak in the polychlorinated diphenylether channel that could cause a false positive or an overestimation of the affected analyte(s).

DC250.081908.1



# DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: 233444

Prepared by

MEC<sup>x</sup>, 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: 233444  
 Project Manager: Dixie Hambrick  
 Matrix: water/soil  
 QC Level: V  
 No. of Samples: 28  
 No. of Reanalyses/Dilutions: 0  
 Laboratory: GEL

**Table 1. Sample Identification**

<b>Sample Name</b>	<b>Lab Sample Name</b>	<b>Sub-Lab Sample Name</b>	<b>Matrix</b>	<b>Collection</b>	<b>Method</b>
B1BS0081AS001	233444015	N/A	Soil	7/14/2009 12:29:00 PM	8015B
EBQW2220	233444016	G341-590-6B	Water	7/14/2009 1:16:00 PM	1613B, 6020 8015B
ENBS0089S001	G341-590-1B	N/A	Soil	7/14/2009 12:17:00 PM	1613B
ENBS0090S001	G341-590-2B	N/A	Soil	7/14/2009 12:22:00 PM	1613B
ENBS0091S001	G341-590-3B	N/A	Soil	7/14/2009 12:14:00 PM	1613B
ENBS0094S001	233444004	N/A	Soil	7/14/2009 11:23:00 AM	6020
ENBS0095S001	233444005	N/A	Soil	7/14/2009 11:30:00 AM	6020
ENBS0096S001	233444006	N/A	Soil	7/14/2009 11:38:00 AM	6020
ENBS0097S001	233444017	N/A	Soil	7/14/2009 11:28:00 AM	6020
ENBS0098S001	233444018	N/A	Soil	7/14/2009 11:37:00 AM	6020
FBQW2235	233444019	G341-590-7B	Water	7/14/2009 1:20:00 PM	1613B, 6020 8015B
HZBS0129S001	233444007	N/A	Soil	7/14/2009 8:17:00 AM	6020
HZBS0130S001	233444020	N/A	Soil	7/14/2009 8:22:00 AM	6020
HZBS0131S001	233444008	N/A	Soil	7/14/2009 8:35:00 AM	6020
HZBS0132S001	233444021	N/A	Soil	7/14/2009 8:31:00 AM	6020
HZBS0133S001	233444009	N/A	Soil	7/14/2009 8:47:00 AM	6020
HZBS0134S001	233444022	N/A	Soil	7/14/2009 8:39:00 AM	6020
HZBS0135S001	233444010	N/A	Soil	7/14/2009 9:00:00 AM	6020
HZBS0136S001	233444023	N/A	Soil	7/14/2009 8:55:00 AM	6020
HZBS0137S001	233444011	N/A	Soil	7/14/2009 9:20:00 AM	6020
HZBS0138S001	233444024	N/A	Soil	7/14/2009 9:02:00 AM	6020
HZBS0139S001	233444012	N/A	Soil	7/14/2009 9:37:00 AM	6020
HZBS0140S001	233444025	N/A	Soil	7/14/2009 9:17:00 AM	6020
HZBS0141S001	233444013	N/A	Soil	7/14/2009 9:50:00 AM	6020
HZBS0142S001	233444026	N/A	Soil	7/14/2009 9:32:00 AM	6020
HZBS0143S001	233444014	N/A	Soil	7/14/2009 10:18:00 AM	6020
HZBS0144S001	233444027	N/A	Soil	7/14/2009 9:37:00 AM	6020
HZBS0145S001	233444028	N/A	Soil	7/14/2009 9:47:00 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  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . 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

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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.

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### 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.

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**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.

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### III. Method Analyses

#### A. EPA METHOD 1613—Dioxin/Furans

Reviewed By: P. Meeks

Date Reviewed: August 5, 2009

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for 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: OCDD and 2,3,7,8-TCDF were detected in the soil method blank at 0.462 pg/g and 0.282 pg/g, respectively. OCDD was not detected in the samples at concentration  $\leq 5\times$  the method blank detect or at concentrations below the reporting limit. 2,3,7,8-TCDF detected in the soil samples was qualified as nondetected, "U," at the reporting limits. There were no other no target compound detects above the EDL in the method blanks.
- 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.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on ENBS0091S001. All recoveries and 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: FBQW2235 was the field blank and EBQW2220 was the equipment rinsate associated with the samples in this SDG. There were no detects above the EDL in either sample.
  - 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.
- Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation. EMPCs (estimated maximum possible concentration) were identified in the samples of this SDG. Any EMPC was qualified as estimated, "UJ," in the samples of this SDG. The laboratory calculated and reported compound-specific detection limits. Any detect below the laboratory lower calibration level was qualified as estimated, "J." Nondetects are valid to the estimated detection limit (EDL).

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

Reviewed By: P. Meeks

Date Reviewed: August 5, 2009

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0)*, *EPA Methods 6010B, 6020, 7470A/7471A*, and the *National Functional Guidelines for Inorganic Data Review (7/02)*.

- Holding Times: Analytical holding times, six months for ICP and ICP-MS metals and 28 days for mercury, were met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks 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 and the aqueous RPDs were within laboratory-established QC limits.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on HZBS0135S001 for all analytes and on ENBS0094S001 for copper and lead only. All RPDs were within the laboratory-established control limit.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on HZBS0135S001 for all analytes and on ENBS0094S001 for copper and lead only. Lead was recovered below the control limit in the MSD of HZBS0135S001; therefore, lead

detected in all soil samples except ENBS0094S001 was qualified as estimated, "J." All remaining recoveries and all RPDs were within laboratory-established QC limits.

- **Serial Dilution:** Serial dilution analyses were performed on HZBS0135S001 and FBQW2235 for all analytes and on ENBS0094S001 for copper and lead only. The copper and lead %Ds exceeded the control limit for ENBS0094S001; therefore, copper and lead detected in all soil samples except HZBS0135S001 were qualified as estimated, "J." All remaining %Ds were within laboratory-established QC limits
- **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. Due to matrix interference, copper in several soil samples was analyzed at a 10× dilution. The remaining soil analytes were reported from the laboratory's standard 2× dilution. 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:** FBQW2235 was the field blank and EBQW2220 was the equipment rinsate associated with the samples in this SDG. There were no detects above the MDL in either sample.
  - **Field Duplicates:** There were no field duplicate samples identified for this SDG.

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

Reviewed By: P. Meeks

Date Reviewed: August 5, 2009

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC<sup>X</sup> Data Validation Procedure for Total Fuel Hydrocarbons (DVP-8, Rev. 0)*, *EPA Method 8015B*, and the *National Functional Guidelines for Organic Data Review (10/99)*.

- **Holding Times:** Extraction and analytical holding times were met. The aqueous samples were extracted within seven days of collection and the soil samples were extracted within 14 days of collection. All samples were analyzed within 40 days of extraction.
- **Calibration:** Review is not applicable at a Level V validation.

- Blanks: Method blanks had no target compound detects above the MDL.
- Blank Spikes and Laboratory Control Samples: Recoveries and the aqueous RPDs were within laboratory-established QC limits.
- Surrogate Recovery: Recoveries were within laboratory-established QC limits.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on B1BS0081AS001. The recoveries and RPD 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: FBQW2235 was the field blank and EBQW2220 was the equipment rinsate associated with the samples in this SDG. There were no detects above the MDL in either sample.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.
- Compound Identification: Review is not applicable at a Level V validation. Four EFH hydrocarbon ranges were reported: C8-C11, C12-C14, C15-C20, and C21-C30.
- Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation. Any result reported between the MDL and the reporting limit was qualified as estimated, "J." Reported nondetects are valid to the reporting limit.

# Validated Sample Result Forms: 233444

*Analysis Method 1613B*

Sample Name	EBQW2220	Matrix Type:	Water	Result Type:	Primary Result		
Lab Sample Name:	G341-590-6B	Sample Date:	7/14/2009 1:16:00 PM	Validation Level:	V		
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	0.00326	0.0475	0.00326 ng/L	U	U	
1,2,3,4,6,7,8-HpCDF	67562394	0.00184	0.0475	0.00184 ng/L	U	U	
1,2,3,4,7,8,9-HpCDF	55673897	0.00248	0.0475	0.00248 ng/L	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.00201	0.0475	0.00201 ng/L	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.00131	0.0475	0.00131 ng/L	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.00196	0.0475	0.00196 ng/L	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.00137	0.0475	0.00137 ng/L	U	U	
1,2,3,7,8,9-HxCDD	19408743	0.002	0.0475	0.002 ng/L	U	U	
1,2,3,7,8,9-HxCDF	72918219	0.00161	0.0475	0.00161 ng/L	U	U	
1,2,3,7,8-PeCDD	40321764	0.00165	0.0475	0.00165 ng/L	U	U	
1,2,3,7,8-PeCDF	57117416	0.00104	0.0475	0.00104 ng/L	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.0014	0.0475	0.0014 ng/L	U	U	
2,3,4,7,8-PeCDF	57117314	0.000989	0.0475	0.000989 ng/L	U	U	
2,3,7,8-TCDD	1746016	0.00364	0.00951	0.00364 ng/L	U	U	
2,3,7,8-TCDF	51207319	0.0019	0.00951	0.0019 ng/L	U	U	
OCDD	3268879	0.00616	0.0951	0.00616 ng/L	U	U	
OCDF	39001020	0.00477	0.0951	0.00477 ng/L	U	U	
Total HpCDDs	37871004	0.00326	0.0475	0.00326 ng/L	U	U	
Total HpCDFs	38998753	0.00213	0.0475	0.00213 ng/L	U	U	
Total HxCDDs	34465468	0.00199	0.0475	0.00199 ng/L	U	U	
Total HxCDFs	55684941	0.00142	0.0475	0.00142 ng/L	U	U	
Total PeCDDs	36088229	0.00165	0.0475	0.00165 ng/L	U	U	
Total PeCDFs	30402154	0.00102	0.0475	0.00102 ng/L	U	U	
Total TCDDs	41903575	0.00364	0.00951	0.00364 ng/L	U	U	
Total TCDFs	55722275	0.0019	0.00951	0.0019 ng/L	U	U	

*Analysis Method 1613B*

**Sample Name:** ENBS0089S001      **Matrix Type:** Soil      **Result Type:** Primary Result  
**Lab Sample Name:** G341-590-1B      **Sample Date:** 7/14/2009 12:17:00 PM      **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	25.9	4.21	0.283	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	1.9	4.21	0.166	pg/g	A	J	
1,2,3,4,7,8,9-HpCDF	55673897	0.218	4.21	0.218	pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.741	4.21	0.238	pg/g	A	J	
1,2,3,4,7,8-HxCDF	70648269	0.217	4.21	0.124	pg/g	A	J	
1,2,3,6,7,8-HxCDD	57653857	1.14	4.21	0.237	pg/g	A	J	
1,2,3,6,7,8-HxCDF	57117449	0.215	4.21	0.215	pg/g	EMPC	UJ	*III
1,2,3,7,8,9-HxCDD	19408743	1.22	4.21	1.22	pg/g	EMPC	UJ	*III
1,2,3,7,8,9-HxCDF	72918219	0.172	4.21	0.172	pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.48	4.21	0.136	pg/g	A	J	
1,2,3,7,8-PeCDF	57117416	0.148	4.21	0.0916	pg/g	A	J	
2,3,4,6,7,8-HxCDF	60851345	0.205	4.21	0.134	pg/g	A	J	
2,3,4,7,8-PeCDF	57117314	0.3	4.21	0.0966	pg/g	A	J	
2,3,7,8-TCDD	1746016	0.291	0.842	0.291	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.842	0.842	0.249	pg/g	A	U	B, result changed from 0.589
OCDD	3268879	112	8.42	0.435	pg/g			
OCDF	39001020	4.64	8.42	0.355	pg/g	A	J	
Total HpCDDs	37871004	63.5	4.21	0.283	pg/g			
Total HpCDFs	38998753	5.17	4.21	0.19	pg/g			
Total HxCDDs	34465468	17.5	4.21	0.238	pg/g			
Total HxCDFs	55684941	3.08	4.21	0.14	pg/g	A	J	
Total PeCDDs	36088229	4.11	4.21	0.136	pg/g	A	J	
Total PeCDFs	30402154	2.99	4.21	0.0939	pg/g	A	J	
Total TCDDs	41903575	0.364	0.842	0.291	pg/g	A	J	
Total TCDFs	55722275	2.59	0.842	0.249	pg/g			

*Analysis Method 1613B*

**Sample Name:** ENBS0090S001      **Matrix Type:** Soil      **Result Type:** Primary Result  
**Lab Sample Name:** G341-590-2B      **Sample Date:** 7/14/2009 12:22:00 PM      **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	21.8	4.32	0.278	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	2.97	4.32	0.165	pg/g	A	J	
1,2,3,4,7,8,9-HpCDF	55673897	0.225	4.32	0.224	pg/g	A	J	
1,2,3,4,7,8-HxCDD	39227286	0.669	4.32	0.275	pg/g	A	J	
1,2,3,4,7,8-HxCDF	70648269	0.342	4.32	0.162	pg/g	A	J	
1,2,3,6,7,8-HxCDD	57653857	0.894	4.32	0.289	pg/g	A	J	
1,2,3,6,7,8-HxCDF	57117449	0.329	4.32	0.15	pg/g	A	J	
1,2,3,7,8,9-HxCDD	19408743	0.866	4.32	0.284	pg/g	A	J	
1,2,3,7,8,9-HxCDF	72918219	0.187	4.32	0.187	pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.316	4.32	0.188	pg/g	A	J	
1,2,3,7,8-PeCDF	57117416	0.284	4.32	0.0949	pg/g	A	J	
2,3,4,6,7,8-HxCDF	60851345	0.52	4.32	0.158	pg/g	A	J	
2,3,4,7,8-PeCDF	57117314	0.716	4.32	0.093	pg/g	A	J	
2,3,7,8-TCDD	1746016	0.297	0.865	0.297	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.864	0.864	0.336	pg/g	A	U	<b>B, result changed from 0.806</b>
OCDD	3268879	126	8.65	0.481	pg/g			
OCDF	39001020	9.04	8.65	0.419	pg/g			
Total HpCDDs	37871004	57.6	4.32	0.278	pg/g			
Total HpCDFs	38998753	8.38	4.32	0.191	pg/g			
Total HxCDDs	34465468	16.2	4.32	0.283	pg/g			
Total HxCDFs	55684941	5.82	4.32	0.164	pg/g			
Total PeCDDs	36088229	2.55	4.32	0.379	pg/g	A	J	
Total PeCDFs	30402154	7.52	4.32	0.101	pg/g			
Total TCDDs	41903575	0.297	0.865	0.297	pg/g	U	U	
Total TCDFs	55722275	5.96	0.865	0.247	pg/g			

*Analysis Method 1613B*

**Sample Name:** ENBS0091S001      **Matrix Type:** Soil      **Result Type:** Primary Result  
**Lab Sample Name:** G341-590-3B      **Sample Date:** 7/14/2009 12:14:00 PM      **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	24.5	4.38	0.263	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	3.34	4.38	0.185	pg/g	A	J	
1,2,3,4,7,8,9-HpCDF	55673897	0.296	4.38	0.27	pg/g	A	J	
1,2,3,4,7,8-HxCDD	39227286	0.34	4.38	0.34	pg/g	EMPC	UJ	*III
1,2,3,4,7,8-HxCDF	70648269	0.303	4.38	0.155	pg/g	A	J	
1,2,3,6,7,8-HxCDD	57653857	1.19	4.38	0.208	pg/g	A	J	
1,2,3,6,7,8-HxCDF	57117449	0.305	4.38	0.153	pg/g	A	J	
1,2,3,7,8,9-HxCDD	19408743	1.13	4.38	0.204	pg/g	A	J	
1,2,3,7,8,9-HxCDF	72918219	0.219	4.38	0.189	pg/g	A	J	
1,2,3,7,8-PeCDD	40321764	0.31	4.38	0.146	pg/g	A	J	
1,2,3,7,8-PeCDF	57117416	0.2	4.38	0.141	pg/g	A	J	
2,3,4,6,7,8-HxCDF	60851345	0.403	4.38	0.153	pg/g	A	J	
2,3,4,7,8-PeCDF	57117314	0.527	4.38	0.155	pg/g	A	J	
2,3,7,8-TCDD	1746016	0.275	0.875	0.275	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.875	0.875	0.236	pg/g	A	U	B, result changed from 0.683
OCDD	3268879	170	8.75	0.422	pg/g			
OCDF	39001020	15.8	8.75	0.401	pg/g			
Total HpCDDs	37871004	52.4	4.38	0.263	pg/g			
Total HpCDFs	38998753	10.4	4.38	0.223	pg/g			
Total HxCDDs	34465468	9.13	4.38	0.204	pg/g			
Total HxCDFs	55684941	5.48	4.38	0.161	pg/g			
Total PeCDDs	36088229	1.04	4.38	0.317	pg/g	A	J	
Total PeCDFs	30402154	5.24	4.38	0.148	pg/g			
Total TCDDs	41903575	0.275	0.875	0.275	pg/g	U	U	
Total TCDFs	55722275	4.46	0.875	0.236	pg/g			

*Analysis Method 1613B*

**Sample Name** FBQW2235 **Matrix Type:** Water **Result Type:** Primary Result  
**Lab Sample Name:** G341-590-7B **Sample Date:** 7/14/2009 1:20:00 PM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	0.00276	0.0477	0.00276	ng/L	U	U	
1,2,3,4,6,7,8-HpCDF	67562394	0.00139	0.0477	0.00139	ng/L	U	U	
1,2,3,4,7,8,9-HpCDF	55673897	0.00205	0.0477	0.00205	ng/L	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.00173	0.0477	0.00173	ng/L	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.00114	0.0477	0.00114	ng/L	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.00179	0.0477	0.00179	ng/L	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.00119	0.0477	0.00119	ng/L	U	U	
1,2,3,7,8,9-HxCDD	19408743	0.00177	0.0477	0.00177	ng/L	U	U	
1,2,3,7,8,9-HxCDF	72918219	0.00157	0.0477	0.00157	ng/L	U	U	
1,2,3,7,8-PeCDD	40321764	0.00148	0.0477	0.00148	ng/L	U	U	
1,2,3,7,8-PeCDF	57117416	0.000941	0.0477	0.000941	ng/L	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.00118	0.0477	0.00118	ng/L	U	U	
2,3,4,7,8-PeCDF	57117314	0.000899	0.0477	0.000899	ng/L	U	U	
2,3,7,8-TCDD	1746016	0.00249	0.00954	0.00249	ng/L	U	U	
2,3,7,8-TCDF	51207319	0.00147	0.00954	0.00147	ng/L	U	U	
OCDD	3268879	0.00453	0.0954	0.00453	ng/L	U	U	
OCDF	39001020	0.00343	0.0954	0.00343	ng/L	U	U	
Total HpCDDs	37871004	0.00276	0.0477	0.00276	ng/L	U	U	
Total HpCDFs	38998753	0.00169	0.0477	0.00169	ng/L	U	U	
Total HxCDDs	34465468	0.00177	0.0477	0.00177	ng/L	U	U	
Total HxCDFs	55684941	0.00126	0.0477	0.00126	ng/L	U	U	
Total PeCDDs	36088229	0.00148	0.0477	0.00148	ng/L	U	U	
Total PeCDFs	30402154	0.000897	0.0477	0.000897	ng/L	U	U	
Total TCDDs	41903575	0.00249	0.00954	0.00249	ng/L	U	U	
Total TCDFs	55722275	0.00147	0.00954	0.00147	ng/L	U	U	

*Analysis Method*    6020

**Sample Name**    EBQW2220                      **Matrix Type:**    Water                      **Result Type:**    Primary Result  
**Lab Sample Name:**    233444016                      **Sample Date:**    7/14/2009 1:16:00 PM                      **Validation Level:**    V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Arsenic	7440382	1.6	5		1.6 ug/L	U	U	
Cadmium	7440439	0.11	1		0.11 ug/L	U	U	
Copper	7440508	0.33	1		0.33 ug/L	U	U	
Lead	7439921	0.5	2		0.5 ug/L	U	U	
Zinc	7440666	3.44	10		3 ug/L	J	J	

**Sample Name**    ENBS0094S001                      **Matrix Type:**    Soil                      **Result Type:**    Primary Result  
**Lab Sample Name:**    233444004                      **Sample Date:**    7/14/2009 11:23:00 AM                      **Validation Level:**    V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	52.2	0.395		0.0986 mg/kg	EN	J	A

**Sample Name**    ENBS0095S001                      **Matrix Type:**    Soil                      **Result Type:**    Primary Result  
**Lab Sample Name:**    233444005                      **Sample Date:**    7/14/2009 11:30:00 AM                      **Validation Level:**    V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	24	0.403		0.101 mg/kg	EN	J	Q, A

**Sample Name**    ENBS0096S001                      **Matrix Type:**    Soil                      **Result Type:**    Primary Result  
**Lab Sample Name:**    233444006                      **Sample Date:**    7/14/2009 11:38:00 AM                      **Validation Level:**    V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	39.6	0.398		0.0995 mg/kg	EN	J	Q, A

**Sample Name**    ENBS0097S001                      **Matrix Type:**    Soil                      **Result Type:**    Primary Result  
**Lab Sample Name:**    233444017                      **Sample Date:**    7/14/2009 11:28:00 AM                      **Validation Level:**    V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Copper	7440508	14.9	1.02		0.337 mg/kg	E	J	A
Lead	7439921	21.8	0.408		0.102 mg/kg	EN	J	Q, A

**Sample Name**    ENBS0098S001                      **Matrix Type:**    Soil                      **Result Type:**    Primary Result  
**Lab Sample Name:**    233444018                      **Sample Date:**    7/14/2009 11:37:00 AM                      **Validation Level:**    V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Copper	7440508	10.3	0.233		0.0767 mg/kg	E	J	A
Lead	7439921	54.2	0.465		0.116 mg/kg	EN	J	Q, A

Analysis Method 6020

<b>Sample Name</b>	FBQW2235	<b>Matrix Type:</b>	Water	<b>Result Type:</b>	Primary Result			
<b>Lab Sample Name:</b>	233444019	<b>Sample Date:</b>	7/14/2009 1:20:00 PM	<b>Validation Level:</b>	V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Arsenic	7440382	1.6	5		1.6 ug/L	U	U	
Cadmium	7440439	0.11	1		0.11 ug/L	U	U	
Copper	7440508	0.33	1		0.33 ug/L	U	U	
Lead	7439921	0.5	2		0.5 ug/L	U	U	
Zinc	7440666	3	10		3 ug/L	U	U	
<b>Sample Name</b>	HZBS0129S001	<b>Matrix Type:</b>	Soil	<b>Result Type:</b>	Primary Result			
<b>Lab Sample Name:</b>	233444007	<b>Sample Date:</b>	7/14/2009 8:17:00 AM	<b>Validation Level:</b>	V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	10.1	0.401		0.1 mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0130S001	<b>Matrix Type:</b>	Soil	<b>Result Type:</b>	Primary Result			
<b>Lab Sample Name:</b>	233444020	<b>Sample Date:</b>	7/14/2009 8:22:00 AM	<b>Validation Level:</b>	V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	9.12	0.405		0.101 mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0131S001	<b>Matrix Type:</b>	Soil	<b>Result Type:</b>	Primary Result			
<b>Lab Sample Name:</b>	233444008	<b>Sample Date:</b>	7/14/2009 8:35:00 AM	<b>Validation Level:</b>	V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	39.3	0.394		0.0984 mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0132S001	<b>Matrix Type:</b>	Soil	<b>Result Type:</b>	Primary Result			
<b>Lab Sample Name:</b>	233444021	<b>Sample Date:</b>	7/14/2009 8:31:00 AM	<b>Validation Level:</b>	V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	33.7	0.393		0.0984 mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0133S001	<b>Matrix Type:</b>	Soil	<b>Result Type:</b>	Primary Result			
<b>Lab Sample Name:</b>	233444009	<b>Sample Date:</b>	7/14/2009 8:47:00 AM	<b>Validation Level:</b>	V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	40.7	0.401		0.1 mg/kg	EN	J	Q, A

*Analysis Method*    6020

<b>Sample Name</b>	HZBS0134S001	<b>Matrix Type:</b> Soil				<b>Result Type:</b> Primary Result		
<b>Lab Sample Name:</b>	233444022	<b>Sample Date:</b> 7/14/2009 8:39:00 AM				<b>Validation Level:</b> V		
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	48.6	0.399	0.0997	mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0135S001	<b>Matrix Type:</b> Soil				<b>Result Type:</b> Primary Result		
<b>Lab Sample Name:</b>	233444010	<b>Sample Date:</b> 7/14/2009 9:00:00 AM				<b>Validation Level:</b> V		
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	12.8	0.4	0.1	mg/kg	EN	J	Q
<b>Sample Name</b>	HZBS0136S001	<b>Matrix Type:</b> Soil				<b>Result Type:</b> Primary Result		
<b>Lab Sample Name:</b>	233444023	<b>Sample Date:</b> 7/14/2009 8:55:00 AM				<b>Validation Level:</b> V		
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	12	0.389	0.0973	mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0137S001	<b>Matrix Type:</b> Soil				<b>Result Type:</b> Primary Result		
<b>Lab Sample Name:</b>	233444011	<b>Sample Date:</b> 7/14/2009 9:20:00 AM				<b>Validation Level:</b> V		
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	15.7	0.39	0.0975	mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0138S001	<b>Matrix Type:</b> Soil				<b>Result Type:</b> Primary Result		
<b>Lab Sample Name:</b>	233444024	<b>Sample Date:</b> 7/14/2009 9:02:00 AM				<b>Validation Level:</b> V		
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	51.4	0.406	0.102	mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0139S001	<b>Matrix Type:</b> Soil				<b>Result Type:</b> Primary Result		
<b>Lab Sample Name:</b>	233444012	<b>Sample Date:</b> 7/14/2009 9:37:00 AM				<b>Validation Level:</b> V		
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	19.9	0.393	0.0983	mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0140S001	<b>Matrix Type:</b> Soil				<b>Result Type:</b> Primary Result		
<b>Lab Sample Name:</b>	233444025	<b>Sample Date:</b> 7/14/2009 9:17:00 AM				<b>Validation Level:</b> V		
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	16.5	0.393	0.0983	mg/kg	EN	J	Q, A

*Analysis Method*    6020

<b>Sample Name</b>	HZBS0141S001	<b>Matrix Type:</b> Soil			<b>Result Type:</b> Primary Result			
<b>Lab Sample Name:</b>	233444013	<b>Sample Date:</b> 7/14/2009 9:50:00 AM			<b>Validation Level:</b> V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	21.1	0.408		0.102 mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0142S001	<b>Matrix Type:</b> Soil			<b>Result Type:</b> Primary Result			
<b>Lab Sample Name:</b>	233444026	<b>Sample Date:</b> 7/14/2009 9:32:00 AM			<b>Validation Level:</b> V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	18	0.397		0.0992 mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0143S001	<b>Matrix Type:</b> Soil			<b>Result Type:</b> Primary Result			
<b>Lab Sample Name:</b>	233444014	<b>Sample Date:</b> 7/14/2009 10:18:00 AM			<b>Validation Level:</b> V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	33.9	0.4		0.1 mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0144S001	<b>Matrix Type:</b> Soil			<b>Result Type:</b> Primary Result			
<b>Lab Sample Name:</b>	233444027	<b>Sample Date:</b> 7/14/2009 9:37:00 AM			<b>Validation Level:</b> V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Arsenic	7440382	7.89	1.01		0.202 mg/kg			
Cadmium	7440439	0.172	0.202		0.0202 mg/kg	J	J	
Copper	7440508	16	1.01		0.333 mg/kg	E	J	A
Lead	7439921	9.2	0.404		0.101 mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0145S001	<b>Matrix Type:</b> Soil			<b>Result Type:</b> Primary Result			
<b>Lab Sample Name:</b>	233444028	<b>Sample Date:</b> 7/14/2009 9:47:00 AM			<b>Validation Level:</b> V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Cadmium	7440439	0.492	0.201		0.0201 mg/kg			
Lead	7439921	17.3	0.403		0.101 mg/kg	EN	J	Q, A
Zinc	7440666	65.1	2.01		0.403 mg/kg			

*Analysis Method*    8015B

**Sample Name**    B1BS0081AS001                    **Matrix Type:** Soil                    **Result Type:** Primary Result  
**Lab Sample Name:**    233444015                    **Sample Date:** 7/14/2009 12:29:00 PM                    **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
EFH (C12 - C14)	EFHD (C12	3.62	3.62		1.19 mg/kg	U	U	
EFH (C15 - C20)	EFHD (C15	3.62	3.62		1.19 mg/kg	U	U	
EFH (C21 - C30)	EFHD (C21	13.6	3.62		1.19 mg/kg			
EFH (C8 - C11)	EFHD (C8-	3.62	3.62		1.19 mg/kg	U	U	

**Sample Name**    EBQW2220                    **Matrix Type:** Water                    **Result Type:** Primary Result  
**Lab Sample Name:**    233444016                    **Sample Date:** 7/14/2009 1:16:00 PM                    **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
EFH (C12 - C14)	EFHD (C12	95.2	95.2		31.4 ug/L	U	U	
EFH (C15 - C20)	EFHD (C15	95.2	95.2		31.4 ug/L	U	U	
EFH (C21 - C30)	EFHD (C21	95.2	95.2		31.4 ug/L	U	U	
EFH (C8 - C11)	EFHD (C8-	95.2	95.2		31.4 ug/L	U	U	

**Sample Name**    FBQW2235                    **Matrix Type:** Water                    **Result Type:** Primary Result  
**Lab Sample Name:**    233444019                    **Sample Date:** 7/14/2009 1:20:00 PM                    **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
EFH (C12 - C14)	EFHD (C12	95.2	95.2		31.4 ug/L	U	U	
EFH (C15 - C20)	EFHD (C15	95.2	95.2		31.4 ug/L	U	U	
EFH (C21 - C30)	EFHD (C21	95.2	95.2		31.4 ug/L	U	U	
EFH (C8 - C11)	EFHD (C8-	95.2	95.2		31.4 ug/L	U	U	



# DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: 233444

Prepared by

MEC<sup>X</sup>, 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: 233444  
 Project Manager: Dixie Hambrick  
 Matrix: water/soil  
 QC Level: V  
 No. of Samples: 28  
 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>
B1BS0081AS001	233444015	N/A	Soil	7/14/2009 12:29:00 PM	8015B
EBQW2220	233444016	G341-590-6B	Water	7/14/2009 1:16:00 PM	1613B, 6020 8015B
ENBS0089S001	23344001	G341-590-1B	Soil	7/14/2009 12:17:00 PM	1613B
ENBS0090S001	233444002	G341-590-2B	Soil	7/14/2009 12:22:00 PM	1613B
ENBS0091S001	233444003	G341-590-3B	Soil	7/14/2009 12:14:00 PM	1613B
ENBS0094S001	233444004	N/A	Soil	7/14/2009 11:23:00 AM	6020
ENBS0095S001	233444005	N/A	Soil	7/14/2009 11:30:00 AM	6020
ENBS0096S001	233444006	N/A	Soil	7/14/2009 11:38:00 AM	6020
LFBS0245S001	233444017	N/A	Soil	7/14/2009 11:28:00 AM	6020
LFBS0246S001	233444018	N/A	Soil	7/14/2009 11:37:00 AM	6020
FBQW2235	233444019	G341-590-7B	Water	7/14/2009 1:20:00 PM	1613B, 6020 8015B
HZBS0129S001	233444007	N/A	Soil	7/14/2009 8:17:00 AM	6020
HZBS0130S001	233444020	N/A	Soil	7/14/2009 8:22:00 AM	6020
HZBS0131S001	233444008	N/A	Soil	7/14/2009 8:35:00 AM	6020
HZBS0132S001	233444021	N/A	Soil	7/14/2009 8:31:00 AM	6020
HZBS0133S001	233444009	N/A	Soil	7/14/2009 8:47:00 AM	6020
HZBS0134S001	233444022	N/A	Soil	7/14/2009 8:39:00 AM	6020
HZBS0135S001	233444010	N/A	Soil	7/14/2009 9:00:00 AM	6020
HZBS0136S001	233444023	N/A	Soil	7/14/2009 8:55:00 AM	6020
HZBS0137S001	233444011	N/A	Soil	7/14/2009 9:20:00 AM	6020
HZBS0138S001	233444024	N/A	Soil	7/14/2009 9:02:00 AM	6020
HZBS0139S001	233444012	N/A	Soil	7/14/2009 9:37:00 AM	6020
HZBS0140S001	233444025	N/A	Soil	7/14/2009 9:17:00 AM	6020
HZBS0141S001	233444013	N/A	Soil	7/14/2009 9:50:00 AM	6020
HZBS0142S001	233444026	N/A	Soil	7/14/2009 9:32:00 AM	6020
HZBS0143S001	233444014	N/A	Soil	7/14/2009 10:18:00 AM	6020
HZBS0144S001	233444027	N/A	Soil	7/14/2009 9:37:00 AM	6020
HZBS0145S001	233444028	N/A	Soil	7/14/2009 9:47:00 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  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . 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.

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**Data Qualifier Reference Table**


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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

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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.

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**Qualification Code Reference Table**


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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.

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**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.

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### III. Method Analyses

#### A. EPA METHOD 1613—Dioxin/Furans

Reviewed By: P. Meeks

Date Reviewed: August 5, 2009

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for 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: OCDD and 2,3,7,8-TCDF were detected in the soil method blank at 0.462 pg/g and 0.282 pg/g, respectively. OCDD was not detected in the samples at concentration  $\leq 5\times$  the method blank detect or at concentrations below the reporting limit. 2,3,7,8-TCDF detected in the soil samples was qualified as nondetected, "U," at the reporting limits. Total TCDF detected in the soil samples was qualified as estimated, "J," as only a portion of the total was associated with the method blank detect. There were no other no target compound detects above the EDL in the method blanks.
- 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.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on ENBS0091S001. All recoveries and 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: FBQW2235 was the field blank and EBQW2220 was the equipment rinsate associated with the samples in this SDG. There were no detects above the EDL in either sample.
  - 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.
- Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation. For individual isomers identified as EMPCs, the results were qualified as estimated nondetects, "UJ." Totals reported as EMPCs were qualified as estimated, "J," as only a portion of the total was identified as an EMPC. The laboratory calculated and reported compound-specific detection limits. Any detect below the laboratory lower calibration level was qualified as estimated, "J." Nondetects are valid to the estimated detection limit (EDL).

## B. EPA METHODS 6020—Metals

Reviewed By: P. Meeks

Date Reviewed: January 21, 2010

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0)*, *EPA 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 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 HZBS0135S001 for all analytes and on ENBS0094S001 for arsenic, cadmium, copper, lead, and zinc. All RPDs were within the laboratory-established control limit.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on HZBS0135S001 for all analytes and on ENBS0094S001 for arsenic, cadmium, copper, lead, and zinc. Lead was recovered below the control limit in the MSD of HZBS0135S001;

therefore, lead detected in all soil samples except ENBS0094S001 was qualified as estimated, "J." All remaining recoveries and all RPDs were within laboratory-established QC limits.

- **Serial Dilution:** Serial dilution analyses were performed on HZBS0135S001 and FBQW2235 for all analytes and on ENBS0094S001 for arsenic, cadmium, copper, lead, and zinc. The cobalt, copper, and lead %Ds exceeded the control limit for ENBS0094S001; therefore, cobalt, copper, and lead detected in all soil samples except HZBS0135S001 were qualified as estimated, "J." All remaining %Ds were within laboratory-established QC limits
- **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. Due to matrix interference, copper in several soil samples was analyzed at a 10x dilution. The remaining soil analytes were reported from the laboratory's standard 2x dilution. 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:** FBQW2235 was the field blank and EBQW2220 was the equipment rinsate associated with the samples in this SDG. There were no detects above the MDL in either sample.
  - **Field Duplicates:** There were no field duplicate samples identified for this SDG.

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

Reviewed By: P. Meeks

Date Reviewed: August 5, 2009

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for Total Fuel Hydrocarbons (DVP-8, Rev. 0)*, *EPA Method 8015B*, and the *National Functional Guidelines for Organic Data Review (10/99)*.

- **Holding Times:** Extraction and analytical holding times were met. The aqueous samples were extracted within seven days of collection and the soil samples were extracted within 14 days of collection. All samples were analyzed within 40 days of extraction.

- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks had no target compound detects above the MDL.
- Blank Spikes and Laboratory Control Samples: Recoveries and the aqueous RPDs were within laboratory-established QC limits.
- Surrogate Recovery: Recoveries were within laboratory-established QC limits.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on B1BS0081AS001. The recoveries and RPD 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: FBQW2235 was the field blank and EBQW2220 was the equipment rinsate associated with the samples in this SDG. There were no detects above the MDL in either sample.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.
- Compound Identification: Review is not applicable at a Level V validation. Four EFH hydrocarbon ranges were reported: C8-C11, C12-C14, C15-C20, and C21-C30.
- Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation. Any result reported between the MDL and the reporting limit was qualified as estimated, "J." Reported nondetects are valid to the reporting limit.

# Validated Sample Result Forms: 233444

Analysis Method 1613B

Sample Name EBQW2220 Matrix Type: Water Result Type: Primary Result  
Lab Sample Name: G341-590-6B Sample Date: 7/14/2009 1:16:00 PM Validation Level: V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	0.00326	0.0475	0.00326	ng/L	U	U	
1,2,3,4,6,7,8-HpCDF	67562394	0.00184	0.0475	0.00184	ng/L	U	U	
1,2,3,4,7,8,9-HpCDF	55673897	0.00248	0.0475	0.00248	ng/L	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.00201	0.0475	0.00201	ng/L	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.00131	0.0475	0.00131	ng/L	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.00196	0.0475	0.00196	ng/L	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.00137	0.0475	0.00137	ng/L	U	U	
1,2,3,7,8,9-HxCDD	19408743	0.002	0.0475	0.002	ng/L	U	U	
1,2,3,7,8,9-HxCDF	72918219	0.00161	0.0475	0.00161	ng/L	U	U	
1,2,3,7,8-PeCDD	40321764	0.00165	0.0475	0.00165	ng/L	U	U	
1,2,3,7,8-PeCDF	57117416	0.00104	0.0475	0.00104	ng/L	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.0014	0.0475	0.0014	ng/L	U	U	
2,3,4,7,8-PeCDF	57117314	0.000989	0.0475	0.000989	ng/L	U	U	
2,3,7,8-TCDD	1746016	0.00364	0.00951	0.00364	ng/L	U	U	
2,3,7,8-TCDF	51207319	0.0019	0.00951	0.0019	ng/L	U	U	
OCDD	3268879	0.00616	0.0951	0.00616	ng/L	U	U	
OCDF	39001020	0.00477	0.0951	0.00477	ng/L	U	U	
Total HpCDDs	37871004	0.00326	0.0475	0.00326	ng/L	U	U	
Total HpCDFs	38998753	0.00213	0.0475	0.00213	ng/L	U	U	
Total HxCDDs	34465468	0.00199	0.0475	0.00199	ng/L	U	U	
Total HxCDFs	55684941	0.00142	0.0475	0.00142	ng/L	U	U	
Total PeCDDs	36088229	0.00165	0.0475	0.00165	ng/L	U	U	
Total PeCDFs	30402154	0.00102	0.0475	0.00102	ng/L	U	U	
Total TCDDs	41903575	0.00364	0.00951	0.00364	ng/L	U	U	
Total TCDFs	55722275	0.0019	0.00951	0.0019	ng/L	U	U	

Analysis Method 1613B

Sample Name	ENBS0089S001	Matrix Type:	Soil	Result Type:	Primary Result		
Lab Sample Name:	G341-590-1B	Sample Date:	7/14/2009 12:17:00 PM	Validation Level:	V		
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	25.9	4.21	0.283 pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	1.9	4.21	0.166 pg/g	A	J	
1,2,3,4,7,8,9-HpCDF	55673897	0.218	4.21	0.218 pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.741	4.21	0.238 pg/g	A	J	
1,2,3,4,7,8-HxCDF	70648269	0.217	4.21	0.124 pg/g	A	J	
1,2,3,6,7,8-HxCDD	57653857	1.14	4.21	0.237 pg/g	A	J	
1,2,3,6,7,8-HxCDF	57117449	0.215	4.21	0.215 pg/g	EMPC	UJ	*III
1,2,3,7,8,9-HxCDD	19408743	1.22	4.21	1.22 pg/g	EMPC	UJ	*III
1,2,3,7,8,9-HxCDF	72918219	0.172	4.21	0.172 pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.48	4.21	0.136 pg/g	A	J	
1,2,3,7,8-PeCDF	57117416	0.148	4.21	0.0916 pg/g	A	J	
2,3,4,6,7,8-HxCDF	60851345	0.205	4.21	0.134 pg/g	A	J	
2,3,4,7,8-PeCDF	57117314	0.3	4.21	0.0966 pg/g	A	J	
2,3,7,8-TCDD	1746016	0.291	0.842	0.291 pg/g	U	U	
2,3,7,8-TCDF	51207319	0.842	0.842	0.249 pg/g	A	U	B, result changed from 0.589
OCDD	3268879	112	8.42	0.435 pg/g			
OCDF	39001020	4.64	8.42	0.355 pg/g	A	J	
Total HpCDDs	37871004	63.5	4.21	0.283 pg/g			
Total HpCDFs	38998753	5.17	4.21	0.19 pg/g			
Total HxCDDs	34465468	17.5	4.21	0.238 pg/g		J	*III
Total HxCDFs	55684941	3.08	4.21	0.14 pg/g	A	J	*III
Total PeCDDs	36088229	4.11	4.21	0.136 pg/g	A	J	
Total PeCDFs	30402154	2.99	4.21	0.0939 pg/g	A	J	
Total TCDDs	41903575	0.364	0.842	0.291 pg/g	A	J	
Total TCDFs	55722275	2.59	0.842	0.249 pg/g		J	B

Analysis Method 1613B

Sample Name	ENBS0090S001	Matrix Type:	Soil	Result Type:	Primary Result			
Lab Sample Name:	G341-590-2B	Sample Date:	7/14/2009 12:22:00 PM	Validation Level:	V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	21.8	4.32	0.278	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	2.97	4.32	0.165	pg/g	A	J	
1,2,3,4,7,8,9-HpCDF	55673897	0.225	4.32	0.224	pg/g	A	J	
1,2,3,4,7,8-HxCDD	39227286	0.669	4.32	0.275	pg/g	A	J	
1,2,3,4,7,8-HxCDF	70648269	0.342	4.32	0.162	pg/g	A	J	
1,2,3,6,7,8-HxCDD	57653857	0.894	4.32	0.289	pg/g	A	J	
1,2,3,6,7,8-HxCDF	57117449	0.329	4.32	0.15	pg/g	A	J	
1,2,3,7,8,9-HxCDD	19408743	0.866	4.32	0.284	pg/g	A	J	
1,2,3,7,8,9-HxCDF	72918219	0.187	4.32	0.187	pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.316	4.32	0.188	pg/g	A	J	
1,2,3,7,8-PeCDF	57117416	0.284	4.32	0.0949	pg/g	A	J	
2,3,4,6,7,8-HxCDF	60851345	0.52	4.32	0.158	pg/g	A	J	
2,3,4,7,8-PeCDF	57117314	0.716	4.32	0.093	pg/g	A	J	
2,3,7,8-TCDD	1746016	0.297	0.865	0.297	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.864	0.864	0.336	pg/g	A	U	B, result changed from 0.806
OCDD	3268879	126	8.65	0.481	pg/g			
OCDF	39001020	9.04	8.65	0.419	pg/g			
Total HpCDDs	37871004	57.6	4.32	0.278	pg/g			
Total HpCDFs	38998753	8.38	4.32	0.191	pg/g			
Total HxCDDs	34465468	16.2	4.32	0.283	pg/g			
Total HxCDFs	55684941	5.82	4.32	0.164	pg/g			
Total PeCDDs	36088229	2.55	4.32	0.379	pg/g	A	J	
Total PeCDFs	30402154	7.52	4.32	0.101	pg/g			
Total TCDDs	41903575	0.297	0.865	0.297	pg/g	U	U	
Total TCDFs	55722275	5.96	0.865	0.247	pg/g		J	B

Analysis Method 1613B

Sample Name	ENBS0091S001	Matrix Type:	Soil	Result Type:	Primary Result		
Lab Sample Name:	G341-590-3B	Sample Date:	7/14/2009 12:14:00 PM	Validation Level:	V		
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	24.5	4.38	0.263 pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	3.34	4.38	0.185 pg/g	A	J	
1,2,3,4,7,8,9-HpCDF	55673897	0.296	4.38	0.27 pg/g	A	J	
1,2,3,4,7,8-HxCDD	39227286	0.34	4.38	0.34 pg/g	EMPC	UJ	*III
1,2,3,4,7,8-HxCDF	70648269	0.303	4.38	0.155 pg/g	A	J	
1,2,3,6,7,8-HxCDD	57653857	1.19	4.38	0.208 pg/g	A	J	
1,2,3,6,7,8-HxCDF	57117449	0.305	4.38	0.153 pg/g	A	J	
1,2,3,7,8,9-HxCDD	19408743	1.13	4.38	0.204 pg/g	A	J	
1,2,3,7,8,9-HxCDF	72918219	0.219	4.38	0.189 pg/g	A	J	
1,2,3,7,8-PeCDD	40321764	0.31	4.38	0.146 pg/g	A	J	
1,2,3,7,8-PeCDF	57117416	0.2	4.38	0.141 pg/g	A	J	
2,3,4,6,7,8-HxCDF	60851345	0.403	4.38	0.153 pg/g	A	J	
2,3,4,7,8-PeCDF	57117314	0.527	4.38	0.155 pg/g	A	J	
2,3,7,8-TCDD	1746016	0.275	0.875	0.275 pg/g	U	U	
2,3,7,8-TCDF	51207319	0.875	0.875	0.236 pg/g	A	U	B, result changed from 0.683
OCDD	3268879	170	8.75	0.422 pg/g			
OCDF	39001020	15.8	8.75	0.401 pg/g			
Total HpCDDs	37871004	52.4	4.38	0.263 pg/g			
Total HpCDFs	38998753	10.4	4.38	0.223 pg/g			
Total HxCDDs	34465468	9.13	4.38	0.204 pg/g		J	*III
Total HxCDFs	55684941	5.48	4.38	0.161 pg/g			
Total PeCDDs	36088229	1.04	4.38	0.317 pg/g	A	J	
Total PeCDFs	30402154	5.24	4.38	0.148 pg/g			
Total TCDDs	41903575	0.275	0.875	0.275 pg/g	U	U	
Total TCDFs	55722275	4.46	0.875	0.236 pg/g		J	B

*Analysis Method 1613B*

Sample Name	FBQW2235	Matrix Type:	Water	Result Type:	Primary Result		
Lab Sample Name:	G341-590-7B	Sample Date:	7/14/2009 1:20:00 PM	Validation Level:	V		
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	0.00276	0.0477	0.00276 ng/L	U	U	
1,2,3,4,6,7,8-HpCDF	67562394	0.00139	0.0477	0.00139 ng/L	U	U	
1,2,3,4,7,8,9-HpCDF	55673897	0.00205	0.0477	0.00205 ng/L	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.00173	0.0477	0.00173 ng/L	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.00114	0.0477	0.00114 ng/L	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.00179	0.0477	0.00179 ng/L	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.00119	0.0477	0.00119 ng/L	U	U	
1,2,3,7,8,9-HxCDD	19408743	0.00177	0.0477	0.00177 ng/L	U	U	
1,2,3,7,8,9-HxCDF	72918219	0.00157	0.0477	0.00157 ng/L	U	U	
1,2,3,7,8-PeCDD	40321764	0.00148	0.0477	0.00148 ng/L	U	U	
1,2,3,7,8-PeCDF	57117416	0.000941	0.0477	0.000941 ng/L	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.00118	0.0477	0.00118 ng/L	U	U	
2,3,4,7,8-PeCDF	57117314	0.000899	0.0477	0.000899 ng/L	U	U	
2,3,7,8-TCDD	1746016	0.00249	0.00954	0.00249 ng/L	U	U	
2,3,7,8-TCDF	51207319	0.00147	0.00954	0.00147 ng/L	U	U	
OCDD	3268879	0.00453	0.0954	0.00453 ng/L	U	U	
OCDF	39001020	0.00343	0.0954	0.00343 ng/L	U	U	
Total HpCDDs	37871004	0.00276	0.0477	0.00276 ng/L	U	U	
Total HpCDFs	38998753	0.00169	0.0477	0.00169 ng/L	U	U	
Total HxCDDs	34465468	0.00177	0.0477	0.00177 ng/L	U	U	
Total HxCDFs	55684941	0.00126	0.0477	0.00126 ng/L	U	U	
Total PeCDDs	36088229	0.00148	0.0477	0.00148 ng/L	U	U	
Total PeCDFs	30402154	0.000897	0.0477	0.000897 ng/L	U	U	
Total TCDDs	41903575	0.00249	0.00954	0.00249 ng/L	U	U	
Total TCDFs	55722275	0.00147	0.00954	0.00147 ng/L	U	U	

Analysis Method 6020

**Sample Name** EBQW2220 **Matrix Type:** Water **Result Type:** Primary Result  
**Lab Sample Name:** 233444016 **Sample Date:** 7/14/2009 1:16:00 PM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Arsenic	7440382	1.6	5	1.6 ug/L		U	U	
Cadmium	7440439	0.11	1	0.11 ug/L		U	U	
Copper	7440508	0.33	1	0.33 ug/L		U	U	
Lead	7439921	0.5	2	0.5 ug/L		U	U	
Zinc	7440666	3.44	10	3 ug/L		J	J	

**Sample Name** ENBS0094S001 **Matrix Type:** Soil **Result Type:** Primary Result  
**Lab Sample Name:** 233444004 **Sample Date:** 7/14/2009 11:23:00 AM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	52.2	0.395	0.0986 mg/kg		EN	J	A

**Sample Name** ENBS0095S001 **Matrix Type:** Soil **Result Type:** Primary Result  
**Lab Sample Name:** 233444005 **Sample Date:** 7/14/2009 11:30:00 AM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	24	0.403	0.101 mg/kg		EN	J	Q, A

**Sample Name** ENBS0096S001 **Matrix Type:** Soil **Result Type:** Primary Result  
**Lab Sample Name:** 233444006 **Sample Date:** 7/14/2009 11:38:00 AM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	39.6	0.398	0.0995 mg/kg		EN	J	Q, A

**Sample Name** FBQW2235 **Matrix Type:** Water **Result Type:** Primary Result  
**Lab Sample Name:** 233444019 **Sample Date:** 7/14/2009 1:20:00 PM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Arsenic	7440382	1.6	5	1.6 ug/L		U	U	
Cadmium	7440439	0.11	1	0.11 ug/L		U	U	
Copper	7440508	0.33	1	0.33 ug/L		U	U	
Lead	7439921	0.5	2	0.5 ug/L		U	U	
Zinc	7440666	3	10	3 ug/L		U	U	

**Sample Name** HZBS0129S001 **Matrix Type:** Soil **Result Type:** Primary Result  
**Lab Sample Name:** 233444007 **Sample Date:** 7/14/2009 8:17:00 AM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	10.1	0.401	0.1 mg/kg		EN	J	Q, A

Analysis Method 6020

<b>Sample Name</b>	HZBS0130S001	<b>Matrix Type:</b>	Soil	<b>Result Type:</b>	Primary Result			
<b>Lab Sample Name:</b>	233444020	<b>Sample Date:</b>	7/14/2009 8:22:00 AM	<b>Validation Level:</b>	V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	9.12	0.405	0.101	mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0131S001	<b>Matrix Type:</b>	Soil	<b>Result Type:</b>	Primary Result			
<b>Lab Sample Name:</b>	233444008	<b>Sample Date:</b>	7/14/2009 8:35:00 AM	<b>Validation Level:</b>	V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	39.3	0.394	0.0984	mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0132S001	<b>Matrix Type:</b>	Soil	<b>Result Type:</b>	Primary Result			
<b>Lab Sample Name:</b>	233444021	<b>Sample Date:</b>	7/14/2009 8:31:00 AM	<b>Validation Level:</b>	V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	33.7	0.393	0.0984	mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0133S001	<b>Matrix Type:</b>	Soil	<b>Result Type:</b>	Primary Result			
<b>Lab Sample Name:</b>	233444009	<b>Sample Date:</b>	7/14/2009 8:47:00 AM	<b>Validation Level:</b>	V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	40.7	0.401	0.1	mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0134S001	<b>Matrix Type:</b>	Soil	<b>Result Type:</b>	Primary Result			
<b>Lab Sample Name:</b>	233444022	<b>Sample Date:</b>	7/14/2009 8:39:00 AM	<b>Validation Level:</b>	V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	48.6	0.399	0.0997	mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0135S001	<b>Matrix Type:</b>	Soil	<b>Result Type:</b>	Primary Result			
<b>Lab Sample Name:</b>	233444010	<b>Sample Date:</b>	7/14/2009 9:00:00 AM	<b>Validation Level:</b>	V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	12.8	0.4	0.1	mg/kg	EN	J	Q
<b>Sample Name</b>	HZBS0136S001	<b>Matrix Type:</b>	Soil	<b>Result Type:</b>	Primary Result			
<b>Lab Sample Name:</b>	233444023	<b>Sample Date:</b>	7/14/2009 8:55:00 AM	<b>Validation Level:</b>	V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	12	0.389	0.0973	mg/kg	EN	J	Q, A

Analysis Method 6020

<b>Sample Name</b>	HZBS0137S001	<b>Matrix Type:</b> Soil			<b>Result Type:</b> Primary Result		
<b>Lab Sample Name:</b>	233444011	<b>Sample Date:</b> 7/14/2009 9:20:00 AM			<b>Validation Level:</b> V		
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	15.7	0.39	0.0975 mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0138S001	<b>Matrix Type:</b> Soil			<b>Result Type:</b> Primary Result		
<b>Lab Sample Name:</b>	233444024	<b>Sample Date:</b> 7/14/2009 9:02:00 AM			<b>Validation Level:</b> V		
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	51.4	0.406	0.102 mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0139S001	<b>Matrix Type:</b> Soil			<b>Result Type:</b> Primary Result		
<b>Lab Sample Name:</b>	233444012	<b>Sample Date:</b> 7/14/2009 9:37:00 AM			<b>Validation Level:</b> V		
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	19.9	0.393	0.0983 mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0140S001	<b>Matrix Type:</b> Soil			<b>Result Type:</b> Primary Result		
<b>Lab Sample Name:</b>	233444025	<b>Sample Date:</b> 7/14/2009 9:17:00 AM			<b>Validation Level:</b> V		
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	16.5	0.393	0.0983 mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0141S001	<b>Matrix Type:</b> Soil			<b>Result Type:</b> Primary Result		
<b>Lab Sample Name:</b>	233444013	<b>Sample Date:</b> 7/14/2009 9:50:00 AM			<b>Validation Level:</b> V		
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	21.1	0.408	0.102 mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0142S001	<b>Matrix Type:</b> Soil			<b>Result Type:</b> Primary Result		
<b>Lab Sample Name:</b>	233444026	<b>Sample Date:</b> 7/14/2009 9:32:00 AM			<b>Validation Level:</b> V		
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	18	0.397	0.0992 mg/kg	EN	J	Q, A
<b>Sample Name</b>	HZBS0143S001	<b>Matrix Type:</b> Soil			<b>Result Type:</b> Primary Result		
<b>Lab Sample Name:</b>	233444014	<b>Sample Date:</b> 7/14/2009 10:18:00 AM			<b>Validation Level:</b> V		
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Lead	7439921	33.9	0.4	0.1 mg/kg	EN	J	Q, A

Analysis Method 6020

<b>Sample Name</b>	HZBS0144S001	<b>Matrix Type:</b>	Soil	<b>Result Type:</b>	Primary Result			
<b>Lab Sample Name:</b>	233444027	<b>Sample Date:</b>	7/14/2009 9:37:00 AM	<b>Validation Level:</b>	V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Arsenic	7440382	7.89	1.01	0.202	mg/kg			
Cadmium	7440439	0.172	0.202	0.0202	mg/kg	J	J	
Copper	7440508	16	1.01	0.333	mg/kg	E	J	A
Lead	7439921	9.2	0.404	0.101	mg/kg	EN	J	Q, A

<b>Sample Name</b>	HZBS0145S001	<b>Matrix Type:</b>	Soil	<b>Result Type:</b>	Primary Result			
<b>Lab Sample Name:</b>	233444028	<b>Sample Date:</b>	7/14/2009 9:47:00 AM	<b>Validation Level:</b>	V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Cadmium	7440439	0.492	0.201	0.0201	mg/kg			
Lead	7439921	17.3	0.403	0.101	mg/kg	EN	J	Q, A
Zinc	7440666	65.1	2.01	0.403	mg/kg			

<b>Sample Name</b>	LFBS0245S001	<b>Matrix Type:</b>	Soil	<b>Result Type:</b>	Primary Result			
<b>Lab Sample Name:</b>	233444017	<b>Sample Date:</b>	7/14/2009 11:28:00 AM	<b>Validation Level:</b>	V			
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Arsenic	7440382	9.07	1.02	0.204	mg/kg			
Barium	7440393	76.7	0.408	0.102	mg/kg			
Cadmium	7440439	0.221	0.204	0.0204	mg/kg			
Chromium	7440473	22.8	3.06	1.02	mg/kg			
Cobalt	7440484	7.79	1.02	0.306	mg/kg		J	A
Copper	7440508	14.9	1.02	0.337	mg/kg	E	J	A
Lead	7439921	21.8	0.408	0.102	mg/kg	EN	J	Q, A
Molybdenum	7439987	0.579	0.204	0.0613	mg/kg			
Nickel	7440020	14.5	2.04	0.511	mg/kg			
Selenium	7782492	0.511	1.02	0.511	mg/kg	U	U	
Silver	7440224	0.0517	0.204	0.0408	mg/kg	J	J	
Thallium	7440280	0.386	0.204	0.0613	mg/kg			
Vanadium	7440622	36.5	10.2	2.04	mg/kg			
Zinc	7440666	110	2.04	0.408	mg/kg			

*Analysis Method*    6020

Sample Name	LFBS0246S001	Matrix Type:	Soil	Result Type:	Primary Result			
Lab Sample Name:	233444018	Sample Date:	7/14/2009 11:37:00 AM	Validation Level:	V			
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Arsenic	7440382	4.97	1.16	0.233	mg/kg			
Barium	7440393	89	0.465	0.116	mg/kg			
Beryllium	7440417	0.458	0.116	0.0233	mg/kg			
Cadmium	7440439	0.651	0.233	0.0233	mg/kg			
Chromium	7440473	16.3	0.698	0.233	mg/kg			
Cobalt	7440484	9.72	0.233	0.0698	mg/kg		<b>J</b>	<b>A</b>
Copper	7440508	10.3	0.233	0.0767	mg/kg	E	<b>J</b>	<b>A</b>
Lead	7439921	54.2	0.465	0.116	mg/kg	EN	<b>J</b>	<b>Q, A</b>
Molybdenum	7439987	0.498	0.233	0.0698	mg/kg			
Nickel	7440020	13.7	0.465	0.116	mg/kg			
Selenium	7782492	0.581	1.16	0.581	mg/kg	U	<b>U</b>	
Silver	7440224	0.0514	0.233	0.0465	mg/kg	J	<b>J</b>	
Thallium	7440280	0.337	0.233	0.0698	mg/kg			
Zinc	7440666	220	2.33	0.465	mg/kg			

Analysis Method 8015B

**Sample Name** B1BS0081AS001 **Matrix Type:** Soil **Result Type:** Primary Result  
**Lab Sample Name:** 233444015 **Sample Date:** 7/14/2009 12:29:00 PM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
EFH (C12 - C14)	EFHD (C12)	3.62	3.62	1.19	mg/kg	U	U	
EFH (C15 - C20)	EFHD (C15)	3.62	3.62	1.19	mg/kg	U	U	
EFH (C21 - C30)	EFHD (C21)	13.6	3.62	1.19	mg/kg			
EFH (C8 - C11)	EFHD (C8-	3.62	3.62	1.19	mg/kg	U	U	

**Sample Name** EBQW2220 **Matrix Type:** Water **Result Type:** Primary Result  
**Lab Sample Name:** 233444016 **Sample Date:** 7/14/2009 1:16:00 PM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
EFH (C12 - C14)	EFHD (C12)	95.2	95.2	31.4	ug/L	U	U	
EFH (C15 - C20)	EFHD (C15)	95.2	95.2	31.4	ug/L	U	U	
EFH (C21 - C30)	EFHD (C21)	95.2	95.2	31.4	ug/L	U	U	
EFH (C8 - C11)	EFHD (C8-	95.2	95.2	31.4	ug/L	U	U	

**Sample Name** FBQW2235 **Matrix Type:** Water **Result Type:** Primary Result  
**Lab Sample Name:** 233444019 **Sample Date:** 7/14/2009 1:20:00 PM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
EFH (C12 - C14)	EFHD (C12)	95.2	95.2	31.4	ug/L	U	U	
EFH (C15 - C20)	EFHD (C15)	95.2	95.2	31.4	ug/L	U	U	
EFH (C21 - C30)	EFHD (C21)	95.2	95.2	31.4	ug/L	U	U	
EFH (C8 - C11)	EFHD (C8-	95.2	95.2	31.4	ug/L	U	U	

# **Chain of Custody and Supporting Documentation**



# CHAIN OF CUSTODY RECORD

COC #: 23571

MWHMM20090715\_00

Page: 1 of 1

Customer Information		Project Information		Project Information		Requested Analyses		Instructions/TAT							
Site:	SSFL	Client Name:	Boeing	Collector:	M. Miliman-Barris										
Company:	MWH	Sampling Event:	ISRA Sampling, June 2009	Contact #:											
Report to:	Sarah Von Raesfeld	Project Number:	1891614.054521												
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl												
	Suite 600	PM Phone #:	(925) 627-4627												
	Walnut Creek	Field Contact:	Shelby Valenzuela												
	CA	Field Contact #:	(626) 255-0503												
	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	Dioxin by 1613B - Water	Dioxin by 1613B - Soil	D2216 Moisture Soil	Metals 6020 Cu Water	Metals 6020 Soil Arsenic	Metals 6020 Soil Cadmium	Metals 6020 Soil Copper	Metals 6020 Soil Lead	Metals 6020 Water Arsenic	Metals 6020 Water Lead	Comments
EBQW2221	Water	7/15/2009	13:41	3	H			10	10	10	10	10	10	10	
HZBS0146S001	Soil	7/15/2009	12:53	1			10	10	10	10	10	10	10	10	
HZBS0147S001	Soil	7/15/2009	12:42	1			10	10	10	10	10	10	10	10	
HZBS0147S002	Soil	7/15/2009	12:44	1			H	H	H	H	H	H	H	H	
HZBS0148S001	Soil	7/15/2009	12:27	1			10	10	10	10	10	10	10	10	
HZBS0148S002	Soil	7/15/2009	12:34	1			H	H	H	H	H	H	H	H	
HZBS0149S001	Soil	7/15/2009	12:08	1			H	H	H						
HZBS0150S001	Soil	7/15/2009	13:16	1			10								

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.

1. Relinquished by:		2. Received by:		3. Relinquished by:		4. Received by:	
Date:	7/15/09	Date:	7/16/09	Date:		Date:	
Time:	16:00	Time:	8:45	Time:		Time:	
Company:	MWH	Company:	Gel	Company:		Company:	
Comments:	Margaret White	Comments:	R.M. Stalling	Comments:		Comments:	

Geotracker EDF   
 Data Validation Package  Level IV



# SAMPLE RECEIPT & REVIEW FORM

Client: SSFI SDG/ARCOC/Work Order: 235571

Received By: RMS Date Received: 7/16/09

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>404m</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"/>		<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 3158 0683

PM (or PMA) review: Initials JT Date 7/16/09





SAMPLE RECEIPT & REVIEW FORM

233571

Client: SSFL - ISRA SDG/ARCOC/Work Order: 227724 JT 7/16/09

Received By: JT Date Received: 4/10/09

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?		X	Maximum Counts Observed*: 40CPM
Classified Radioactive II or III by RSO?		X	
COC/Samples marked containing PCBs?		X	
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	X			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
2	Samples requiring cold preservation within 0 ≤ 5 deg. C?	X			Preservation Method: <u>ice bags</u> blue ice    dry ice    none    other (describe) 5°
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
5	Samples requiring chemical preservation at proper pH?		X		Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		X		Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?	X			Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?	X			

Comments: Fedex 9457 3158 0731

PM (or PMA) review: Initials   CJ   Date   4/10/09



233571  
2307617- JT 7116109

COC #: MMV-BM20090801\_00  
Page: 1 of 2

**CHAIN OF CUSTODY RECORD**

Customer Information		Project Information				Project Information	
Site:	SSFL	Client Name:	Boeing	Collector:	B. Martasin	Boeing PM:	
Company:	MWH	Sampling Event:	ISRA Sampling, June 2009	Contact #:			
Report to:	Sarah Von Raesfeld	Project Number:	1891614.054521	Requested Analyses			
Address:	2121 N. California Blvd Suite 800 Wainut Creek CA	Project Manager:	Alex Fischl (925) 827-4627 Brian Martasin (323) 304-4969 GEL Laboratories, LLC Cheryl Jones 2040 Savage Road Charleston, SC 29407	VOC by SW6260B - Water			
Email:	sarah.vonraesfeld@mwhglobal.com sean.jeffrey@mwhglobal.com	Field Contact #:	(323) 304-4969	TPH by SW8015BM - Water			
		Lab Name:	GEL Laboratories, LLC	SVOCs by SW6270C SIM - Water			
		Lab Contact:	Cheryl Jones	PCB by SW8082 - Water			
		Lab Address:	2040 Savage Road	Metals 7470A Water Mercury			
		Lab Phone:	Charleston, SC 29407	Metals 6020 Zn Water			
			(843) 769-7388	Metals 6020 Water Lead			
				Metals 6020 Water Arsenic			
				Metals 6020 Soil Lead			
				Metals 6020 Soil Copper			
				Metals 6020 Se Water			
				Metals 6020 Cu Water			
				Metals 6020 Cd Water			
				Metals 6020 Be Water			
				Metals 6010B Water Aluminum			
				Dioxin by 1613B - Water			
				Dioxin by 1613B - Soil			
				D2216 Moisture Soil			
Sample Name	Matrix	Date	Time	No. of Containers			
HZB50123C001	Soil	8/12/09	8:00	1			
HZB501108C01	Soil	8/12/09	8:00	1			
HZB501095C01	Soil	8/12/09	8:09	1			
HZB501145C01	Soil	8/12/09	8:18	1			
HZB501165C01	Soil	8/12/09	8:25	1			
HZB501115C01	Soil	8/12/09	8:28	1			
HZB501175C01	Soil	8/12/09	8:41	1			
HZB501185C01	Soil	8/12/09	8:55	1			
HZB501205C01	Soil	8/12/09	9:03	1			
HZB501215C01	Soil	8/12/09	9:15	1			

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
<i>SAR</i>	6-1-09	<i>R.M. Stollberg</i>	6/2/09				
Company:	Time:	Company:	Time:	Company:	Time:	Company:	Time:
MWH	1615	GEL	915				

Geotracker EDF  Level IV  
Data Validation Package



SAMPLE RECEIPT & REVIEW FORM

233571

Client: <u>SSF</u>		SDG/ARCOC/Work Order: <u>230761</u> - DT <u>7/16/09</u>	
Received By: <u>RMS</u>		Date Received: <u>6/2/09</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*:
Classified Radioactive II or III by RSO?		<input checked="" type="checkbox"/>	<u>20cpm</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>4, 6</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:

Ex: 9457 3161 5372  
" 5383

PM (or PMA) review: Initials JT Date 6/2/09

**Subject:** FW: ISRA hold samples  
**From:** Sarah Von Raesfeld <Sarah.E.VonRaesfeld@us.mwhglobal.com>  
**Date:** Thu, 16 Jul 2009 11:17:49 -0600  
**To:** Jackie Trudell <jacqueline.trudell@gel.com>  
**CC:** Sean Leffler <Sean.S.Leffler@us.mwhglobal.com>

Hi Jackie,

Please run these samples on a 5 day TAT.

Thanks,  
Sarah

---

**From:** Sarah Von Raesfeld  
**Sent:** Wednesday, July 15, 2009 9:12 AM  
**To:** 'Jackie Trudell'  
**Cc:** Sean Leffler  
**Subject:** ISRA hold samples

Hi Jackie,

We would like to add metals analysis the following ISRA samples (all were sent to SGS for dioxins):

HZBS0105S001 (collected 4/1) – analyze for copper and % moisture  
HZBS0112S001 (collected 6/1) – analyze for copper and % moisture  
HZBS0123S001 (collected 6/1) – analyze for lead, copper, and % moisture  
HZBS0123D001 (collected 6/1) – analyze for lead, copper, and % moisture

Please include these samples with the ISRA samples that you will be receiving tomorrow.

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

Date: 7/20/09

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

Phone: 843-769-7388

Laboratory GEL Laboratories, LLC

E-mail: Jackie.trudell@gel.com

From: Sean Leffler

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
MWHBM2 0090601_0 0	HZBS0112S001	6/1/09		Run copper
MWHBM2 0090601_0 0	HZBS0123S001	6/1/09		Run lead and copper
MWHBM2 0090601_0 0	HZBS0123D001	6/1/09		Run lead and copper

The reason for these changes:

*Incorrectly marked on COC form*

*Lack of sample volume*

*Change in analytical request*

*Other:*

\_\_\_\_\_

\_\_\_\_\_

X

\_\_\_\_\_

Thank you





Date: 7/23/09

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: Jackie.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
MWHBM2 0090409_0 0	HZBS0105S001	4/9/09		Run 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, Feb 2009

**Start:** 2/19/2009

**End:** 2/23/2009

**LTO DATE:**

**LTO NUMBER:**

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

### SAMPLE CONTAINER ORDER FORM

**Date Required:** 02/19/09

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

**Date Sample Pickup:** NA

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

**Container Information:**  
 Trip Blank (VOA only)  Yes (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  (select all applicable)  
 Water  (select all applicable)  
 Vapor  (select all applicable)

Est. Total # of Samples: 75      Est. Total # of EDDs: 5

	Water	Soil	Contingent
<b>Dioxins - (1613B)</b>	<b>5</b>	<b>9</b>	<b>14</b>
EPA 8015M (DRO)	--	--	--
EPA 8015M (JET FUEL)	--	--	--
EPA 8015M (CC)	--	--	--
EPA 8260B (VOC)	--	--	--
EPA 8270C SIM (SVOC)	--	--	--
EPA 8310 (PAH)	--	--	--
EPA 8082 (PCB)	--	--	--
Acetone (8260B)	--	--	--
EPA TO-15 VOCs (SIM)	--	--	--
Metals (6010B/6020/7470A/7471A)	--	--	--
<b>Cadmium (6020)</b>	<b>5</b>	<b>15</b>	<b>10</b>
<b>Arsenic (6020)</b>	<b>5</b>	<b>5</b>	<b>5</b>
<b>% Moisture (D2216)</b>	<b>0</b>	<b>40</b>	<b>30</b>
<b>Lead (6020)</b>	<b>5</b>	<b>40</b>	<b>30</b>
<b>Copper (6020)</b>	<b>5</b>	<b>10</b>	<b>5</b>
<b>Zinc (6020)</b>	<b>5</b>	<b>10</b>	<b>5</b>
EPA TO-14 (VOCs)	--	--	--

### LABORATORY REPORTING REQUIREMENTS

**Project TAT:**  
 Normal:  (10 Business days)  
 RUSH:  (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](mailto:Sarah.VonRaesfeld@mwhglobal.com)  
 Send Original Reports To:  
 Project Site  (enter "X")  
 Consultant Office  (enter "X")  
 Other Location (specify in comments)  (enter "X")  
 # of Copies Reports Req.: 1

**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)

### SPECIAL INSTRUCTIONS/LTO NOTES

### CONFIRMATION OF TRANSMITTAL & RECEIPT

**LTO Sent By:**  
 Name: Sean Leffler  
 Date: 02/20/09

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

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

### ADDITIONAL REQUIRED ANALYSES

LTO DATE:

LTO NUMBER:

**Consultant Name:** MWH  
**Address:** 2121 N. California Blvd. Ste. 600  
Walnut Creek, CA 94596

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

**Contact Name:** Sarah Von Raesfeld  
**Phone Number:** 925-627-4654  
**Fax Number:** 925-627-4501  
**E-mail Address:** [Sarah.VonRaesfeld@mwhglobal.com](mailto:Sarah.VonRaesfeld@mwhglobal.com)

**Lab Contact Name:** Cheryl Jones  
**Phone Number:** 843-769-7388  
**Fax Number:** 843-766-1178  
**E-mail Address:** [cj@gel.com](mailto:cj@gel.com)

### SAMPLE CONTAINER ORDER FORM (CONTINUED)

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

	Water	Soil	Contingent
Arsenic (6020)	--	--	--
Lead (6020)	--	--	--
Cadmium (6020)	--	--	--
Lithium (6020)	--	--	--
Sodium (6020)	--	--	--
Selenium (6020)	--	--	--
Thallium (6020)	--	--	--
Zinc (6020)	--	--	--
Boron (6010B)	--	--	--
Vanadium (6010B)	--	--	--
Copper (6020)	--	--	--
Zirconium (6020)	--	--	--

## Table of Contents

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# **Case Narrative**

**Case Narrative  
for  
Boeing - SSFL (MWH)  
Work Order: 233571  
SDG: 233571**

**July 20, 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 April 10, 2009, July 16, 2009 and June 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:

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
233571001	EBQW2221
233571002	HZBS0146S001
233571003	HZBS0147S001
233571004	HZBS0147S002
233571005	HZBS0148S001
233571006	HZBS0148S002
233571007	HZBS0149S001
233571008	HZBS0150S001
233571009	HZBS0105S001
233571010	HZBS0112S001
233571011	HZBS0123S001
233571012	HZBS0123D001

**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 (SGS Laboratories).

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 20 July 2009**

<b>State</b>	<b>Certification</b>
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: 233571

Prepared by

MEC<sup>x</sup>, 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: 233571  
Project Manager: Dixie Hambrick  
Matrix: water/soil  
QC Level: V  
No. of Samples: 9  
No. of Reanalyses/Dilutions: 0  
Laboratory: GEL

**Table 1. Sample Identification**

<b>Sample Name</b>	<b>Lab Sample Name</b>	<b>Sub-Lab Sample Name</b>	<b>Matrix</b>	<b>Collection</b>	<b>Method</b>
EBQW2221	233571001	N/A	Water	7/15/2009 1:41:00 PM	6020
HZBS0105S001	233571009	N/A	Soil	4/9/2009 8:40:00 AM	6020
HZBS0112S001	233571010	N/A	Soil	6/1/2009 9:44:00 AM	6020
HZBS0123D001	233571012	N/A	Soil	6/1/2009	6020
HZBS0123S001	233571011	N/A	Soil	6/1/2009 11:17:00 AM	6020
HZBS0146S001	233571002	N/A	Soil	7/15/2009 12:53:00 PM	6020
HZBS0147S001	233571003	N/A	Soil	7/15/2009 12:42:00 PM	6020
HZBS0148S001	233571005	N/A	Soil	7/15/2009 12:27:00 PM	6020
HZBS0150S001	233571008	N/A	Soil	7/15/2009 1:16:00 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.

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**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.

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### III. Method Analyses

#### A. EPA METHOD 6020—Metals

Reviewed By: P. Meeks

Date Reviewed: August 17, 2009

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

- Holding Times: Analytical holding times, 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 and the aqueous RPDs were within laboratory-established QC limits.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on HZBS0146S001. The RPDs were within the laboratory-established control limit.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on HZBS0146S001. Both lead recoveries and the copper MS recovery were below the control limit; therefore, copper and lead detected in the soil samples were qualified as estimated, "J." All remaining recoveries and all RPDs were within laboratory-established QC limits.
- Serial Dilution: Serial dilution analyses were performed on HZBS0146S001 and EBQW2221. The lead %D exceeded the control limit for HZBS0146S001; therefore, lead detected in the soil 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. Due to matrix interference, copper in the soil samples was analyzed at either a 10x or a 50x dilution. The remaining soil analytes were analyzed at the laboratory's standard 2x dilution. 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: FBQW2229 (225106) and EBQW2207 (227874H) were the field QC samples associated with the samples collected 4/9/09, FBQW2231 (230761) and EBQW2215 (230761) were the field QC samples associated with the samples collected 6/1/09, and FBQW2235 (233444) and EBQW2221 were the field QC samples associated with the samples collected 7/15/09. There were no applicable detects in any of the field QC samples.
  - Field Duplicates: HZBS0123S001 and HZBS0123D001 were identified as field duplicate samples. Both detects were in common and both RPDs were less than 100%.

# Validated Sample Result Forms: 233571

## Analysis Method 6020

**Sample Name** EBQW2221 **Matrix Type:** Water **Result Type:** Primary Result  
**Lab Sample Name:** 233571001 **Sample Date:** 7/15/2009 1:41:00 PM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Arsenic	7440382	1.6	5		1.6 ug/L	U	U	
Cadmium	7440439	0.11	1		0.11 ug/L	U	U	
Copper	7440508	0.33	1		0.33 ug/L	U	U	
Lead	7439921	0.5	2		0.5 ug/L	U	U	

**Sample Name** HZBS0105S001 **Matrix Type:** Soil **Result Type:** Primary Result  
**Lab Sample Name:** 233571009 **Sample Date:** 4/9/2009 8:40:00 AM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Copper	7440508	44.5	1.04		0.344 mg/kg	N	J	Q

**Sample Name** HZBS0112S001 **Matrix Type:** Soil **Result Type:** Primary Result  
**Lab Sample Name:** 233571010 **Sample Date:** 6/1/2009 9:44:00 AM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Copper	7440508	8.07	1.16		0.384 mg/kg	N	J	Q

**Sample Name** HZBS0123D001 **Matrix Type:** Soil **Result Type:** Primary Result  
**Lab Sample Name:** 233571012 **Sample Date:** 6/1/2009 **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Copper	7440508	11.1	1.02		0.338 mg/kg	N	J	Q
Lead	7439921	16.3	0.41		0.102 mg/kg	N	J	Q, A

**Sample Name** HZBS0123S001 **Matrix Type:** Soil **Result Type:** Primary Result  
**Lab Sample Name:** 233571011 **Sample Date:** 6/1/2009 11:17:00 AM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Copper	7440508	11.5	1.17		0.385 mg/kg	N	J	Q
Lead	7439921	17	0.467		0.117 mg/kg	N	J	Q, A

*Analysis Method*    6020

**Sample Name**    HZBS0146S001                      **Matrix Type:** Soil                      **Result Type:** Primary Result

**Lab Sample Name:** 233571002                      **Sample Date:** 7/15/2009 12:53:00 PM                      **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Arsenic	7440382	3.74	1.1		0.221 mg/kg			
Cadmium	7440439	0.28	0.221		0.0221 mg/kg			
Copper	7440508	12.5	1.1		0.364 mg/kg	N	J	Q
Lead	7439921	8.54	0.442		0.11 mg/kg	N	J	Q, A

**Sample Name**    HZBS0147S001                      **Matrix Type:** Soil                      **Result Type:** Primary Result

**Lab Sample Name:** 233571003                      **Sample Date:** 7/15/2009 12:42:00 PM                      **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Arsenic	7440382	3.67	1.04		0.208 mg/kg			
Cadmium	7440439	0.319	0.208		0.0208 mg/kg			
Copper	7440508	16	5.19		1.71 mg/kg	N	J	Q
Lead	7439921	7.75	0.415		0.104 mg/kg	N	J	Q, A

**Sample Name**    HZBS0148S001                      **Matrix Type:** Soil                      **Result Type:** Primary Result

**Lab Sample Name:** 233571005                      **Sample Date:** 7/15/2009 12:27:00 PM                      **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Arsenic	7440382	3.59	1.11		0.223 mg/kg			
Cadmium	7440439	0.321	0.223		0.0223 mg/kg			
Copper	7440508	17.2	5.57		1.84 mg/kg	N	J	Q
Lead	7439921	8.19	0.446		0.111 mg/kg	N	J	Q, A

**Sample Name**    HZBS0150S001                      **Matrix Type:** Soil                      **Result Type:** Primary Result

**Lab Sample Name:** 233571008                      **Sample Date:** 7/15/2009 1:16:00 PM                      **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	15.9	0.389		0.0973 mg/kg	N	J	Q, A

# **Chain of Custody and Supporting Documentation**



# CHAIN OF CUSTODY RECORD

COC #:

MWHAR20090721\_00

233835

Page: 1 of 1

Customer Information		Project Information			Project Information	
Site:	SSFL	Client Name:	Boeing	Collector:	A. Ruotolo	Boeing PM:
Company:	MWH	Sampling Event:	ISRA Sampling, June 2009	Contact #:		
Report to:	Sarah Von Raesfeld	Project Number:	1891614.054521	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:	Shelby Valenzuela			
	CA	Field Contact #:	(626) 255-0503			
	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		
EBQW2222	Water	7/21/2009	9:13	2		
HZBS0151S001	Soil	7/21/2009	8:57	1		
					Dioxin by 1613B - Water	10
					Dioxin by 1613B - Soil	5
					D2216 Moisture Soil	5

1. Relinquished by:		2. Received by:		3. Relinquished by:		4. Received by:	
Date:	7-21-09	Date:	7/22/09	Date:		Date:	
Company:	MWH	Company:	Gel	Company:		Company:	
Time:		Time:	9:00	Time:		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: SSF1 SDG/ARCOC/Work Order: 233835

Received By: RMS Date Received: 7/22/09

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>20cpm</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>4c</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 3158 4211

PM (or PMA) review: Initials JT Date 7/22/09

Date: 7/23/09

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: Jackie.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
MWHAR2 0090721_0 0	HZBS0149S001	7/14/09		Run % moisture and Dioxins by 1613B on 5 day TAT

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, Feb 2009

**Start:** 2/19/2009

**End:** 2/23/2009

**LTO DATE:**

**LTO NUMBER:**

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

### SAMPLE CONTAINER ORDER FORM

**Date Required:** 02/19/09

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

**Date Sample Pickup:** NA

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

**Container Information:**  
 Trip Blank (VOA only)  Yes (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  (select all applicable)  
 Water  (select all applicable)  
 Vapor  (select all applicable)

Est. Total # of Samples: 75      Est. Total # of EDDs: 5

	Water	Soil	Contingent
<b>Dioxins - (1613B)</b>	<b>5</b>	<b>9</b>	<b>14</b>
EPA 8015M (DRO)	--	--	--
EPA 8015M (JET FUEL)	--	--	--
EPA 8015M (CC)	--	--	--
EPA 8260B (VOC)	--	--	--
EPA 8270C SIM (SVOC)	--	--	--
EPA 8310 (PAH)	--	--	--
EPA 8082 (PCB)	--	--	--
Acetone (8260B)	--	--	--
EPA TO-15 VOCs (SIM)	--	--	--
Metals (6010B/6020/7470A/7471A)	--	--	--
<b>Cadmium (6020)</b>	<b>5</b>	<b>15</b>	<b>10</b>
<b>Arsenic (6020)</b>	<b>5</b>	<b>5</b>	<b>5</b>
<b>% Moisture (D2216)</b>	<b>0</b>	<b>40</b>	<b>30</b>
<b>Lead (6020)</b>	<b>5</b>	<b>40</b>	<b>30</b>
<b>Copper (6020)</b>	<b>5</b>	<b>10</b>	<b>5</b>
<b>Zinc (6020)</b>	<b>5</b>	<b>10</b>	<b>5</b>
EPA TO-14 (VOCs)	--	--	--

### LABORATORY REPORTING REQUIREMENTS

**Project TAT:**  
 Normal:  (10 Business days)  
 RUSH:  (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](mailto:Sarah.VonRaesfeld@mwhglobal.com)  
 Send Original Reports To:  
 Project Site  (enter "X")  
 Consultant Office  (enter "X")  
 Other Location (specify in comments)  (enter "X")  
 # of Copies Reports Req.: 1

**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)

### SPECIAL INSTRUCTIONS/LTO NOTES

### CONFIRMATION OF TRANSMITTAL & RECEIPT

**LTO Sent By:**  
 Name: Sean Leffler  
 Date: 02/20/09

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

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

### ADDITIONAL REQUIRED ANALYSES

LTO DATE:

LTO NUMBER:

**Consultant Name:** MWH  
**Address:** 2121 N. California Blvd. Ste. 600  
Walnut Creek, CA 94596

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

**Contact Name:** Sarah Von Raesfeld  
**Phone Number:** 925-627-4654  
**Fax Number:** 925-627-4501  
**E-mail Address:** [Sarah.VonRaesfeld@mwhglobal.com](mailto:Sarah.VonRaesfeld@mwhglobal.com)

**Lab Contact Name:** Cheryl Jones  
**Phone Number:** 843-769-7388  
**Fax Number:** 843-766-1178  
**E-mail Address:** [cj@gel.com](mailto:cj@gel.com)

### SAMPLE CONTAINER ORDER FORM (CONTINUED)

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

	Water	Soil	Contingent
Arsenic (6020)	--	--	--
Lead (6020)	--	--	--
Cadmium (6020)	--	--	--
Lithium (6020)	--	--	--
Sodium (6020)	--	--	--
Selenium (6020)	--	--	--
Thallium (6020)	--	--	--
Zinc (6020)	--	--	--
Boron (6010B)	--	--	--
Vanadium (6010B)	--	--	--
Copper (6020)	--	--	--
Zirconium (6020)	--	--	--

6241-594



CHAIN OF CUSTODY RECORD

MWHAR20090721\_00  
Page: 1 of 1

COC #:

233835

Customer Information		Project Information	
Site:	SSFL	Client Name:	Boeing
Company:	MWH	Sampling Event:	ISRA Sampling, June 2009
Report to:	Sarah Von Raesfeld	Project Number:	1891614.054521
Address:	2121 N. California Blvd Suite 600 Walnut Creek CA 94596	Project Manager:	Alex Fischl (925) 627-4627 Shelby Valenzuela (626) 255-0503 GEL Laboratories, LLC Jackie Trudell 2040 Savage Road Charleston, SC 29407 (843) 769-7388
Email:	sarah.vonraesfeld@mwhglobal.com sean.leffler@mwhglobal.com	Collector:	A. Ruotolo
		Contact #:	

Sample Name	Matrix	Date	Time	No. of Containers	Requested Analyses		Instructions/TAT
					Dioxin by 1613B - Water	Dioxin by 1613B - Soil	
EBQW2222	Water	7/21/2009	9:13	2	10		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.  STD-TAT. 5 DAY TAT. * Sample received at SGS on hold 7/17/09 5 DAY TAT
HZBS0151S001	Soil	7/21/2009	8:57	1	5	5	
HZBS0149S001	Soil	7/15/2009	12:00	1	5	5	

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
<i>Alexy P. Raesfeld</i>	7-21-09	<i>R.M. Stelling</i> Company: GEL	7/22/09 Time: 9:00	<i>R.M. Stelling</i> Company: GEL	7/22/09 Time: 16:00	<i>[Signature]</i> Company: SGS Seal intact	7/23/09 Time: 10:00
Company: MWH	Time:	Company: GEL	Time: 9:00	Company: GEL	Time: 16:00	Company: SGS Seal intact	Time: 10:00
Comments:							

Geotracker EDF   
Data Validation Package  Level IV

67341-594-594  
MWH

BOEING

CHAIN OF CUSTODY RECORD

COC #:

MWHMM20090715\_00

Page: 1 of 1

233571

Customer Information		Project Information				Project Information		Requested Analyses		Instructions/TAT					
Site:	SSFL	Client Name:	Boeing	Collector:	M. Mitman-Barris	Boeing PM:									
Company:	MWH	Sampling Event:	ISRA Sampling, June 2009	Contact #:											
Report to:	Sarah Von Raesfeld	Project Number:	1891614.054521												
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl												
	Suite 600	PM Phone #:	(925) 627-4627												
	Walnut Creek	Field Contact:	Shelby Valenzuela												
	CA	Field Contact #:	(626) 255-0503												
	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	Dioxin by 1813B - Water	Dioxin by 1813B - Soil	D2216 Moisture Soil	Metals 6020 Cu Water	Metals 6020 Soil Arsenic	Metals 6020 Soil Cadmium	Metals 6020 Soil Copper	Metals 6020 Soil Lead	Metals 6020 Water Arsenic	Metals 6020 Water Lead	Comments
EB0WZ221	Water	7/15/2009	13:41	3				10	10	10	10	10	10	10	
HZBS0146S001	Soil	7/15/2009	12:53	1											
HZBS0147S001	Soil	7/15/2009	12:42	1											
HZBS0147S002	Soil	7/15/2009	12:44	1											
HZBS0148S001	Soil	7/15/2009	12:27	1											
HZBS0148S002	Soil	7/15/2009	12:34	1											
HZBS0148S001	Soil	7/15/2009	12:08	1											
HZBS0150S001	Soil	7/15/2009	13:16	1											

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.

4.88C Cont of lead  
Date: 7/17/09  
Time: 10:10

1. Relinquished by:		2. Received by:		3. Relinquished by:		4. Received by:	
Date:	7/15/09	Date:	7/16/09	Date:		Date:	7/17/09
Company:	MWH	Company:	R.M. Stalling	Company:		Company:	SSS
Time:	16:00	Time:	8:40	Time:		Time:	10:10

Geotracker EDF   
Data Validation Package  Level IV

Comments:

## Table of Contents

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# **Case Narrative**

**Case Narrative  
for  
Boeing - SSFL (MWH)  
Work Order: 233835  
SDG: 233835**

**July 24, 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 July 16, 2009 and July 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:

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
233835001	EBQW2222
233835002	HZBS0151S001
233835003	HZBS0149S001

**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: Dioxins (SGS Laboratories).

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 24 July 2009**

<b>State</b>	<b>Certification</b>
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

# **Subcontract Data**

## **Dioxins**



**Laboratory Results**

Ms. Jacqueline Trudell  
General Engineering Labs  
2040 Savage Rd.  
Charleston SC 29407

Phone: 843-556-8171  
Fax:

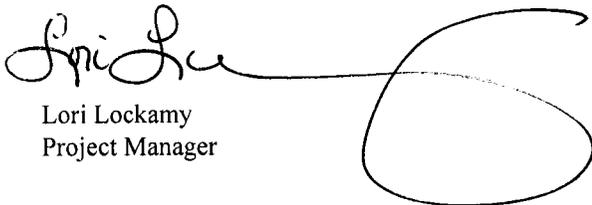
Dear Ms. Trudell:

Enclosed is a full data package containing the final results for samples received by SGS Environmental Services, Inc. on July 23, 2009 under your project name "SSFL 233835". The samples were analyzed by Method 1613 following SGS's Standard Operating Procedures and are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards.

Number of Samples Received:	3
Your Project Reference:	SSFL 233835
PAL Project Number:	G341-594

We appreciate your business and look forward to working with you again. Please contact me at 910-350-1903 if you have questions or need additional technical support.

Sincerely,

  
Lori Lockamy  
Project Manager

3 August 2009  
Date

DC138.033007.7



Case Narrative  
SGS Project: **G341-594**  
Project Name: **SSFL 233835**

**For Method: 1613**

- The submitted samples were accepted into the lab on July 17<sup>th</sup> and July 23<sup>rd</sup>, 2009 and extracted on July 23<sup>rd</sup>, 2009 by method 3540C and July 28<sup>th</sup>, 2009 by method 3520C. The sample extracts and associated QC extracts were then processed through clean-up as prescribed in the SGS standard operating procedures and analyzed by HRGC/HRMS for method 1613.
- No analytical issues were encountered.

  
\_\_\_\_\_  
Tamara Morgan Date  
Data Validation



## Table of Contents

### **Section 1: Cover Letter/Case Narrative**

Contains the Table of Contents, a project narrative, the client and SGS project identifiers, the number and type of samples, the methodology used to process the samples, and a summary table of sample results. A listing of current certifications by state, a table of abbreviations and qualifiers and the Toxic Equivalent Factors (TEF) are also supplied.

### **Section 2: Project Information**

Contains the chain-of-custody(s), internal chain-of-custody(s) if applicable, sample login summary, sample receipt checklist, and any other project/client specific information.

### **Section 3: Sample Analytical Results**

Contains results for client samples. Sample results include two pages of summarized analytical data and the associated raw data. The raw data includes a quantitation report from the instrumentation used that lists, ion areas, ratios, retention times, concentrations, and signal-to-noise ratios. It also has the selected ion current profiles (SICPs) for all homolog groups and any manual integrations.

### **Section 4: Quality Control Analytical Results**

Contains results for each analytical workgroup associated with the submitted samples. A workgroup consists of the Lab Method Blank (LMB) and the Ongoing Precision and Recovery sample (OPR). All sample preparation data, including dry weight determinations, extraction logs, clean-up logs and observation notes are also documented. Any other supporting QC data will be documented here upon client request.

### **Section 5: Initial Calibration**

Contains a table summarizing calibration data such as relative response factors, concentrations, and percent relative standard deviation. This section also contains related daily instrument QC information: GC performance data, mass resolution check, windows defining mix, and SICPs for all homolog groups and any manual integrations as well as the injection prep and instrument run logs.

### **Section 6: Continuing Calibration Data**

Contains all daily instrument quality control information. This includes mass resolution checks, a table summarizing the window defining peaks, SICPs for the first and last eluters for each homolog group, SICPs documenting GC performance, a summary quantitation report showing RRFs for the Ccal and Ical, and SICPs for all homolog groups and any manual integrations, injection prep and instrumentation runlogs.



## List of Qualifiers: Dioxin's

B Analyte was detected in the Lab Method Blank at a level above the Reporting Limit.

EDL "Estimated Detection Limit"

EMPC "Estimated Maximum Possible Concentration"

RL Report Limit

CL Control Limit

U Undetected

ppt Parts-per-trillion (pg/g; ng/L)

V Recovery is below quality control limit. The data has been validated based on a favorable signal-to-noise and detection limit.

# Outside quality control limits

\* Indicates that the ion-ratio fails high or low; analyte reported as an EMPC

An average uncertainty of 30% can be routinely achieved as concluded from the evaluation of HRGC-HRMS standard operating procedures. The following flags warn the data user of situations where the uncertainty may be greater than stated.

A Amount detected is less than the Lower Method Calibration Limit.

J Amount detected is between the Method Detection Limit and the Lower Calibration Limit.

O The recovery of this analyte in the OPR is above the Method QC Limits and the reported concentration in the sample may be biased high.

E Amount detected is greater than the Upper Calibration Limit.

S The amount of analyte present has saturated the detector. This situation results in an underestimation of the affected analyte(s).

Q Indicates the presence of a quantitative interference. This situation may result in an underestimation of the affected analyte(s).

I Indicates the presence of a qualitative interference that could cause a false positive or an overestimation of the affected analyte(s).

DPE Indicates the presence of a peak in the polychlorinated diphenylether channel that could cause a false positive or an overestimation of the affected analyte(s).

DC250.081908.1



# DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: 233835

Prepared by

MEC<sup>x</sup>, 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: 233835  
Project Manager: Dixie Hambrick  
Matrix: water/soil  
QC Level: V  
No. of Samples: 3  
No. of Reanalyses/Dilutions: 0  
Laboratory: GEL

**Table 1. Sample Identification**

<b>Sample Name</b>	<b>Lab Sample Name</b>	<b>Sub-Lab Sample Name</b>	<b>Matrix</b>	<b>Collection</b>	<b>Method</b>
EBQW2222	G341-594-1B	N/A	Water	7/21/2009 9:13:00 AM	1613B
HZBS0149S001	G341-594-3B	N/A	Soil	7/15/2009 12:08:00 PM	1613B
HZBS0151S001	G341-594-2B	N/A	Soil	7/21/2009 8:57:00 AM	1613B

## 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

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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.

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**Qualification Code Reference Table**


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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.

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**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.

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### III. Method Analyses

#### A. EPA METHOD 1613—Dioxin/Furans

Reviewed By: P. Meeks

Date Reviewed: August 17, 2009

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for 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 a detect for OCDD at 3.13 pg/g; however, OCDD was detected in the soil samples above the reporting limit and at concentrations that exceeded 5× the method blank result. Method blanks had no other target compound detects above the EDL.
- Blank Spikes and Laboratory Control Samples: Recoveries were within the acceptance criteria listed in Table 6 of Method 1613 and 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: FBQW2235 (233444) and EBQW2222 were the field QC samples associated with HZBS0151S001. FBQW2235 was the field blank associated with HZBS0149S001. HZBS0149S001 had no associated equipment rinsate. There were no detects in either of the field QC samples.
  - 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. Confirmation

analyses were not performed for the 2,3,7,8-TCDF detects reported in the samples; therefore, the results for 2,3,7,8-TCDF were qualified as estimated, "J."

- Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation. The laboratory calculated and reported compound-specific detection limits. OCDD was reported above the upper calibration limit in both soil samples; therefore, both results were qualified as estimated, "J." Any detect below the laboratory lower calibration level was qualified as estimated, "J." Nondetects are valid to the estimated detection limit (EDL).

# Validated Sample Result Forms: 233835

*Analysis Method 1613B*

Sample Name	EBQW2222	Matrix Type:	Water	Result Type:	Primary Result		
Lab Sample Name:	G341-594-1B	Sample Date:	7/21/2009 9:13:00 AM	Validation Level:	V		
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	0.0026	0.0481	0.0026 ng/L	U	U	
1,2,3,4,6,7,8-HpCDF	67562394	0.00149	0.0481	0.00149 ng/L	U	U	
1,2,3,4,7,8,9-HpCDF	55673897	0.00222	0.0481	0.00222 ng/L	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.00187	0.0481	0.00187 ng/L	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.00133	0.0481	0.00133 ng/L	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.00186	0.0481	0.00186 ng/L	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.00136	0.0481	0.00136 ng/L	U	U	
1,2,3,7,8,9-HxCDD	19408743	0.00188	0.0481	0.00188 ng/L	U	U	
1,2,3,7,8,9-HxCDF	72918219	0.00169	0.0481	0.00169 ng/L	U	U	
1,2,3,7,8-PeCDD	40321764	0.0017	0.0481	0.0017 ng/L	U	U	
1,2,3,7,8-PeCDF	57117416	0.000896	0.0481	0.000896 ng/L	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.00141	0.0481	0.00141 ng/L	U	U	
2,3,4,7,8-PeCDF	57117314	0.000888	0.0481	0.000888 ng/L	U	U	
2,3,7,8-TCDD	1746016	0.00291	0.00962	0.00291 ng/L	U	U	
2,3,7,8-TCDF	51207319	0.00203	0.00962	0.00203 ng/L	U	U	
OCDD	3268879	0.00462	0.0962	0.00462 ng/L	U	U	
OCDF	39001020	0.00434	0.0962	0.00434 ng/L	U	U	
Total HpCDDs	37871004	0.0026	0.0481	0.0026 ng/L	U	U	
Total HpCDFs	38998753	0.00181	0.0481	0.00181 ng/L	U	U	
Total HxCDDs	34465468	0.00187	0.0481	0.00187 ng/L	U	U	
Total HxCDFs	55684941	0.00145	0.0481	0.00145 ng/L	U	U	
Total PeCDDs	36088229	0.0017	0.0481	0.0017 ng/L	U	U	
Total PeCDFs	30402154	0.000863	0.0481	0.000863 ng/L	U	U	
Total TCDDs	41903575	0.00291	0.00962	0.00291 ng/L	U	U	
Total TCDFs	55722275	0.00203	0.00962	0.00203 ng/L	U	U	

*Analysis Method 1613B*

**Sample Name** HZBS0149S001 **Matrix Type:** Soil **Result Type:** Primary Result  
**Lab Sample Name:** G341-594-3B **Sample Date:** 7/15/2009 12:08:00 PM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	243	4.47	0.779	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	23	4.47	0.203	pg/g			
1,2,3,4,7,8,9-HpCDF	55673897	1.57	4.47	0.307	pg/g	A	J	
1,2,3,4,7,8-HxCDD	39227286	2.74	4.47	0.212	pg/g	A	J	
1,2,3,4,7,8-HxCDF	70648269	1.31	4.47	0.173	pg/g	A	J	
1,2,3,6,7,8-HxCDD	57653857	10.6	4.47	0.211	pg/g			
1,2,3,6,7,8-HxCDF	57117449	0.67	4.47	0.177	pg/g	A	J	
1,2,3,7,8,9-HxCDD	19408743	5.24	4.47	0.213	pg/g			
1,2,3,7,8,9-HxCDF	72918219	0.837	4.47	0.23	pg/g	A	J	
1,2,3,7,8-PeCDD	40321764	1.2	4.47	0.152	pg/g	A	J	
1,2,3,7,8-PeCDF	57117416	0.458	4.47	0.115	pg/g	A	J	
2,3,4,6,7,8-HxCDF	60851345	1.01	4.47	0.184	pg/g	A	J	
2,3,4,7,8-PeCDF	57117314	0.76	4.47	0.126	pg/g	A	J	
2,3,7,8-TCDD	1746016	0.225	0.894	0.225	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.594	0.894	0.192	pg/g	A	J	*III
OCDD	3268879	4810	8.94	0.354	pg/g	E	J	*III
OCDF	39001020	92.5	8.94	0.257	pg/g			
Total HpCDDs	37871004	1020	4.47	0.779	pg/g			
Total HpCDFs	38998753	78.7	4.47	0.249	pg/g			
Total HxCDDs	34465468	78.3	4.47	0.213	pg/g			
Total HxCDFs	55684941	34.7	4.47	0.19	pg/g			
Total PeCDDs	36088229	9.25	4.47	0.152	pg/g			
Total PeCDFs	30402154	8.57	4.47	0.12	pg/g			
Total TCDDs	41903575	1.03	0.894	0.225	pg/g			
Total TCDFs	55722275	3.81	0.894	0.192	pg/g			

*Analysis Method 1613B*

**Sample Name** HZBS0151S001 **Matrix Type:** Soil **Result Type:** Primary Result  
**Lab Sample Name:** G341-594-2B **Sample Date:** 7/21/2009 8:57:00 AM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822469	185	4.49	0.852	pg/g			
1,2,3,4,6,7,8-HpCDF	67562394	20.2	4.49	0.211	pg/g			
1,2,3,4,7,8,9-HpCDF	55673897	1.3	4.49	0.325	pg/g	A	J	
1,2,3,4,7,8-HxCDD	39227286	1.79	4.49	0.261	pg/g	A	J	
1,2,3,4,7,8-HxCDF	70648269	0.964	4.49	0.213	pg/g	A	J	
1,2,3,6,7,8-HxCDD	57653857	7.39	4.49	0.266	pg/g			
1,2,3,6,7,8-HxCDF	57117449	0.449	4.49	0.219	pg/g	A	J	
1,2,3,7,8,9-HxCDD	19408743	3.66	4.49	0.266	pg/g	A	J	
1,2,3,7,8,9-HxCDF	72918219	0.463	4.49	0.28	pg/g	A	J	
1,2,3,7,8-PeCDD	40321764	0.838	4.49	0.155	pg/g	A	J	
1,2,3,7,8-PeCDF	57117416	0.273	4.49	0.108	pg/g	A	J	
2,3,4,6,7,8-HxCDF	60851345	0.691	4.49	0.211	pg/g	A	J	
2,3,4,7,8-PeCDF	57117314	0.463	4.49	0.107	pg/g	A	J	
2,3,7,8-TCDD	1746016	0.222	0.897	0.222	pg/g	U	U	
2,3,7,8-TCDF	51207319	0.407	0.897	0.211	pg/g	A	J	*III
OCDD	3268879	3720	8.97	0.433	pg/g	E	J	*III
OCDF	39001020	93.2	8.97	0.368	pg/g			
Total HpCDDs	37871004	807	4.49	0.852	pg/g			
Total HpCDFs	38998753	70.3	4.49	0.261	pg/g			
Total HxCDDs	34465468	61.2	4.49	0.265	pg/g			
Total HxCDFs	55684941	23.6	4.49	0.229	pg/g			
Total PeCDDs	36088229	6.23	4.49	0.155	pg/g			
Total PeCDFs	30402154	5.95	4.49	0.107	pg/g			
Total TCDDs	41903575	0.222	0.897	0.222	pg/g	U	U	
Total TCDFs	55722275	1.96	0.897	0.211	pg/g			