

3.				)		CITAIN OF COSTOD I RECORD	:	5	)		4	\$	138/40 JT 10/6/09	55	19/0	60	MWHAG20090930_00 Page: 1 of 2
Sustome	Customer Information	Ш	Project Informat	ation			Proje	Project Information	rmati	uo							
Site:	SSFL		Client Name:	Boeing	Bu.		Collector:	tor:	A. Gol	A. Goldenberg	53				Boe	Boeing PM:	
Company:	MWH		Sampling Event:		Sampling,	ISRA Sampling, August 2009	Contact #:	##									
Report to:	Sarah Von Raesfeld		Project Number:	-	1891614.05462			-		_	Seque	sted A	Requested Analyses	6			Instructions/TAT
Address:	2121 N. California Blvd		Project Manager:	+	Alex Fischi			_				_		<u> </u>			
	Sulte 600		PM Phone #:	(925	(925) 627-4627						_						Legena: Numerical values for
	Walnut Creek		Field Contact:	Ben	Benjamin Stewart	+	,										analyses equate to turn around time in days
	CA		Fleid Contact #:		(818) 266-1378						M						H-Hold
	94596	-	Lab Name:	GEL	GEL Laboratories, LLC	s, LLC					etale					Т	EH - Extract/Extrude & Hold
Email:	sarah,vonraesfeld@mwhglobal.c	-	Lab Contact:	Jac	Jackie Trudell		,		Ме	<u> </u>					TPI	PH b	
	sean.leffler@mwhglobal.com		Lab Address:	204	2040 Savage Road	ad	D2:		tals	_	_				l by	y SV	Note: Values in th
				S	Charleston, SC 29407	9407	216		6020						SW8	V801	bellow are Turn Around
		-	Lab Phone:	(843)	(843) 769-7388		Moist		Soil			-			015B	5BM	
Sample Name	lame		Matrix	Date	Time	No. of Containers	ure Soil	- Water B - Soil	Copper	- Water	32 - Soil 1A - Soil	- Water	DI-WET	- Water M - Soil	M - Soil	- Water	Comments
EBQW2248		Water		9/30/2009	14:45	6		5		9	$\vdash$	9	$\vdash$	2		10	
HZBS0081AS001	AS001	Soil		9/30/2009	9:36	<u>د</u>	2	_		-	2 5		2	9	2		
HZBS0081AS002	AS002	Soil		9/30/2009	10:12	8	9	-			2 5		20	2	2		
HZBS0178S001	S001	Soil		9/30/2009	11:15	3	2	2		H	2 5		2	2	9		
HZBS0178S002	5002	Soil		9/30/2009	11:30	3	2	20		Ë	2 5		10	9	s	-	
HZBS0179S001	18001	Soil		9/30/2009	12:40	3	2	2		-	2 5		2	5	10		
HZBS0179S002	38002	Soil		9/30/2009	12:50	3	9	2		-	2 5		S	9	2		
HZET0718S001	15001	Soil		8/30/2009	13:15	2	9	9	2	$\vdash$	-		H	L			
HZET0719S001	35001	Soil		9/30/2009	13:35	2	9	2	2		H			_			
HZET0720S001	18001	Soll		9/30/2009	13:55	2	ω	2	7	Н	Н			_			
1. Relinc	1. Relinquished by:	Date:	2. Received by:	þ.		Date:	3, Rel	3. Relinquished by:	ed by:			Date:		4. R	4. Received by:	od by:	Date:
Alle	Aller M. Rate	4-30-09	É	$\not \leq$	ر	10/1/00											
Company: MWH		Time: 16:51	Company:			Time: 0835	Company:	any:				Time:		S	Company:		TIme:
Comments:	nts: Sample volume for dloxin analysis shipped directly to	loxin analysis	s shipped directi		, sample vol	CFA, sample volume for metals analysis shipped to GEL	analysis	shippe	d to GE	ی			Geo	Geotracker EDF	E		
								i									

**CHAIN OF CUSTODY RECORD** 

256165 371016/09 Page: 2012

238462H

Custome	Customer Information	Project Informat	tion			Proje	ct Inf	Project Information	uo							***************************************		a regis de care es s sente decare propose para en mangan
Site:	SSFL	Cilent Name:	Boelng			Colle	ctor:	A. Gol	Collector: A. Goldenberg	6	The same of the sa			Bo	Boeing PM:	Ë		
Company: MWH	MWH	Sampling Event:	$\vdash$	ampling, A	ISRA Sampling, August 2009	Contact #:	ict #:									H		
Report to:	Report to: Sarah Von Raesfeld	Project Number:	-	1891614.05462						Redne	sted /	Requested Analyses	88				Inst	Instructions/TAT
Address:	2121 N. California Blvd	Project Manager:	: Alex Fischi	schl													-	
	Suite 600	PM Phone #:	(825) 6	(925) 627-4627						_						_	S S	Legend: Numerical values for
	Walnut Creek	Field Contact:	Benjan	Benjamin Stewart													ana	analyses equate to turn around time in days
	cA	Field Contact #:	(818) 2	(818) 266-1378										- Q1		-	Ŧ	Plot
	94596	Lab Name:	GELLS	GEL Laboratories, LLC	, LLC					etals		P		VOC:	1	-	표현	EH - Extract/Extrude & Hold
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Jackie Trudell	Trudell								erchi			_			
	sean.leffler@mwhglobal.com	Lab Address:	2040 S	2040 Savage Road	pı	D2		_				orate		_	_		2	Motor Making In the collection
			Charle	Charleston, SC 29407	9407	216			_			314					pelle	bellow are Turn Around
		Lab Phone:	(843) 7	(843) 769-7388		Moist						Soil				_		wi.
Sample Name	эше	Matrix	Date	Time	No. of Containers	ure Soil	- Water B - Soil	Copper	- Water	32 - Soil IA - Soil	- Water	DI-WET	M - Soil	M - Soil - Water	- Water		ő	Comments
HZET0721S001	Soll Soll		9/30/2009	14:05	2	9	6	2	-	$\vdash$	-		+	-	+-		$\vdash$	
HZET0722S001	Soil Soil		8/30/2009	14:16	2	9	2	2	-	├	$\vdash$		$\vdash$			$\dagger$	$\vdash$	
HZET0723S001	Soil Soil		9/30/2009	14:25	2	2	2	2			L		$\vdash$	$\vdash$		$\dagger$	-	
HZET0724S001	Soil Soil		9/30/2009	13:30	2	9	2	2		$\vdash$	-		$\vdash$	$\vdash$		T	╀	
HZET0725S001	Soil Soil	08/6	30/2009	13:25	2	s	6	7	$\vdash$	┞			+	$\perp$		t	$\downarrow$	
														_	_			

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
Allen 27. 1-50-39	9-50-09	Mh	10/1/01				
Company: MWH	Time: 10:51	Company: (牙尼)	Time; 0835	Company:	Time;	Company:	Time:
Comments: Sample volume for	dloxin analysis	Comments: Sample volume for dloxin analysis shipped directly to CFA, sample volume for metals analysis shipped to GEL	une for metals	analysis shipped to GEL	Geotra	Geotracker EDF	
					Data V	Data Validation Package 🗹 Level IV	

GEL	Laboratories LLC
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### SAMPLE RECEIPT & REVIEW FORM

					Z38462H
Client: SSFL					SDG/ARCOC/Work Order: 1741812 or 1016109
Received By: SL					Date Received: 10/1/09
Suspected Hazard Informa	tion	Yes	ဍ	*If	Counts > x2 area background on samples not marked "radioactive", contact the Radiation ety Group of further investigation.
COC/Samples marked as radi	oactive?		$\checkmark$	Ma	ximum Counts Observed*: 80 CPM
Classified Radioactive II or I	II by RSO?		4	/	
COC/Samples marked contain	ning PCBs?		1	/	
Shipped as a DOT Hazardous	?		1	Ház	ard Class Shipped: UN#:
Samples identified as Foreign	Soil?		1		
Sample Receipt Cr	iteria 🖇	Yes	¥,	ž	Comments/Qualifiers (Required for Non-Conforming Items)
Shipping containers receisealed?	ved intact and	1			Circle Applicable: seals broken damaged container leaking container other (describe)
2 Samples requiring cold pr within (0 ≤ 6 deg. C)?	eservation	1		,	Preservation Method:  Z140 ide bags blue ice dry ice none other (describe)
Chain of custody documer with shipment?	nts included	/			
4 Sample containers intact a	and sealed?			1	Seals broken (damaged container) leaking container other (describe)  3 Amber 1 L 60 HLS of EBQW2248 arrived broken
5 Samples requiring chemic at proper pH?	al preservation	1		- 1	Sample ID's, containers affected and observed pH:  If Preservation added, Lot#:
6 VOA vials free of headspa < 6mm bubble)?	ace (defined as	1	1		Sample ID's and containers affected:
7 Are Encore containers pre	sent?		·		lyes, immediately deliver to Volatiles laboratory)
8 Samples received within h	olding time?			1	d's and tests affected:
9 Sample ID's on COC mater bottles?	h ID's on				Sample ID's and containers affected:
Date & time on COC mate on bottles?	ch date & time	1	1		Sample ID's affected:
Number of containers recently number indicated on COC				V	HZBSV7785001/2 and HZBS01795001/2 and only 1 containers of HZE+0718-0725.
12 COC form is properly sign relinquished/received sect	ed in ions?				only 1 container of HZE+0718-0725.
Comments: QUST	3163 081	D		4	
9457	316308	3-	2	2	0
1,2,					
<u> </u>					
DM (o	r PMA) review: Is	nitis	ale		J Date

200	BOSENIE 33833	-338334- OT 1016/09		HAIN OF	CHAIN OF CUSTODY RECORD	R	<u> </u>	8				ŏ	:# 000			MWHBM20091001_00
, our open	Guetomor Information	Project Informati	ation	***************************************	ergerathes are combined manager for	Profe	ctinf	Prolect Information	uo				-		********************	
						- 1		O. C.	diact					1		
Site:	SSFL	Client Name:	-	gu l		Collector	ctor:	b. Martasin	rasin					Boeing PM	Ë	
Company:	MWH	Sampling Event:	-	ISRA Sampling, August 2009	August 2009	Contact #:	# t									
Report to:	Sarah Von Raesfeld	Project Number:		1891614,05462						Seque	A pets	Requested Analyses				Instructions/TAT
Address:	2121 N. California Blvd	Project Manager:	-	Alex Fischl		_										Legend:
	Suite 600	PM Phone #:	(926	(925) 627-4627						_						Numerical values for
	Walnut Creek	Fleid Contact:	Bria	Brian Martasin												around time in days
	ę,	Field Contact #:		(323) 304-4969				Meta	Me				SV			H-Hold
	94596	Lab Name:	E	GEL Laboratories, LLC	, LLC			als by	etals		Pe		/OCs	T		EH - Extract/Extrude & Hold
Email:	sarah.vonraesfeld@mwnglobal.c	.c Lab Contact:	Jac	Jackie Trudell			_				rchic			РН Б		
	sean.leffler@mwhglobal.com	Lab Address:	204	2040 Savage Road	ad	D22					rate			y SW		Note: Values in the cells
			ຮັ	Charleston, SC 29407	9407	216 N	_			_	314	_		8015		bellow are Turn Around Times.
		Lab Phone:	8	(843) 769-7388		Moist					Soil (			5BM -		
Sample Name	ате	Matrix	Date	TIMe	No. of Containers	ure Soil	- Water B - Soil	- Water	A - Soil	- Water 2 - Soil	H-WET	M - Soil	M - Soil - Water	- Water		Comments
EBQW2249		Water	10/1/2009	15:30	o		2	10	$\vdash$	5		-	9	9		
7 HVBF33AS01		Soil	10/1/2009	10:18	2	2	9			9		9	2			
7 HVBF33AS02		Soil	10/1/2009	10:40	2	9	2		_	9		9	2		_	
HZBS0080AS001	001	Soll	10/1/2009	14:35	က	2	$\vdash$		2	2	9	9	2			
HZBS0080AS002		Soil	10/1/2008	14:45	8	5	Н		2	2	2	5.	2			
HZBS0082AS001		Soll	10/1/2009	8:30	3	5	_		2	2	5	2	5			
HZBS0082AS002		Soil	10/1/2009	9:08	3	2	_		2	5	5	9	2			
HZBS0084AS001		Soil	10/1/2009	7:50	3	5	-		2	2	5	20	2			
HZBS0084AS002		Soil	10/1/2009	8:15	3	2	-		2	2	5	9	2			
HZBS0123AS001		Soll	10/1/2009	13:15	6	2		Ц	2	20	9	5	2			
. Reling	1. Relinquished by: Date:	2. Received by:	Þ.		Date:	3. Re	Induis	3. Relinquished by:			Date:		4.	4. Received by:	by:	Date:
4	1/0/	169 CM		Jenney	polalog											
Company:		Time: Company:		5	1me: 93.	Company	any:				Time:		Š	Company:		TIme:
Comments:	nts:											989	Geotracker EDF	EDF		

8	C SOLING.	729412H	ប៊	IAIN OF	CHAIN OF CUSTODY RECORD	Y RE	S	9				8	COC #:		MWHBI	MWHBM20091001_00
1															Page:	2 of 2
Custome	Customer Information	Project Information	nation			Proje	Project Information	rmati	u							
Site:	SSFL	Cilent Name:	Boeing	Đ.		Collector:	_	B. Martasin	lasin					Boeing PM:		
Company: MWH	MWH	Sampling Event:	-	ISRA Sampling, August 2009	rugust 2009	Contact #:	ct #:									
Report to:	Report to: Sarah Von Raesfeld	Project Number:	_	1891614.05462						Requested Analyses	ted A	lalyses			Instruc	Instructions/TAT
Address:	2121 N. California Blvd	Project Manager:	-	Alex Fischl					-			_			Legend:	
		PM Phone #:	(825	(825) 627-4627		_						_			Numeric	Numerical values for
	Walnut Creek	Field Contact:	Bria	Brian Martasin				-							around 1	around time in days
	cs.	Field Contact #:	-	(323) 304-4969				Meta	Me						H-Holo	
	94596	Lab Name:	GEL	GEL Laboratories, LLC	, ucc		_	als by	etals	_	Pe			Т	프 - EH - E	EH - Extract/Extrude & Hold
Email:	sarah.vonraesfeld@mwhglobal.c	obal.c Lab Contact:	Jack	Jackie Trudell				6010			rchlo			PH by		
	sean.leffler@mwhglobal.com	m Lab Address:	2040	2040 Savage Road	ad			0/602			rate		_	y SW	Note: V	alues in the cells
			Cha	Charleston, SC 29407	9407			0/74	_		314	_		8015	Times.	bellow are Turn Around Times.
		Lab Phone:	(843	(843) 769-7388				70A	_	_	Soi I		_	5ВМ -		
Sample Name	ame	Matrix	Date	TIMe	No. of Containers	ure Soil	- Water B - Soil	- Water	A - Soil	- Water 2 - Soil	O-WET	- Water M - Soil	M - Soil	- Water	Comments	ents
/ HZBS0123AS002	AS002	Soil	10/1/2009	13:30	8	5			2	5	5	5	2			
HZBS0124AS001	AS001	Soll	10/1/2009	11:00	8	9	_		7	2	9	9	9	,		
HZBS0124AS002	AS002	Soll	10/1/2009	12:30	8	9			2	5	2	5	2	_		
HZBS0175S001	3001	Soil	10/1/2009	13:50	3	5	5 /		2	2	5	5	10			
/ HZBS0175S002	2002	Soil	10/1/2009	14:10	3	9	2		2	5	9	2	2			
HZBS0177S001	78001	Soil	10/1/2009	15:00	ဧ	2	2		2	9	2	2	2			
HZBS0177S002	78002	Soil	10/1/2009	15:15	8	9	9		2	2	9	ည	2			
HZBS0180S001		Soil	10/1/2009	9:30	8	9	2		~	9	co	s	2			
HZBS0180S002	08002	Soil	10/1/2009	10:00	3	9	9		7	2	ß	ω O	9			
1. Relin	1. Refinquished by:	Date: 2. Received by	d by:		Date:	3. Re	3. Relinquished by:	ed by			Date:		4. R	4. Received by:		Date:
4,	$\bigcirc$	10/1/09 R.W. HED	3	, Net	2/20											
Company:		me: Company;	6	0	TIM6: 7	Company:	any:				Tlme:		S	Company:		Time:
Comments:												Geot	Geotracker EDF	EDF		
												Data	Valida	Data Validation Package	Level IV	

# SAMPLE RECEIPT & REVIEW FORM

C	lient: 53 F 1				SDG/ARCOC/Work Order: 238234 57 1016109
R	eceived By: Ams				Date Received: 19 3 109
-	uspected Hazard Information	Yes	å	*If	Counts > x2 area background on samples not marked "radioactive", contact the Radiation ety Group of further investigation.
	OC/Samples marked as radioactive?		1	Max	ximum Counts Observed*:
	lassified Radioactive II or III by RSO?	╀-	1	_	30 com
	OC/Samples marked containing PCBs?		K		
_	nipped as a DOT Hazardous?  Imples identified as Foreign Soil?	┞	1	Haz	ard Class Shipped: UN#:
100	miples identified as Foreign 5011?	_	_		
L	Sample Receipt Criteria	Yes	NA	ž	Comments/Qualifiers (Required for Non-Conforming Items).
1	Shipping containers received intact and sealed?	1			Circle Applicable: seals broken damaged container leaking container other (describe)
2	Samples requiring cold preservation within $(0 \le 6 \text{ deg. C})$ ?	/			Preservation Method: (ice bags) blue ice dry ice none other (describe)
3	Chain of custody documents included with shipment?				
4	Sample containers intact and sealed?			1	seals broken samaged container leaking container other (describe)  Tockived (Z) broken Amber IL 10: EBRU2249
5	Samples requiring chemical preservation at proper pH?	1		S	ample ID's, containers affected and observed pH:  Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?	1		Si	ample ID's and containers affected:
7	Are Encore containers present?	1		Œ	f yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?			Iď	's and tests affected:
~ 1	Sample ID's on COC match ID's on bottles?	/		Sa	ample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	1		Sa	mple ID's affected:
	Number of containers received match number indicated on COC?	<b>✓</b>		Sa	mple ID's affected:
12	COC form is properly signed in relinquished/received sections?	J			
Cor	ments:  Fx: 9457 5163 0800  11 11 0795  11 3159 3937				
	PM (or PMA) review: I	niti	als	A	76 Date 10/2/09

Subject: dioxin add-ons

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

Date: Tue, 6 Oct 2009 13:52:57 -0600

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

CC: Sean Leffler <Sean.S.Leffler@us.mwhglobal.com>

Hi Jackie,

Please analyze dioxins on a 5 day TAT for the following samples:

HZBS0080AS002 (238234005)

HZBS0081AS002 (238180003) \*

HZBS0084AS002 (238234009)

HZBS0123AS002 (238234011)

HZBS0124AS002 (238234013)

Thanks, Sarah



#### BUILDING A BETTER WORLD

Sarah Von Raesfeld

**Environmental Chemist** 

MWH Americas, Inc. 2121 N. California Blvd.

Telephone: 925 627 4500

Direct Line: 925 627 4654

Suite 600

Facsimile: 925 627 4501

Walnut Creek, California 94596

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

Date: 10/8/09

GEL Laboratories, LLC

E-mail:

jacqueline.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
MWHAG2 0090930_0 0	HZBS0081AS 002	9/30/09		Add dioxins (5 day TAT)
				<u> </u>

The reason for these changes:	
Incorrectly marked on COC form	
Lack of sample volume	
Change in analytical request	X
Other:	

Thank you

S as	WORKSON.			CHA	IN OF	CHAIN OF CUSTODY RECORD	X R	EC0	80					# 000	#.			MWHA	MWHAG20090930_00
											ج	139/40	8					Page:	: 1 of 2
Customer	Customer Information		Project informative	ation			Proj	oct Int	Project Information	<u>5</u>						7.00.00.00.00.00.00.00.00.00.00.00.00.00			
Site:	SSFL		Cllent Name:	Boeing	Andre Marie Marie Control	**************************************	ပ္ပ	Collector	A. Go	A. Goldenberg	5		HH.		B	Boeing PM:	ž	m m semple dig a pipa Pa das Benerre m vancab	Terrorian de la companya de la compa
Company: MWH	MWH		Sampling Event:	+-	mpling, A	ISRA Sampling, August 2009	Contact #	1ct #:							-		-		
Report to:	Sarah Von Raesfeld		Project Number:	: 1891614.05462	.05462					-	Requ	Requested Analyses	Linally	Se	7			Instruc	Instructions/TAT
Address:	2121 N. California Blvd	9	Project Manager:	r: Alex Fischi	돗							_		<u> </u>	-	_			
	Suite 600		PM Phone #:	(925) 627-4627	7-4627													Numeric	Legena: Numerical values for
	Walnut Creek		Field Contact:	Benjamii	Benjamin Stewart		,											around	analyses equate to turn around time in days
	క		Fleid Contact#:	(818) 266-1378	6-1378						M				S\			H-H9k	_
	94596		Lab Name:	GEL Lak	GEL Laboratories, LLC	, LLC					etais		P		/OCs	Т		프로 교	EH - Extract/Extrude & Hold
Emali:	sarah.vonraesfeld@mwhglobal.c		Lab Contact:	Jackie Trudell	ndell								erchi						
	sean.leffler@mwhglobal.com	bal.com	Lab Address:	2040 Sa	2040 Savage Road	ā							orate					Note: V	alues in the cells
				Charlest	Charleston, SC 29407	1407							314					bellow	bellow are Turn Around
	-		Lab Phone:	(843) 769-7388	9-7388								Soil I						
Sample Name	ıme		Matrix	Date	Time	No. of Containers	ure Soil	- Water 	Copper	- Water	2 - Soil A - Soil	- Water	DI-WET	M - Soil	M - Soil - Water	- Water		Comments	ents
<b>EBQW2248</b>		Water		9/30/2009	14:45	æ		5	_	9		2		-	10	5		-	
HZBS0061AS001	S001	Soil	8	9/30/2009	9:35	8	sc.			H	2 5		v <sub>o</sub>	LD.	2				
HZBS0081AS002	S002	Soil	8	9/30/2009	10:12	3	υ	S			2		ьo	10	r)		-0		
HZBS0178S001	001	Soil	<b>18</b>	9/30/2009	11:15	8	'n	9	-	$\vdash$	2 5	_	10	S C	49				
HZBS0178S002	002	Soll	8	9/30/2009	11:30	3	9	10		-	2	_	ıs	اد دما	3		8		
HZBS0179S001	1001	Soil	18	8/30/2009	12:40	3	2	2			2		r,	ις	40		100		
HZBS0179S002	002	Soil	16	9/30/2009	12:50	3	9	9			2		'n	υ O	មា				
HZET0718S001	001	Soll	16	9/30/2009	13:15	2	9	2	2	-		L			_				
HZET0719S001	001	Soil	76	9/30/2009	13:35	2	2	2	2	Vi.				-	$\vdash$				
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Page 12 of 528

Comments: Sample volume for dloxin analysis shipped directly to CFA, sample volume for metals analysis shipped to GEL

Tlme:

Company:

Time:

Company:

Time: 0835

Company:

Time: 16:51

Company: MWH

10/100

Geotracker EDF

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Report to:	Sarah Von Raesfeld	Project Number:	-	1891614.05462					2	senbe	ted A	Requested Analyses				-	Instructions/TAT
Address:	2121 N. California Blvd	Project Manager:		Alex Fischi												_	
	Suite 600	PM Phone #:	(92	(925) 627-4627		,											Numerical values for
	Walnut Creek	Field Contact:		Benjamin Stewart		_ <del>-</del> _											analyses equate to turn around time in days
	Ą	Field Contact #:	1	(818) 266-1378									S			_	H - Hold
	94596	Lab Name:	GEL	GEL Laboratories, LLC	, LLC										1		EH - Extract/Extrude & Hold
Emall:	sarah.vonraesfeld@mwhglobal.c	sal.c Lab Contact:	Jac	Jackle Trudeli		_	Di	M	<u> </u>		P			TP	ГРН		
	sean.leffler@mwhglobal.com	Lab Address:		2040 Savage Road	2			etals			B by			H by	by SV		Note: Vehies in the cells
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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

4	٠	_		

Jackie Trudell

Phone: 843-769-7388

Laboratory

Date: 10/8/09

GEL Laboratories, LLC

E-mail:

jacqueline.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 0091001_0 0	HZBS0080AS 002	10/1/09		Add dioxins (5 day TAT)
MWHBM2 0091001_0 0	HZBS0084AS 002	10/1/09		Add dioxins (5 day TAT)
MWHBM2 0091001_0 0	HZBS0123AS 002	10/1/09		Add dioxins (5 day TAT)
MWHBM2 0091001_0 0	HZBS0124AS 002	10/1/09		Add dioxins (5 day TAT)

The reason for these changes:	
Incorrectly marked on COC form	
Lack of sample volume	
Change in analytical request	X
Other:	
Thank you	

Ø ear	SCHING. 32	<i>338</i> 334		동	AIN OF	CHAIN OF CUSTODY RECORD	Y RE		Ð				Ö	# COC #			MWHBN Page:	MWHBM20091001_00 Page: 1 of 2
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Site:	SSFL		Client Name:	Boeing		ru die wiele mande worde et bestiebeld school 1900 processes	Collector:		B. Martasin	asın					Boe	Boeing PM:		
Company:	MWH		Sampling Event:	T	sampling, A	ISRA Sampling, August 2009	Contact #:	##										
Report to:	Sarah Von Raesfeld		Project Number:		1891614.05462					•	enbe	sted A	Requested Analyses	42			Instruc	Instructions/TAT
	2121 N. California Blvd	P	Project Manager:	+	ischi												Legend:	
1-*	Suite 600		PM Phone #:	(922)	(925) 627-4627												Numeric	Numerical values for analyses equate to turn
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1-	CA		Field Contact #:		(323) 304-4969				Meta	Me	_			sv			H- H	
1	94596		Lab Name:	GELL	GEL Laboratories, LLC	, LLC			als by	etals i		Pe	-				HON HON	En - ExtracyExtrude & Hold
Email:	sarah.vonraesfeld@mwhglobal.c	whglobal.c	Lab Contact:	Jackie	Jackie Trudell				6010							·		
1	sean.leffler@mwhglobal.com	sal.com	Lab Address:	2040	2040 Savage Road	p.			0/602								Note: V	Note: Values in the cells
				Charle	Charleston, SC 29407	9407			20/74								bellow a	bellow are Turn Around Times.
			Lab Phone:	(843)	(843) 769-7388				70A									
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7 HVBF33AS02		Soll		10/1/2009	10:40	2	S	2		Ë	2		25	25			_	
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HZBS0082AS001	:001	Sol		10/1/2009	8:30	3	25			2	2	ış.	ທ	ď				
HZBS0082AS002	2002	Soil		10/1/2009	9:02	3	9			2	20	£.	မာ	ν.				
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Customer	Customer Information	Project Informat	nation			Proj	ect In	Project Information	Ĕ									
Site:	SSFL	Client Name:	Boeing	92		8	Collector	B. Martasin	asin				N.	Boel	Boeing PM:			
Company: MWH	MWH	Sampling Event:	┼	ISRA Sampling, August 2009	ugust 2009	S	Contact #:											
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Email:	sarah.vonraesfeld@mwhglobal.c	al.c Lab Contact:	Jac	Jackie Trudeli							rchlo	s by						
	sean.leffler@mwhglobal.com	Lab Address:	204	2040 Savage Road	P	D22					rate :	SW				2	Note: Values in the cells	<u>ø</u> .
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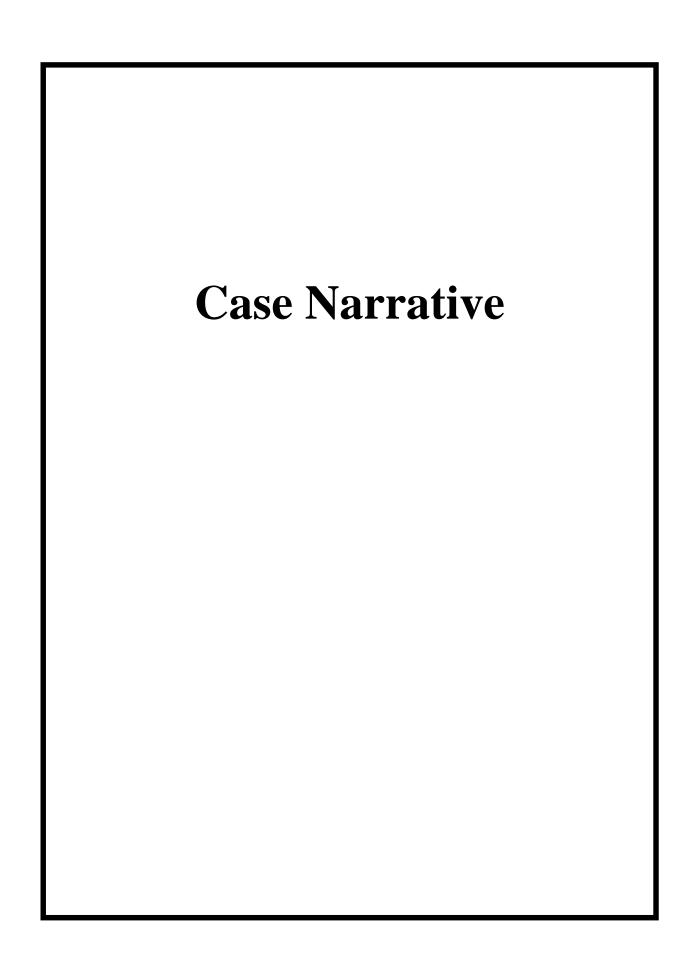
#### LABORATORY TASK ORDER (LTO) FORM

INSTRUCTIONS: To be completed by Environmental Contractor & Emailed to Laboratory Project Manager, CH2M HILL (boeingedms@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 Sar	mpling, August 2009	Start:	8/24/2009	End:	9/30/2009
LTO DATE:			LTO	NUMBER:		
Consultant Name:		MWH	Contract Laboratory:		GEL	
Address:		I. California Blvd. Ste. 600	Address:		040 Savage F	
	Wa	Inut Creek, CA 94596	_	Cha	rleston, SC 2	9407
Contact Name		Sarah Van Daastald	Lab Cantact Name		la alvia Tuvala	
Contact Name: Phone Number:		Sarah Von Raesfeld 925-627-4654	Lab Contact Name: _ Phone Number:		Jackie Trude 843-769-738	
Fax Number:		925-627-4501	Frione Number:		843-766-117	
E-mail Address:	Sarah.\	VonRaesfeld@mwhglobal.com	E-mail Address:		line.trudell@g	
			NTAINER ORDER FORM			
Date Required:		SAMIFLE CO	Requested Analyses:	(Sı	pecify # of Sam	ples)
•			·	Water	Soil	Contingent
			Dioxins (1613B)	15	124	0
Date Sample Pickup:			EPA 8015M (DRO)			
			EPA 8015M (JET FUEL)			
Ship Containers To:		( , m, m)	EPA 8015M (CC)			
Project Site		_(enter "X")	TCE (8260B)	5	12	0
Consultant Office Other Location (specify in		_(enter "X")	EPA 8270C SIM (SVOC) EPA 8310 (PAH)			
comments)		(enter "X")	EPA 8082 (PCB)	3	5	0
		_(enter X)	Nickel (6020)	5	10	0
Container Information:			Chromium (6020)	5	10	0
Trip Blank (VOA only)	No	(Yes/No)	Silver (6020)	5	10	0
Temp Blank (VOA Only)	No	(Yes/No)	Cadmium (6020)	10	35	0
DI Water Required?	No	(Yes/No)	Arsenic (6020)	5	10	0
MS/MSD Extra Bottles?	No	_(Yes/No)	% Moisture (D2216)	0	170	0
OI- M-(-!			Lead (6020)	10	65	0
Sample Matrix:	V	(11HH	Copper (6020)	10	75	0
Soil <sub>-</sub> Water	X	_ (select all applicable) (select all applicable)	Zinc (6020) Mercury by 7471A/7470A	<u>5</u>	20 25	0
Vvaler_ Vapor		(select all applicable)	Mercury by 1411A/1410A	<u> </u>	23	
· -		_, , , , ,				
Est. Total # of Samples:	175	_ Est. Total # of EDDs _	PORTING REQUIREMENTS			
Project TAT:		LABORATORT RE	Laboratory Results/Repo	rts Delivera	ables:	
Normal:	Х	(10 Business days)	Draft Results Fax?:		(Yes/No)	
RUSH:	5	(Specify- 24 / 48 / 72HRS)	Draft Results E-mail?:	Yes	(Yes/No)	
Other:		(Specify # of Days)			<u> </u>	
Report Due Date:		-	Specify Fax/E-mail Contact Name, #, E-mail Address:	Sarah VonRae	sfeld@mwhglob	al.com
			Send Original Reports To:	<u> </u>	5.5.a ©g.5.	
Special Reporting Req	uireme	ents:	Project Site		(enter "X")	
Contingent Analysis?	No	(Yes/No)	Consultant Office		(enter "X")	
TIC (VOC) Required?	No	(Yes/No)	Other Location (specify		-	
TIC (SVOC) Required?	No	_(Yes/No)	in comments)	Х	(enter "X")	
Data Validation Pckge.:		<del>-</del> ' ′	# of Copies Reports Req.:	1	_(-,,,,,	
-			TRUCTIONS/LTO NOTES		_	
		OF EGIAL INC	THOUTION OF ETO NOTES			
		CONFIRMATION (	OF TRANSMITTAL & RECEIPT	-		
LTO Sent By:			LTO Received By-			
Name:	Sarah Vo	on Raesfeld	Name:			
·-	09/02/09		Date:			_
Date.	55,52,65		Date			-

# **Table of Contents**

Case Narrative	1
Chain of Custody and Supporting Documentation	3
Data Qualifier Definitions	18
Laboratory Certifications	20
Subcontract Data Dioxins	22



Case Narrative for Boeing - SSFL (MWH) Work Order: 238462 SDG: 238462H

October 12, 2009

#### **Laboratory Identification:**

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

#### **Summary:**

#### Sample Receipt

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on October 01, 2009 and October 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:

Laboratory	Sample
<b>Identification</b>	<b>Description</b>
238462001	HZBS0081AS002
238462002	HZBS0080AS002
238462003	HZBS0084AS002
238462004	HZBS0123AS002
238462005	HZBS0124AS002

#### **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**

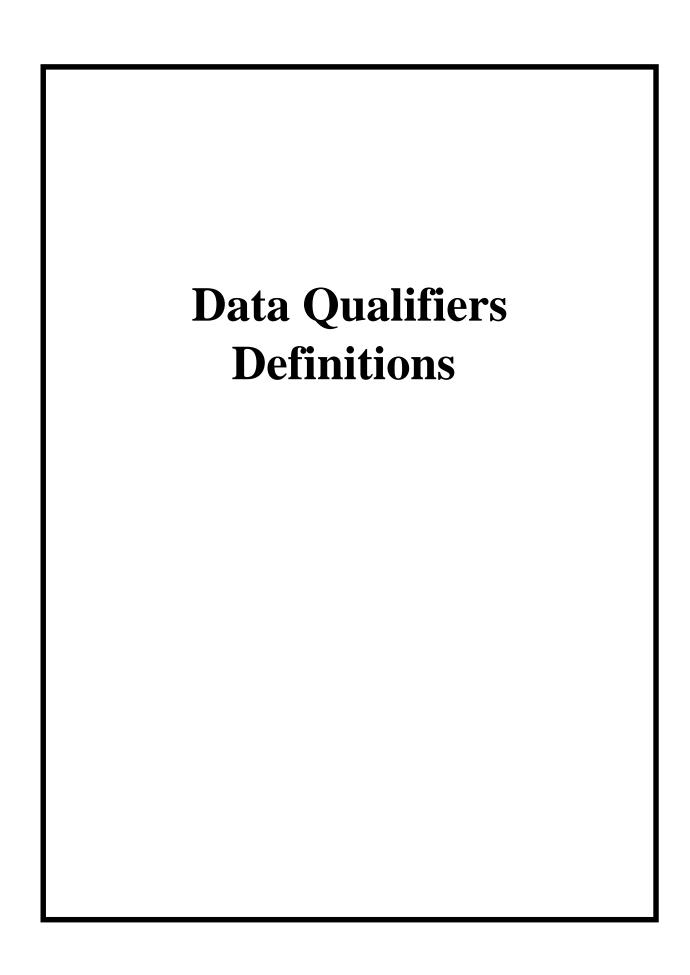
Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

#### **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 (Cape Fear Analytical).

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

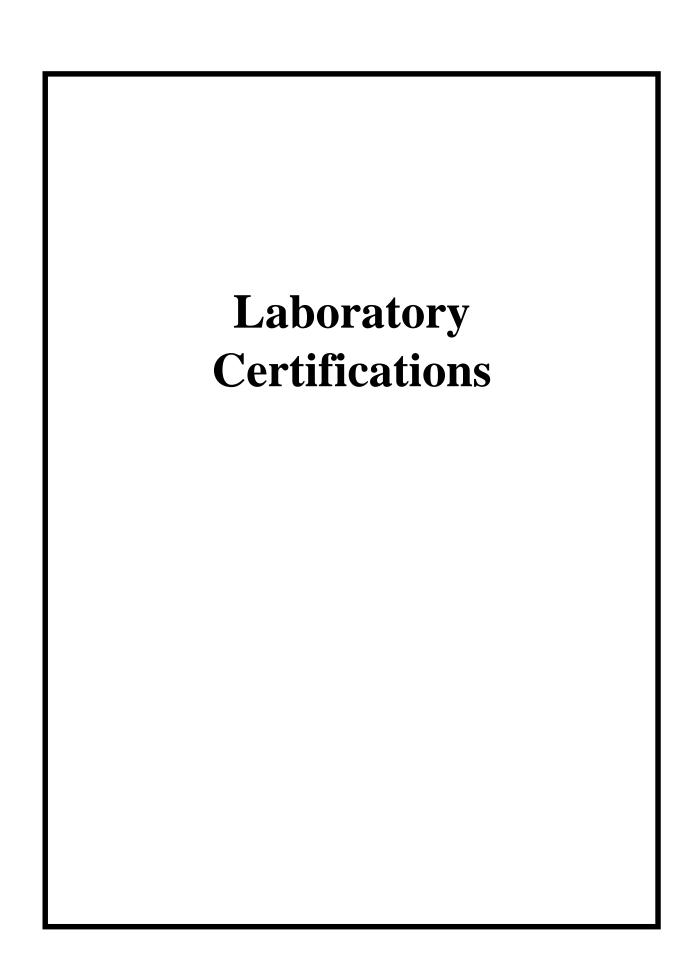
Jacqueline Trudell Project Manager



#### Data 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
- ${
  m N/A}$  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.



List of current GEL Certifications as of 12 October 2009

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



# DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: 238462H

Prepared by

MEC<sup>X</sup>, LP 12269 East Vassar Drive Aurora, CO 80014 Project: Boeing SSFL RFI ISRA

DATA VALIDATION REPORT SDG: 238462H

#### I. INTRODUCTION

Task Order Title: Boeing SSFL RFI ISRA

Contract Task Order: 1261.500D.00 Sample Delivery Group: 238462H

Project Manager: Dixie Hambrick

Matrix: soil QC Level: V

No. of Samples: 5

No. of Reanalyses/Dilutions: 0 Laboratory: GEL

**Table 1. Sample Identification** 

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
HZBS0080AS002	1091001	N/A	SOIL	10/1/2009 2:45:00 PM	1613B
HZBS0081AS002	1091005	N/A	SOIL	9/30/2009 10:12:00 AM	1613B
HZBS0084AS002	1091002	N/A	SOIL	10/1/2009 8:15:00 AM	1613B
HZBS0123AS002	1091003	N/A	SOIL	10/1/2009 1:30:00 PM	1613B
HZBS0124AS002	1091004	N/A	SOIL	10/1/2009 12:30:00 PM	1613B

#### **II. Sample Management**

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

1

#### **Data Qualifier Reference Table**

Qualifier	Organics	Inorganics
	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.
	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.
	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
	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.
	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- 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
Н	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
С	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.
В	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.
Е	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
Α	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
Т	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 be used technically sound analysis is technic available.

P Instrument performance for pesticides was poor.

\*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.

The analysis with this flag should not be used because another more technically sound analysis is available.

Post Digestion Spike recovery was not within control limits.

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: December 4, 2009

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

- Holding Times: Extraction and analytical holding times were met. The samples were extracted and analyzed within one year of collection.
- Instrument Performance: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: The soil method blank had detects or estimated maximum possible concentration (EMPCs) for all target compounds except 2,3,7,8-TCDD and total TCDD. Detects in the soil samples less than the reporting limit or less than 5x the method blank detect were qualified as nondetected, "U," at the EDL if detected below the EDL or at the level of contamination if detected above the EDL. When total concentrations were the same as the individual isomer concentration, the total was also qualified as nondetected, "U," at the reporting limit if detected below the reporting limit or at the level of contamination if detected above. All remaining totals, except total TCDD, were qualified as estimated, "J."
- Blank Spikes and Laboratory Control Samples: Recoveries were within the acceptance criteria listed in Table 6 of Method 1613. The RPDs were within the laboratory-established control limits.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on HZBS0080AS002. 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: FBQW2239 (235913) was the field blank associated with the samples in this SDG; however, the sample was not analyzed for dioxins. The samples in this SDG had no associated equipment rinsate.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.

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• Internal Standards Performance: Internal standard recoveries are not routinely evaluated at a Level V validation; however, the recoveries were reported on the sample result summaries. The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613.

- Compound Identification: Review is not applicable at a Level V validation. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613. The laboratory performed confirmation analyses for 2,3,7,8-TCDF. When the original result was reported as an EMPC, the original result was rejected, "R," in favor the confirmation result. In these cases, the total TCDD result was changed by the reviewer to match the confirmation 2,3,7,8-TCDD result. When the original result was not reported as an EMPC, or if both the original analysis and the confirmation analysis were both reported as EMPCs, the confirmation result was rejected, "R," in favor of the initial result.
- Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation. EMPCs were identified in the sample of this SDG, as denoted by the laboratory "K," code. For individual isomers identified as EMPCs, the results were qualified as estimated nondetects, "UJ." When total concentrations were the same as the sum of the individual isomer concentration, the total was qualified as an estimated nondetect, "UJ," at the reporting limit if detected below the reporting limit or at the level of contamination if detected above. All remaining totals, except total TCDD, 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).

# Validated Sample Result Forms: 238462H

Analysis Method 1613B

Sample Name	HZBS0080AS0	Matrix '	Гуре: Soil	Result Type: Primary Result			
<b>Lab Sample Name:</b>	1091001 Sam		<b>ample Date:</b> 10/1/2009 2:45:00 PM		•	Validation Le	evel: 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	0.306	4.5	0.306 pg/g	U	U	
1,2,3,4,6,7,8-HpCDF	67562394	0.151	4.5	0.151 pg/g	U	U	
1,2,3,4,7,8,9-HpCDF	55673897	0.298	4.5	0.298 pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.156	4.5	0.156 pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.117	4.5	0.117 pg/g	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.176	4.5	0.176 pg/g	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.123	4.5	0.123 pg/g	U	U	
1,2,3,7,8,9-HxCDD	19408743	0.174	4.5	0.174 pg/g	U	U	
1,2,3,7,8,9-HxCDF	72918219	0.185	4.5	0.185 pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.119	4.5	0.119 pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	0.093	4.5	0.093 pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.127	4.5	0.127 pg/g	U	U	
2,3,4,7,8-PeCDF	57117314	4.5	4.5	4.5 pg/g	JK	UJ	*III, result changed from 0.12 and EDL from 0.0955
2,3,7,8-TCDD	1746016	0.145	0.899	0.145 pg/g	U	U	
2,3,7,8-TCDF	51207319	0.899	0.899	0.899 pg/g	J	U	B, result changed from 0.273 and EDL from 0.0529
2,3,7,8-TCDF	51207319	0.266	0.899	0.166 pg/g	JK	R	D
OCDD	3268879	8.99	8.99	8.99 pg/g	J	U	B, result changed from 1.11 and EDL from 0.734
OCDF	39001020	0.752	8.99	0.752 pg/g	U	U	
Total HpCDD	37871004	0.306	4.5	0.306 pg/g	U	U	
Total HpCDF	38998753	0.151	4.5	0.151 pg/g	U	U	
Total HxCDD	34465468	0.156	4.5	0.156 pg/g	U	U	
Total HxCDF	55684941	0.117	4.5	0.117 pg/g	U	U	
Total PeCDD	36088229	0.119	4.5	0.119 pg/g	U	U	
Total PeCDF	30402154	4.5	4.5	4.5 pg/g	J	UJ	B, *III, result changed from 0.12 and EDL from 0.0861
Total TCDD	41903575	0.145	0.899	0.145 pg/g	U	U	
Total TCDFs	55722275	0.273	0.899	0.166 pg/g	J	J	B, \$, result changed from 0.503

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Sample Name	HZBS0081AS0	002	Matrix 7	Гуре: Soil	<b>Result Type:</b> Primary Result			
Lab Sample Name:	1091005	Sample 1	Date: 9	/30/2009 10:12:00 A	M V	evel: 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	0.339	4.58	0.339 pg/g	U	U		
1,2,3,4,6,7,8-HpCDF	67562394	0.166	4.58	0.166 pg/g	U	U		
1,2,3,4,7,8,9-HpCDF	55673897	0.336	4.58	0.336 pg/g	U	U		
1,2,3,4,7,8-HxCDD	39227286	0.174	4.58	0.174 pg/g	U	U		
1,2,3,4,7,8-HxCDF	70648269	0.12	4.58	0.12 pg/g	U	U		
1,2,3,6,7,8-HxCDD	57653857	0.193	4.58	0.193 pg/g	U	U		
1,2,3,6,7,8-HxCDF	57117449	0.123	4.58	0.123 pg/g	U	U		
1,2,3,7,8,9-HxCDD	19408743	0.193	4.58	0.193 pg/g	U	U		
1,2,3,7,8,9-HxCDF	72918219	0.187	4.58	0.187 pg/g	U	U		
1,2,3,7,8-PeCDD	40321764	0.138	4.58	0.138 pg/g	U	U		
1,2,3,7,8-PeCDF	57117416	4.58	4.58	4.58 pg/g	JK	UJ	*III, result changed from 0.125 and EDL from 0.099	
2,3,4,6,7,8-HxCDF	60851345	0.129	4.58	0.129 pg/g	U	U		
2,3,4,7,8-PeCDF	57117314	0.104	4.58	0.104 pg/g	U	U		
2,3,7,8-TCDD	1746016	0.146	0.917	0.146 pg/g	U	U		
2,3,7,8-TCDF	51207319	0.917	0.917	0.917 pg/g	J	U	B, result changed from 0.27 and EDL from 0.178	
2,3,7,8-TCDF	51207319	0.282	0.917	0.0644 pg/g	J	R	D	
OCDD	3268879	0.836	9.17	0.836 pg/g	U	U		
OCDF	39001020	0.778	9.17	0.778 pg/g	U	U		
Total HpCDD	37871004	0.339	4.58	0.339 pg/g	U	U		
Total HpCDF	38998753	0.166	4.58	0.166 pg/g	U	U		
Total HxCDD	34465468	0.174	4.58	0.174 pg/g	U	U		
Total HxCDF	55684941	0.12	4.58	0.12 pg/g	U	U		
Total PeCDD	36088229	0.138	4.58	0.138 pg/g	U	U		
Total PeCDF	30402154	4.58	4.58	4.58 pg/g	J	UJ	B, *III, result changed from 0.125 and EDL from 0.099	
Total TCDD	41903575	0.146	0.917	0.146 pg/g	U	U		
Total TCDFs	55722275	0.917	0.917	0.917 pg/g	J	U	B, result changed from 0.27 and EDL from 0.178	

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Sample Name	HZBS0084AS002 Matrix Type: Soil Result Type:		ult Type: Pr	imary Result			
<b>Lab Sample Name:</b>	Name: 1091002 Sample Da			0/1/2009 8:15:00 AI	M T	Validation Le	vel: 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	4.61	4.61	4.61 pg/g	JK	UJ	*III, result changed from 0.569 and EDL from 0.371
1,2,3,4,6,7,8-HpCDF	67562394	4.61	4.61	4.61 pg/g	J	U	B, result changed from 0.369 and EDL from 0.18
1,2,3,4,7,8,9-HpCDF	55673897	4.61	4.61	4.61 pg/g	JK	UJ	*III, result changed from 0.358 and EDL from 0.353
1,2,3,4,7,8-HxCDD	39227286	4.61	4.61	4.61 pg/g	JK	UJ	*III, result changed from 0.325 and EDL from 0.201
1,2,3,4,7,8-HxCDF	70648269	0.321	4.61	0.132 pg/g	J	J	
1,2,3,6,7,8-HxCDD	57653857	4.61	4.61	4.61 pg/g	J	U	B, result changed from 1.56 and EDL from 0.231
1,2,3,6,7,8-HxCDF	57117449	4.61	4.61	4.61 pg/g	J	U	B, result changed from 0.661 and EDL from 0.141
1,2,3,7,8,9-HxCDD	19408743	4.61	4.61	4.61 pg/g	J	U	B, result changed from 2.05 and EDL from 0.225
1,2,3,7,8,9-HxCDF	72918219	4.61	4.61	4.61 pg/g	JK	UJ	*III, result changed from 0.417 and EDL from 0.221
1,2,3,7,8-PeCDD	40321764	4.61	4.61	4.61 pg/g	J	U	B, result changed from 0.38 and EDL from 0.221
1,2,3,7,8-PeCDF	57117416	4.61	4.61	4.61 pg/g	JK	UJ	*III, result changed from 0.306 and EDL from 0.108
2,3,4,6,7,8-HxCDF	60851345	4.61	4.61	4.61 pg/g	JK	UJ	*III, result changed from 0.36 and EDL from 0.142
2,3,4,7,8-PeCDF	57117314	4.61	4.61	4.61 pg/g	JK	UJ	*III, result changed from 0.353 and EDL from 0.119
2,3,7,8-TCDD	1746016	0.177	0.923	0.177 pg/g	U	U	
2,3,7,8-TCDF	51207319	0.338	0.923	0.0729 pg/g	JK	R	D
2,3,7,8-TCDF	51207319	0.923	0.923	0.923 pg/g	J	U	B, result changed from 0.377 and EDL from 0.203
OCDD	3268879	9.23	9.23	9.23 pg/g	J	U	B, result changed from 1.59 and EDL from 0.886
OCDF	39001020	9.23	9.23	9.23 pg/g	J	U	B, result changed from 1.02 and EDL from 1.02
Total HpCDD	37871004	4.61	4.61	4.61 pg/g	J	UJ	B, *III, result changed from 0.569 and EDL from 0.371
Total HpCDF	38998753	0.727	4.61	0.18 pg/g	J	J	В, *Ш
Total HxCDD	34465468	3.93	4.61	0.201 pg/g	J	J	В, *Ш
Total HxCDF	55684941	1.76	4.61	0.132 pg/g	J	J	В, *Ш
Total PeCDD	36088229	4.61	4.61	4.61 pg/g	J	U	B, result changed from 0.38 and EDL from 0.221
Total PeCDF	30402154	0.659	4.61	0.0941 pg/g	J	J	В, *Ш
Total TCDD	41903575	0.177	0.923	0.177 pg/g	U	U	
Total TCDFs	55722275	0.674	0.923	0.203 pg/g	J	J	В

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Sample Name	HZBS0123AS0	HZBS0123AS002 Matrix Type: Soil			Res	<b>Result Type:</b> Primary Result			
Lab Sample Name:	1091003	Sample 1	Date: 1	0/1/2009 1:30:00 PM	1 1	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	0.628	4.61	0.531 pg/g	J	J			
1,2,3,4,6,7,8-HpCDF	67562394	4.61	4.61	4.61 pg/g	JK	UJ	*III, result changed from 0.214 and EDL from 0.188		
1,2,3,4,7,8,9-HpCDF	55673897	0.367	4.61	0.367 pg/g	U	U			
1,2,3,4,7,8-HxCDD	39227286	0.193	4.61	0.193 pg/g	U	U			
1,2,3,4,7,8-HxCDF	70648269	0.141	4.61	0.141 pg/g	U	U			
1,2,3,6,7,8-HxCDD	57653857	0.201	4.61	0.201 pg/g	U	U			
1,2,3,6,7,8-HxCDF	57117449	0.145	4.61	0.145 pg/g	U	U			
1,2,3,7,8,9-HxCDD	19408743	0.208	4.61	0.208 pg/g	U	U			
1,2,3,7,8,9-HxCDF	72918219	0.223	4.61	0.223 pg/g	U	U			
1,2,3,7,8-PeCDD	40321764	0.172	4.61	0.172 pg/g	U	U			
1,2,3,7,8-PeCDF	57117416	0.143	4.61	0.143 pg/g	U	U			
2,3,4,6,7,8-HxCDF	60851345	0.144	4.61	0.144 pg/g	U	U			
2,3,4,7,8-PeCDF	57117314	0.149	4.61	0.149 pg/g	U	U			
2,3,7,8-TCDD	1746016	0.164	0.921	0.164 pg/g	U	U			
2,3,7,8-TCDF	51207319	0.311	0.921	0.0801 pg/g	JK	R	D		
2,3,7,8-TCDF	51207319	0.921	0.921	0.921 pg/g	J	U	B, result changed from 0.356 and EDL from 0.201		
OCDD	3268879	9.21	9.21	9.21 pg/g	JK	UJ	*III, result changed from 3.87 and EDL from 0.93		
OCDF	39001020	0.928	9.21	0.928 pg/g	U	U			
Total HpCDD	37871004	1.67	4.61	0.531 pg/g	J	J	В		
Total HpCDF	38998753	4.61	4.61	4.61 pg/g	J	UJ	B, *III, result changed from 0.214 and EDL from 0.188		
Total HxCDD	34465468	0.193	4.61	0.193 pg/g	U	U			
Total HxCDF	55684941	0.26	4.61	0.141 pg/g	J	J	В		
Total PeCDD	36088229	0.172	4.61	0.172 pg/g	U	U			
Total PeCDF	30402154	0.507	4.61	0.0912 pg/g	J	J	В		
Total TCDD	41903575	0.164	0.921	0.164 pg/g	U	U			
Total TCDFs	55722275	0.632	0.921	0.201 pg/g	J	J	В		

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Sample Name	HZBS0124AS002 Matrix Type: Soil				Result Type: Primary Result			
Lab Sample Name:	1091004	Sample 1	Date: 1	0/1/2009 12:30:00 P	M T	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	0.419	4.68	0.419 pg/g	U	U		
1,2,3,4,6,7,8-HpCDF	67562394	0.195	4.68	0.195 pg/g	U	U		
1,2,3,4,7,8,9-HpCDF	55673897	0.382	4.68	0.382 pg/g	U	U		
1,2,3,4,7,8-HxCDD	39227286	0.186	4.68	0.186 pg/g	U	U		
1,2,3,4,7,8-HxCDF	70648269	0.139	4.68	0.127 pg/g	J	J		
1,2,3,6,7,8-HxCDD	57653857	0.21	4.68	0.21 pg/g	U	U		
1,2,3,6,7,8-HxCDF	57117449	0.136	4.68	0.136 pg/g	U	U		
1,2,3,7,8,9-HxCDD	19408743	0.208	4.68	0.208 pg/g	U	U		
1,2,3,7,8,9-HxCDF	72918219	0.217	4.68	0.217 pg/g	U	U		
1,2,3,7,8-PeCDD	40321764	0.15	4.68	0.15 pg/g	U	U		
1,2,3,7,8-PeCDF	57117416	4.68	4.68	4.68 pg/g	JK	UJ	*III, result changed from 0.139 and EDL from 0.119	
2,3,4,6,7,8-HxCDF	60851345	0.141	4.68	0.141 pg/g	U	U		
2,3,4,7,8-PeCDF	57117314	0.152	4.68	0.122 pg/g	J	J		
2,3,7,8-TCDD	1746016	0.169	0.936	0.169 pg/g	U	U		
2,3,7,8-TCDF	51207319	0.397	0.936	0.21 pg/g	JK	R	D	
2,3,7,8-TCDF	51207319	0.936	0.936	0.936 pg/g	J	U	B, result changed from 0.32 and EDL from 0.0713	
OCDD	3268879	0.99	9.36	0.99 pg/g	U	U		
OCDF	39001020	0.957	9.36	0.957 pg/g	U	U		
Гotal HpCDD	37871004	0.419	4.68	0.419 pg/g	U	U		
Total HpCDF	38998753	0.195	4.68	0.195 pg/g	U	U		
Total HxCDD	34465468	0.186	4.68	0.186 pg/g	U	U		
Total HxCDF	55684941	4.68	4.68	4.68 pg/g	J	U	B, result changed from 0.139 and MDL from 0.127	
Total PeCDD	36088229	0.15	4.68	0.15 pg/g	U	U		
Total PeCDF	30402154	0.29	4.68	0.119 pg/g	J	J	В, *Ш	
Total TCDD	41903575	0.169	0.936	0.169 pg/g	U	U		
Total TCDFs	55722275	0.32	0.936	0.21 pg/g	J	J	B, \$, result changed from 0.667	

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# Chain of Custody and Supporting Documentation

**CHAIN OF CUSTODY RECORD** 

SWEDER!

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Numerical values for
analyses equate to turn
around time in days Note: Values in the cells bellow are Turn Around Times. H - Hold EH - Extract/Extrude & Hold Instructions/TAT Comments Boeing PM: Requested Analyses Collector: A. Goldenberg Project Information PCB by SW8082 - Soil 2 ß S Metals 6020 Soil Lead Contact #: D2216 Moisture Soil Asbestos 600/R-93/116 - Soil က က No. of Containers ISRA Sampling, August 2009 GEL Laboratories, LLC Charleston, SC 29407 2040 Savage Road Benjamin Stewart 1891614.05462 (818) 266-1378 (925) 627-4627 (843) 769-7388 Time 10:10 10:30 10:35 Jackie Trudell Project Manager: Alex Fisch! Boeing 10/6/2009 10/6/2009 10/6/2009 Project Information Date Project Number: Sampling Event: Field Contact #: Field Contact: Client Name: Lab Address: PM Phone #: Lab Contact: Lab Name: Lab Phone: Matrix sarah.vonraesfeld@mwhglobal.c Soil Soil Soil Soil sean.leffler@mwhglobal.com 2121 N. California Blvd Report to: Sarah Von Raesfeld **Customer Information** Walnut Creek Suite 600 94596 SSFL Company: MWH 8 Sample Name HZET1001S002 HZET0242S001 HZET1000S001 HZET1001S001 Address: Email: Site:

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
NWon, m. 9-10-10-09	60-9-01	field John	10/7/09				
Company: MWH	Time: 16:25	Company: GEC	Time:	Company:	Time:	Company:	Time:
Comments:					Geo	Geotracker EDF	
					Data	Data Validation Package 🗸 Level IV	el IV

2

10:38

10/6/2009

## SAMPLE RECEIPT & REVIEW FORM

Clien	t: SSFL				SDG/ARCOC/Work Order: 234543
	ved By: ficky Alber				Date Received: 10/7/69
$\vdash$	ected Hazard Information	83	•	*If (	Counts > x2 area background on samples not marked "radioactive", contact
		Yes	%	the 1	Radiation Safety Group of further investigation.
	Samples marked as radioactive?		4	Max	cimum Counts Observed*: 90 C/m
	ified Radioactive II or III by RSO?	$\vdash$	<u> </u>		
_	Samples marked containing PCBs? ed as a DOT Hazardous?		V	Han	and Class Chinests
	les identified as Foreign Soil?	<del> </del>	7	паг	ard Class Shipped: UN#:
Camp			Ť		
	Sample Receipt Criteria	Yes	NA	ž	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	. )			Circle Applicable: seals broken damaged container leaking container other (describe)
2	Samples requiring cold preservation within $0 \le 6$ deg. C?	1			Preservation Method:  (ce bags blue ice dry ice none other (describe)
3	Chain of custody documents included with shipment?	V			
4	Sample containers intact and sealed?	١			Circle Applicable: seals broken damaged container leaking container other (describe)
5	Samples requiring chemical preservation at proper pH?		\ \		Sample ID's, containers affected and observed pH:  If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		/		Sample ID's and containers affected:
7	Are Encore containers present?			-	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	ン		i.	Id's and tests affected:
9	Sample ID's on COC match ID's on bottles?	\			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	١			Sample ID's affected:
11	Number of containers received match number indicated on COC?	ļ			Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?	/			•
Comn	nents: Feltx 9457 31	63	0	77	-3

PM (or PMA) review: Initials \_\_\_\_

CHENE

**CHAIN OF CUSTODY RECORD** 

COC #:

MWHAG20091005\_00

Legend:
Numerical values for
analyses equate to turn
around time in days H - Hold EH - Extract/Extrude & Hold Note: Values in the cells bellow are Turn Around Times. 1 of 1 Instructions/TAT Comments Page: Boeing PM: Requested Analyses Collector: A. Goldenberg Project Information PCB by SW8082 - Soil Contact #: Metals 6020 Soil Lead 7 No. of Containers ISRA Sampling, August 2009 GEL Laboratories, LLC Charleston, SC 29407 2040 Savage Road 1891614.05462 (323) 304-4969 (925) 627-4627 Brian Martasin (843) 769-7388 Time 13:55 14:00 14:18 14:10 14:05 Jackie Trudell Project Manager: Alex Fischl Boeing 10/5/2009 10/5/2009 10/5/2009 10/5/2009 10/5/2009 Project Information Date Project Number: Sampling Event: Field Contact #: Field Contact: Client Name: Lab Address: PM Phone #: Lab Contact: Lab Name: Lab Phone: Matrix sarah.vonraesfeld@mwhglobal.c Soil Soil Soil Soil Soil sean.leffler@mwhglobal.com 2121 N. California Blvd Report to: Sarah Von Raesfeld **Customer Information** Walnut Creek Suite 600 94596 SSFL Company: MWH 8 Sample Name HZET0237S001 HZET0238S001 4ZET0239S001 HZET0240S001 HZET0241S001 Address: Email: Site:

1. Relinquished by:	Date:	2. Received hv.					
			Date:	3. Relinquished by:	Date:	4. Received by:	Date.
15. C	60/5/01	Will Adding	(All)				
Company:	Time.	Company	- 1				
MWH	1525	Company. GE	Time:	Company:	Time:	Company:	Time:
Comments:							
					Geotra	Geotracker EDF	
					Data V	Data Validation Package 💟 Level IV	

# SAMPLE RECEIPT & REVIEW FORM

Clie	ent: SSFL		_		656575
Rec	eived By: Rick Allee		_		SDG/ARCOC/Work Order: 2353635 5T 10/7/09
	pected Hazard Information	1 %	T =	*If (	Date Received: 60/6/07
├		Yes	ž	the 1	Counts > x2 area background on samples not marked "radioactive", contact Radiation Safety Group of further investigation.
	C/Samples marked as radioactive?		~	Max	cimum Counts Observed*: 40 Clm
	sified Radioactive II or III by RSO?	╀—	1		
	C/Samples marked containing PCBs?  ped as a DOT Hazardous?	╄	1	_	
	ples identified as Foreign Soil?	-	0	Haz	ard Class Shipped: UN#:
		<u> </u>	<u> </u>		
	Sample Receipt Criteria	Yes	NA	ž	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	~			Circle Applicable: seals broken damaged container leaking containe: other (describe)
2	Samples requiring cold preservation within 0 ≤ 6 deg. C?	~			Preservation Method:  (ice bags) blue ice dry ice none other (describe)
3	Chain of custody documents included with shipment?	~			
4	Sample containers intact and sealed?	/			Circle Applicable: seals broken uamaged container leaking container other (describe)
5	Samples requiring chemical preservation at proper pH?			- 1	Sample ID's, containers affected and observed pH:  If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		~		Sample ID's and containers affected:
7	Are Encore containers present?			-	If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	~		Ī	d's and tests affected:
9	Sample ID's on COC match ID's on bottles?	~		S	cample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	1		S	ample ID's affected:
11	Number of containers received match number indicated on COC?	~		s	ample ID's affected:
12	COC form is properly signed in relinquished/received sections?	V			
omm	ents: Felex 9457 3163 0	378	4	,	
					·

PM (or PMA) review: Initials \_

Date 10/6/09

Subject: Asbestos add-on

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

Date: Tue, 6 Oct 2009 14:25:48 -0600

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

CC: Sean Leffler <Sean.S.Leffler@us.mwhglobal.com>

Hi Jackie,

Please run asbestos on a 3 day TAT for the following samples (collected 10/5):

HZET0237S001

HZET0238S001

HZET0239S001

HZET0240S001

HZET0241S001

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

Thanks, Sarah



#### BUILDING A BETTER WORLD

#### Sarah Von Raesfeld

Environmental Chemist

MWH Americas, Inc. Telephone: 925 627 4500
2121 N. California Blvd. Direct Line: 925 627 4654
Suite 600

Suite 600

Facsimile: 925 627 4501

Walnut Creek, California 94596

Date: 10/8/09

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:

jacqueline.trudell@gel.com

From:

Sean Leffler

Requestor

signature:\_

Subject:

Chain-of-Custody Form Analytical Request Change

No. of Pages: 2

#### Per Request:

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

COC No.	Client Sample ID(s)	Date Collected	Originally Requested Analyses	Change (s) and Method (s) Now Requested
MWHAG2 0091005_0 0	HZET0237S00	10/5/09		Add asbestos 600/R-93/116
MWHAG2 0091005_0 0	HZET0238S00 1	10/5/09		Add asbestos 600/R-93/116
MWHAG2 0091005_0 0	HZET0239S00 1	10/5/09		Add asbestos 600/R-93/116
MWHAG2 0091005_0 0	HZET0240S00 1	10/5/09		Add asbestos 600/R-93/116
MWHAG2 0091005_0 0	HZET0241S00	10/5/09		Add asbestos 600/R-93/116

The reason for these changes:	
Incorrectly marked on COC form	
Lack of sample volume	
Change in analytical request	X
Other:	
	<u> </u>
Thank you	

238383

**CHAIN OF CUSTODY RECORD** 

( BUEING

MWHAG20091005\_00 Page: 1 of 1

Customer	Customer Information	Project Information	ation	percentage denset is a sp. san		Proje(	Project Information	rmati	Ju.	and different or 4 th below or a			And the second s	4 11 11 11 11 11 11 11 11 11 11 11 11 11	es-midd hadd tipleth bid to b the state of t
Site:	SSFL	Client Name:	Boeing			Collector:	-	A. Goldenberg	enberg	_			Boeing PM:	<u>.</u> .	
Company: MWH	MWH	Sampling Event:	_	mpling, At	SRA Sampling, August 2009	Contact #:	:# to				257				
Report to:	Report to: Sarah Von Raesfeld	Project Number:	1891614.05462	.05462					œ	equest	Requested Analyses	10.8			Instructions/TAT
Address:	2121 N. California Blvd	Project Manager:	: Alex Fischi	ह				A:							2 egend:
	Suite 600	PM Phone #:	(925) 627-4627	7-4627				be							Numerical values for
	Walnut Creek	Field Contact:	Brian Martasin	ırtasın				sta							around time in days
	Y S	Field Contact #:	(323) 304-4968	4-4969	225			<u> </u>							H-Hold
	94596	Lab Name:	GEL Lab	GEL Laboratories, LLC	TIC			09							EH - Extract/Extrude & Hold
Email:	sarah.vonraesfeld@mwhglobal.c	I.c Lab Contact:	Jackie Trudell	rudell			F	R							
	sean.leffler@mwhgtobal.com	Lab Address:	2040 Sav	2040 Savage Road	_		PCB	-9					-		Note: Values in the cells
			Charlest	Charleston, SC 29407	407		-,	3/11		_		· · · · · ·			bellow are Turn Around Times.
	* 0	Lab Phone:	(843) 769-7388	9-7388		_	V808	6							
Sample Name	emi	Matrix	Date	Time	No. of Containers	ire Soil	2 - Soil il Lead	501							Comments
HZET0237S001		Soil 10	10/5/2009	13:55	-	3	2 3	າ ກ						_	
HZET0238S001		Soil 10	10/5/2009	14:00	1	3 2	3	3 (	_					_	
HZET02385001		Soil 10	10/5/2009	14:18	-	3 2	3	છ						_	
HZET0240S001		Soil . 10	10/5/2009	14:10	1	3 2	3	3							
HZET0241S001		Soil 10	10/5/2009	14:05	1	3 2	2 3	M	H			<u> </u>		L	

1. Relinquished by:	Date:	2. Received by:	Oate:	3. Relinquished by:	Date:	4. Received by:	Date:	2
8	10/5/09	Mill Suhn	10/0/					
Company: MWH	Time: / 525	Company: CEC	Time:	Company:	Time:	Company:	Time:	
Comments:					Geoti	Geotracker EDF		
					Data	Data Validation Package 🗹 Level IV	Level IV	

60/8/61 7550

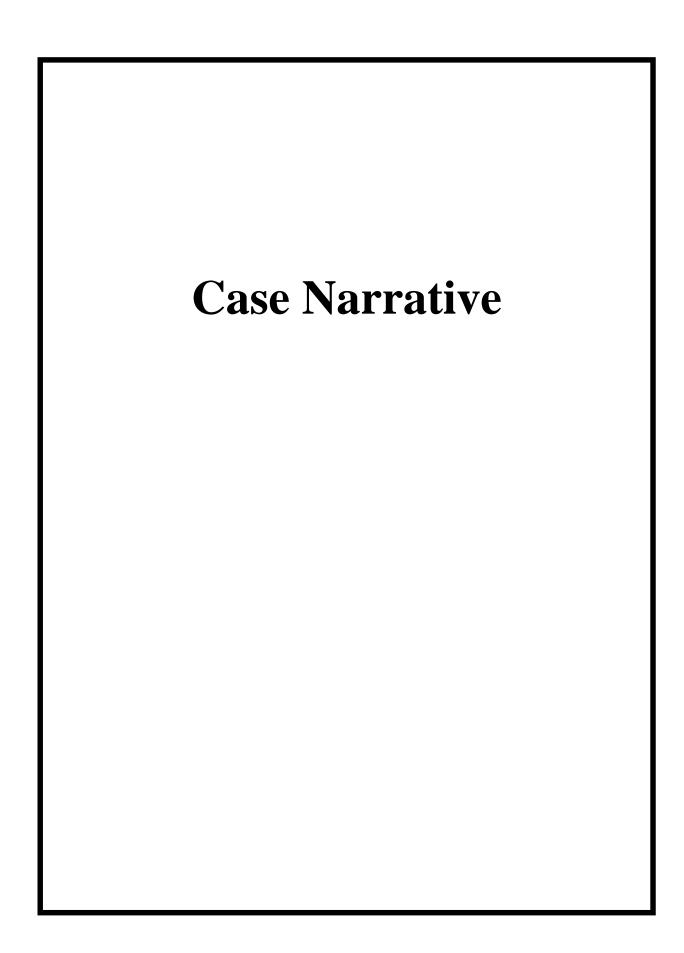
### LABORATORY TASK ORDER (LTO) FORM

INSTRUCTIONS: To be completed by Environmental Contractor & Emailed to Laboratory Project Manager, CH2M HILL (boeingedms@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: 1	SRA Sar	mpling, August 2009	Start:	8/24/2009	End:	9/30/2009
LTO DATE:			LTO	NUMBER:		
Consultant Name:		MWH	Contract Laboratory:		GEL	
Address:		. California Blvd. Ste. 600	Address:		040 Savage F	
_	Wa	Inut Creek, CA 94596	-	Cha	rleston, SC 2	9407
Contact Name:	5	Sarah Von Raesfeld	Lab Contact Name:		Jackie Trude	
Phone Number:		925-627-4654	Phone Number:		843-769-738	
Fax Number:		925-627-4501	_ Fax Number: _		843-766-117	
E-mail Address: _	Sarah.\	VonRaesfeld@mwhglobal.com	E-mail Address: _	<u>jacque</u>	line.trudell@g	gel.com
Date Required:		SAMPLE CON	ITAINER ORDER FORM Requested Analyses:	(Sr	ecify # of Sam	alas)
_				Water	Soil	Contingent
			Dioxins (1613B)	15	124	0
Date Sample Pickup:			EPA 8015M (DRO)			
· -			EPA 8015M (JET FUEL)			
Ship Containers To:			EPA 8015M (CC)			
Project Site _		(enter "X")	TCE (8260B)	5	12	0
Consultant Office		(enter "X")	EPA 8270C SIM (SVOC)			
Other Location (specify in			EPA 8310 (PAH)			
comments)_		_(enter "X")	EPA 8082 (PCB)	3	5	0
			Nickel (6020)	5	10	0
Container Information:			Chromium (6020)	5	10	0
Trip Blank (VOA only)	No	_(Yes/No)	Silver (6020)	5	10	0
Temp Blank (VOA Only)	No	_(Yes/No)	Cadmium (6020)	10	35	0
DI Water Required?	No	(Yes/No)	Arsenic (6020)	5	10	0
MS/MSD Extra Bottles? _	No	_(Yes/No)	% Moisture (D2216)	0 10	170	0
Sample Matrix:			Lead (6020) Copper (6020)	10	65 75	0
Soil	Х	(select all applicable)	Zinc (6020)	5	20	0
Water	X	(select all applicable)	Mercury by 7471A/7470A	<u>5</u>	25	0
Vater_ Vapor		(select all applicable)	merodry by 147127470AL			
Est. Total # of Samples:	175	Est. Total # of EDDs 4	0			
· <u>-</u>			ORTING REQUIREMENTS			
Project TAT:			Laboratory Results/Repo	rts Delivera	ables:	
Normal: _	X	(10 Business days)	Draft Results Fax?:		(Yes/No)	
RUSH: _	5	(Specify- 24 / 48 / 72HRS)	Draft Results E-mail?:	Yes	(Yes/No)	
Other:		(Specify # of Days)	Specify Fax/E-mail Contact			
Report Due Date:				Sarah.VonRae	sfeld@mwhgloba	al.com
			Send Original Reports To:			
<b>Special Reporting Requ</b>	uireme	nts:	Project Site _		(enter "X")	
Contingent Analysis? _	No	_(Yes/No)	Consultant Office		(enter "X")	
TIC (VOC) Required?	No	(Yes/No)	Other Location (specify			
TIC (SVOC) Required?	No	(Yes/No)	in comments)	Χ	(enter "X")	
Data Validation Pckge.:	Tier III	( Boeing Tier I, II or III)	# of Copies Reports Req.:	1	-	
		SPECIAL INST	RUCTIONS/LTO NOTES			
		CONFIRMATION O	F TRANSMITTAL & RECEIPT	<del>.</del>		
LTO Sent By:			LTO Received By-			
•	Sarah V	n Pagefold	•			
<del>-</del>		n Raesfeld	Name: _			
Date: <u>(</u>	09/02/09		Date: _			•

## **Table of Contents**

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#### Case Narrative for Boeing - SSFL (MWH) Work Order: 238543 SDG: 238543

October 12, 2009

#### **Laboratory Identification:**

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

#### **Summary:**

#### Sample Receipt

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on October 06, 2009 and October 07, 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:

Laboratory	Sample
<b>Identification</b>	<b>Description</b>
238543001	HZET0242S001
238543002	HZET1000S001
238543003	HZET1001S001
238543004	HZET1001S002
238543005	HZET0237S001
238543006	HZET0238S001
238543007	HZET0239S001
238543008	HZET0240S001
238543009	HZET0241S001

#### **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: GC Semivolatile PCB,

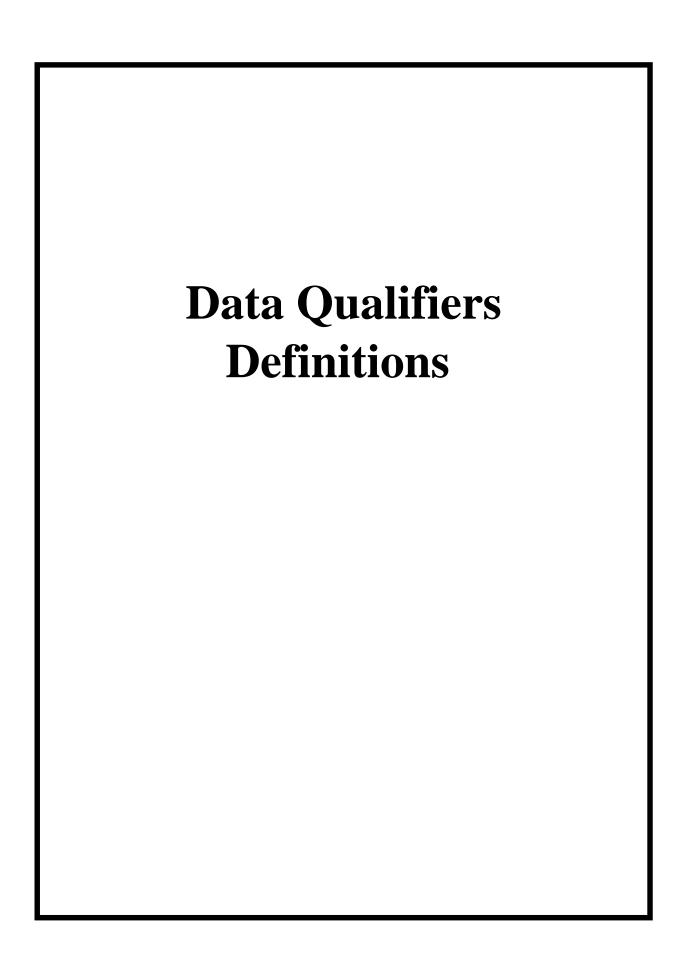
Metals, Percent Moisture and Asbestos (EMLab P&K).

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

Gazqueline a Judel

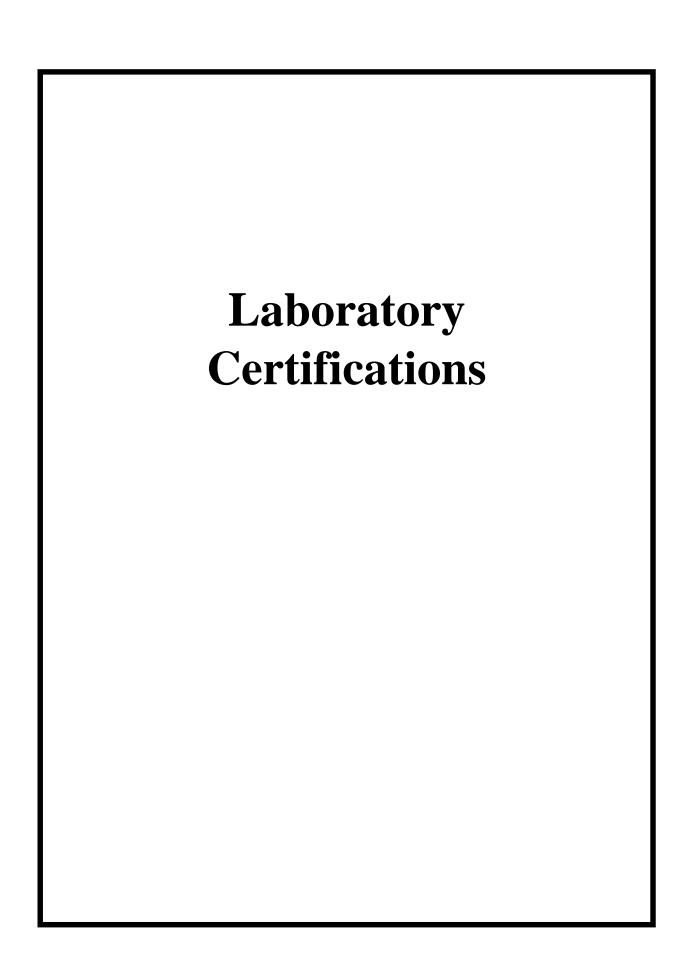
Project Manager



#### 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
- ${
  m N/A}$  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.



List of current GEL Certifications as of 12 October 2009

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



# DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: 238543

Prepared by

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

Project: Boeing SSFL RFI ISRA SDG: 238543

#### DATA VALIDATION REPORT

#### I. INTRODUCTION

Task Order Title: Boeing SSFL RFI ISRA

Contract Task Order: 1261.500D.00

Sample Delivery Group: 238543

Project Manager: Dixie Hambrick

Matrix: soil C Level: V

QC Level: V No. of Samples: 9

No. of Reanalyses/Dilutions: 0

Laboratory: GEL

Table 1. Sample Identification

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
HZET0237S001	238543005	2612716-1	Soil	10/5/2009 1:55:00 PM	EPA 600/R-93/116
HZET0238S001	238543006	2612717-1	Soil	10/5/2009 2:00:00 PM	EPA 600/R-93/116
HZET0239S001	238543007	2612718-1	Soil	10/5/2009 2:18:00 PM	EPA 600/R-93/116
HZET0240S001	238543008	2612719-1	Soil	10/5/2009 2:10:00 PM	EPA 600/R-93/116
HZET0241S001	238543009	2612720-1	Soil	10/5/2009 2:05:00 PM	EPA 600/R-93/116
HZET0242S001	238543001	2612712-1	Soil	10/6/2009 10:10:00 AM	6020, 8082, EPA 600/R-93/116
HZET1000S001	238543002	2612713-1	Soil	10/6/2009 10:30:00 AM	8082, EPA 600/R- 93/116
HZET1001S001	238543003	2612714-1	Soil	10/6/2009 10:35:00 AM	8082, EPA 600/R- 93/116
HZET1001S002	238543004	2612715-1	Soil	10/6/2009 10:38:00 AM	8082, EPA 600/R- 93/116

#### **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  $4^{\circ}C$   $\pm 2^{\circ}C$ . 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**

Qualifie	r 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- 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
Н	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
С	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.
В	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.
Е	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
Α	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
Т	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 The analysis with this flag should not be used because another more be used because another more technically sound analysis is technically sound analysis is available. available. Ρ Instrument performance for

\*11, \*111 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

pesticides was poor.

indicate the report section where a description of the problem can be found.

Post Digestion Spike recovery was not within control limits.

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.

Project: Boeing SSFL RFI ISRA SDG: 238543

#### III. Method Analyses

#### A. EPA METHOD 600/R-93/116—Asbestos

Reviewed By: P. Meeks

Date Reviewed: October 21, 2009

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the MEC<sup>X</sup> Data Validation Procedure for General Minerals (DVP-6, Rev. 0), EPA Method 600/R-93/116, and the National Functional Guidelines for Inorganic Data Review (07/02).

- Holding Times: There is no established holding time for asbestos analysis; however, the samples were analyzed within 30 days of collection.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks are not applicable to this analysis. The laboratory did not provide
  documentation indicating that all supplies used in the analysis of the sample were checked
  and found to be free from asbestos contamination.
- Blank Spikes and Laboratory Control Samples: Not applicable to this analysis.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: Not applicable to this analysis.
- Sample Result Verification: Review is not applicable at a Level V validation. The laboratory did not provide any documents other than the sample results.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: FBQW2239 (235913) was identified as the field blank associated with the samples in this SDG. The field blank was not analyzed for asbestos. The samples in this SDG had no associated equipment rinsate.
  - Field Duplicates: There were no field duplicate samples identified in this SDG.

Project: Boeing SSFL RFI ISRA SDG: 238543

#### DATA VALIDATION REPORT

#### B. EPA METHOD 6020—Lead

Reviewed By: P. Meeks

Date Reviewed: October 21, 2009

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

- Holding Times: The analytical holding time, six months for ICP-MS, was met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks and CCBs had no detects.
- Interference Check Samples: Review is not applicable at a Level V validation.
- Blank Spikes and Laboratory Control Samples: The recovery was within laboratoryestablished QC limits.
- Laboratory Duplicates: A laboratory duplicate analysis was performed on the sample in this SDG. The RPD was within the method-established control limit.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on the sample in this SDG. Recoveries and the RPD were within laboratory-established QC limits.
- Serial Dilution: A serial dilution analysis was performed on the sample in this SDG. The %D was within the method-established control limit
- Internal Standards Performance: Review is not applicable at a Level V validation.
- Sample Result Verification: Review is not applicable at a Level V validation. As the samples in this SDG were validated at Level V, the QC information necessary to make an absolute determination of bias in the samples was not reviewed; therefore, when qualifications were applied, no bias was assigned. The sample in this SDG was analyzed at the laboratory's standard 2x dilution for soils. Any result reported between the MDL and the reporting limit was qualified as estimated, "J." Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples.
   Following are findings associated with field QC samples:

DATA VALIDATION REPORT Project: Boeing SSFL RFI ISRA SDG: 238543

 Field Blanks and Equipment Rinsates: FBQW2239 (235913) was identified as the field blank associated with the sample in this SDG. Lead was not detected in this sample. The sample in this SDG had no identified equipment rinsate.

Field Duplicates: There were no field duplicate samples identified for this SDG.

#### C. EPA METHOD 8082—PCBs

Reviewed By: P. Meeks

Date Reviewed: October 21, 2009

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the MEC<sup>x</sup> Data Validation Procedure for Organochlorine Pesticides/PCBs by GC (DVP-4, Rev. 0), EPA Method 8082, and the National Functional Guidelines for Organic Data Review (10/99).

- Holding Times: Extraction and analytical holding times were met. The soil samples were extracted within 14 days of collection and analyzed within 40 days of extraction.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: The method blanks had no target compound detects above the MDL.
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratoryestablished QC limits.
- Surrogate Recovery: Recoveries were within laboratory-established QC limits.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on HZET0242S001. The recoveries and RPDs were within the laboratory-established control limit.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: FBQW2239 (235913) was identified as the field blank associated with the sample in this SDG. There were no target compounds detected above the MDL in this sample. The sample in this SDG had no identified equipment rinsate.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.
- Compound Identification: Review is not applicable at a Level V validation. The laboratory analyzed for Aroclors by Method 8082.

DATA VALIDATION REPORT Project: Boeing SSFL RFI ISRA SDG: 238543

• 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: 238543

Analy	sis	Method	6020
1 II verv y	$\mathcal{L}\mathcal{L}\mathcal{L}\mathcal{L}\mathcal{L}\mathcal{L}\mathcal{L}\mathcal{L}\mathcal{L}\mathcal{L}$	mentou	0020

Sample Name	HZET0242S001		Matrix '	Type: SOIL	Resi	ult Type: Pr	imary Result
ab Sample Name:	238543001	Sample I	Date: 1	0/6/2009 10:10:00 A	M V	Validation Le	vel: V
nalyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
	7/30021	176	0.426	0.106 mg/kg			

## Analysis Method 8082

Sample Name	HZET0242S001		Matrix 7	Гуре: SOIL	Res	ult Type: Pri	imary Result
Lab Sample Name:	238543001	Sample	Date: 1	0/6/2009 10:10:00 A	M v	Validation Le	vel: V
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aroclor-1016	12674112	3.59	3.59	1.2 ug/kg	U	U	
Aroclor-1221	11104282	3.59	3.59	1.2 ug/kg	U	U	
Aroclor-1232	11141165	3.59	3.59	1.2 ug/kg	U	U	
Aroclor-1242	53469219	3.59	3.59	1.2 ug/kg	U	U	
Aroclor-1248	12672296	3.59	3.59	1.2 ug/kg	U	U	
Aroclor-1254	11097691	3.59	3.59	1.2 ug/kg	U	U	
Aroclor-1260	11096825	3.59	3.59	1.2 ug/kg	U	U	
Sample Name	HZET1000S001		Matrix 7	Type: SOIL	Res	ult Type: Pri	imary Result
Lab Sample Name:	238543002	Sample	Date: 1	0/6/2009 10:30:00 A	M v	Validation Le	vel: V
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aroclor-1016	12674112	3.43	3.43	1.14 ug/kg	U	U	
Aroclor-1221	11104282	3.43	3.43	1.14 ug/kg	U	U	
roclor-1232	11141165	3.43	3.43	1.14 ug/kg	U	U	
roclor-1242	53469219	3.43	3.43	1.14 ug/kg	U	U	
roclor-1248	12672296	3.43	3.43	1.14 ug/kg	U	U	
aroclor-1254	11097691	108	3.43	1.14 ug/kg			
roclor-1260	11096825	39.4	3.43	1.14 ug/kg			
Sample Name	HZET1001S001		Matrix 7	Гуре: SOIL	Res	ult Type: Pri	imary Result
Lab Sample Name:	238543003	Sample	Date: 1	0/6/2009 10:35:00 A	M v	Validation Le	vel: V
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aroclor-1016	12674112	3.39	3.39	1.13 ug/kg	U	U	
roclor-1221	11104282	3.39	3.39	1.13 ug/kg	U	U	
roclor-1232	11141165	3.39	3.39	1.13 ug/kg	U	U	
roclor-1242	53469219	36.1	3.39	1.13 ug/kg			
	12/7222	2.20	3.39	1.13 ug/kg	U	U	
Aroclor-1248	12672296	3.39	3.39	1.13 ug/kg	C	J	
Aroclor-1248 Aroclor-1254	11097691	3.39	3.39	1.13 ug/kg			

## Analysis Method 8082

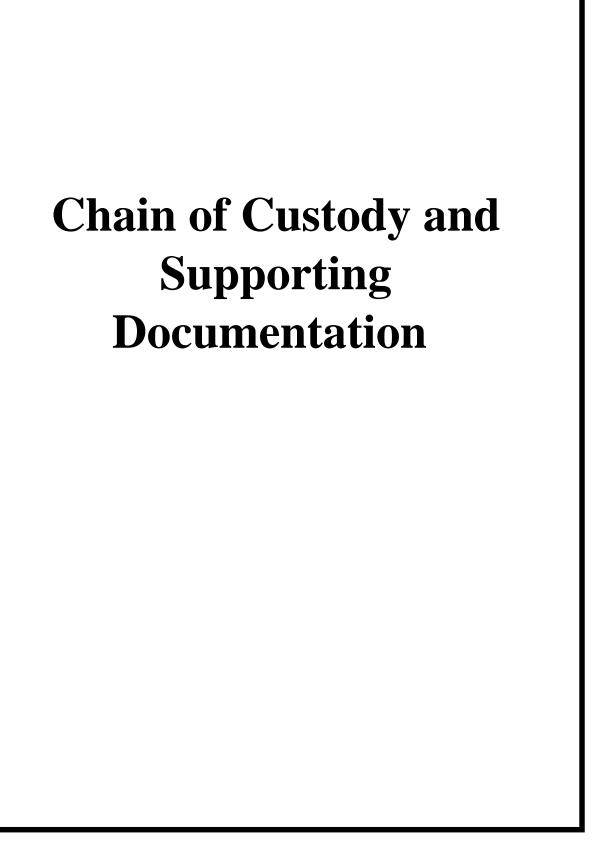
Sample Name	HZET1001S002	2	Matrix '	Type: SOIL	Res	ult Type: Pri	mary Result	
Lab Sample Name:	238543004	Sample l	Date: 1	0/6/2009 10:38:00 A	M v	Validation Le	vel: V	
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Qualifier	Validation Notes	
Aroclor-1016	12674112	3.41	3.41	1.14 ug/kg	U	U		
Aroclor-1221	11104282	3.41	3.41	1.14 ug/kg	U	U		
Aroclor-1232	11141165	3.41	3.41	1.14 ug/kg	U	U		
Aroclor-1242	53469219	3.41	3.41	1.14 ug/kg	U	U		
Aroclor-1248	12672296	3.41	3.41	1.14 ug/kg	U	U		
Aroclor-1254	11097691	22.4	3.41	1.14 ug/kg				
Aroclor-1260	11096825	8.5	3.41	1.14 ug/kg				

## Analysis Method EPA 600/R-93/116

Sample Name	HZET0237S001		Matrix	x Type: SOIL	Res	ult Type: Primary Result
Lab Sample Name:	2612716-1			10/5/2009 1:55:00 PM		Validation Level: V
Analyte	CAS No	Result Value	RL		Lab Qualifier	Validation Validation Notes Qualifier
Asbestos	1332214	0.1		0.1 %	U	U
Sample Name	HZET0238S001		Matrix	Type: SOIL	Res	ult Type: Primary Result
Lab Sample Name:	2612717-1	Sample	Date:	10/5/2009 2:00:00 PM	[ <b>T</b>	alidation Level: V
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Validation Notes Qualifier
Asbestos	1332214	0.1		0.1 %	U	U
Sample Name	HZET0239S001		Matrix	Type: SOIL	Res	alt Type: Primary Result
Lab Sample Name:	2612718-1	Sample	Date:	10/5/2009 2:18:00 PM	ı <b>,</b>	alidation Level: V
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Validation Notes Qualifier
Asbestos	1332214	0.1		0.1 %	U	U
Sample Name	HZET0240S001		Matrix	x Type: SOIL	Res	ult Type: Primary Result
<b>Lab Sample Name:</b>	2612719-1	Sample	Date:	10/5/2009 2:10:00 PM		Validation Level: V
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Validation Notes Qualifier
Asbestos	1332214	0.1		0.1 %	U	U
Sample Name	HZET0241S001		Matrix	x Type: SOIL	Res	ult Type: Primary Result
Lab Sample Name:	2612720-1	Sample	Date:	10/5/2009 2:05:00 PM	ı <b>,</b>	alidation Level: V
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Validation Notes Qualifier
Asbestos	1332214	0.1		0.1 %	U	U
Sample Name	HZET0242S001		Matrix	x Type: SOIL	Res	alt Type: Primary Result
Lab Sample Name:	2612712-1	Sample	Date:	10/6/2009 10:10:00 A	M	Validation Level: V
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Validation Notes Qualifier
Asbestos	1332214	0.1		0.1 %	U	U
Sample Name	HZET1000S001		Matrix	x Type: SOIL	Res	ult Type: Primary Result
<b>Lab Sample Name:</b>	2612713-1	Sample	Date:	10/6/2009 10:30:00 A	M V	Validation Level: V
Analyte	CAS No	Result	RL		Lab	Validation Validation Notes
		Value		Units	Qualifier	Qualifier

# Analysis Method EPA 600/R-93/116

Sample Name	HZET1001S001	Matri	x Type: SOIL	Res	ult Type: Primary Result
Lab Sample Name:	2612714-1	Sample Date:	10/6/2009 10:35:00 A	M	Validation Level: V
Analyte	CAS No	Result RI Value	MDL Result Units	Lab Qualifier	Validation Validation Notes Qualifier
Asbestos	1332214	0.1	0.1 %	U	U
Sample Name	HZET1001S002	Matri	x Type: SOIL	Res	ult Type: Primary Result
Lab Sample Name:	2612715-1	Sample Date:	10/6/2009 10:38:00 A	M	Validation Level: V
Analyte	CAS No	Result RI Value	MDL Result Units	Lab Qualifier	Validation Validation Notes Qualifier
Asbestos	1332214	0.1	0.1 %	U	U



O MUNICIPALITY			Ŧ S	CHAIN OF CUSTODY RECORD	STODY	REC	ORD			COC #:	#		MWHAG20091019_00
									239	279173			Page: 1 of 1
Custome	Customer Information	Project Information	ation		<u>a</u>	roject	Project Information	ation					
Site:	SSFL	Client Name:	Boeing		Ö	Collector:	-	A. Goldenberg	arg			Boeing PM:	
Company: MWH	MWH	Sampling Event:	+-	ISRA Sampling, August 2009		Contact #:	#						
Report to:	Report to: Sarah Von Raesfeld	Project Number:	+	1891614.05462					Redne	Requested Analyses			Instructions/TAT
Address:	2121 N. California Blvd	Project Manager:	r: Alex Fischi	chi					_				Legend:
	Suite 600	PM Phone #:	(925) 6.	(925) 627-4627									Numerical values for analyses equate to turn
	Walnut Creek	Field Contact:	Benjam	Benjamin Stewart									around time in days
	CA	Field Contact #:	1	(818) 266-1378					-				H - Hold
	94596	Lab Name:	GEL La	GEL Laboratories, LLC		Asi							PIOH
Email:	sarah.vonraesfeld@mwhglobal.c	c Lab Contact:	Jackie Trudell	Trudell		bestr			P				
	sean.leffler@mwhglobal.com	Lab Address:	2040 S	2040 Savage Road			_		СВЬ				Note: Values in the cells
			Charlet	Charleston, SC 29407					y SV				pellow are furn Around Times.
		Lab Phone:	(843) 7	(843) 769-7388					V808				
Sample Name	ame	Matrix	Date	Time Conf	No. of Containers	ire Soil 3 - Soil	3 - Soil	il Lead Copper	2 - Soil				Comments
HZET0726S001		Soil	10/19/2009	8:55	2	2	2 2	2			П		HVS-3
HZET0727S001		Soli 1	10/19/2009	3:05	2	2	2 2	2					HVS-3
HZET1002S001		Soil 1	10/19/2009	10:00	2	1 2			2				HVS-2A
HZET1100S001		Soil	10/19/2009	12:05	2	2	2	2					HVS-2A
				-									١

1. Relinquished by	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:		Date:
SAMOTIMA	10/14/01	R.M. Alllun	10/21/09	<b>ل</b>				
Company:	Time:	company: d	TIME:	Company:	Time:	Company:		Time:
Comments: Sample volume for	dioxin analysis	Comments: Sample volume for dioxin analysis shipped directly to CFA, sample volume for asbestos analysis shipped to EMLab, and	me for asbesto	s analysis shipped to EMLab, and	Geotra	Geotracker EDF		
sample volume for all other analysis shipped to GE	all other analysk	s shipped to GEL			Data \	Data Validation Package 💌 Level IV	Level IV	



# SAMPLE RECEIPT & REVIEW FORM

Susj	eived By: RMs pected Hazard Information	_			G/ARCOC/Work Order: 23927 3					
Sus		$\Gamma^{-}$		Dai	Date Received: 10 21 09					
COC		Yes	No	*If (	Counts > x2 area background on samples not marked "radioactive", contact the iation Safety Group of further investigation.					
COC/Samples marked as radioactive?			4	Max	cimum Counts Observed*:					
-	sified Radioactive II or III by RSO?	<u> </u>	/		30cp~					
-	C/Samples marked containing PCBs?	_	1							
<del>-</del>	ped as a DOT Hazardous?		1	Haz	ard Class Shipped: UN#:					
Sam	ples identified as Foreign Soil?		_							
	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)					
1	Shipping containers received intact and sealed?	/			Circle Applicable: seals broken damaged container leaking container other (describe)					
2	Samples requiring cold preservation within $(0 \le 6 \text{ deg. C})$ ?				Preservation Method:  Stee bags  blue ice dry ice none other (describe)					
3	Chain of custody documents included with shipment?	/								
4	Sample containers intact and sealed?				Circle Applicable: seals broken damaged container leaking container other (describe)					
	Samples requiring chemical preservation at proper pH?		1		Sample ID's, containers affected and observed pH:  If Preservation added, Lot#:					
6	VOA vials free of headspace (defined as < 6mm bubble)?				Sample ID's and containers affected:					
7	Are Encore containers present?	-8)		/	(If yes, immediately deliver to Volatiles laboratory)					
8	Samples received within holding time?	/			Id's and tests affected:					
	Sample ID's on COC match ID's on bottles?	/			Sample ID's and containers affected:					
1111	Date & time on COC match date & time on bottles?	/			Sample ID's affected:					
	Number of containers received match number indicated on COC?	/			Sample ID's affected:					
	COC form is properly signed in relinquished/received sections?									
	ments: . 7970 3302 7950  PM (or PMA) review: In				√ Date 10(21/6)					

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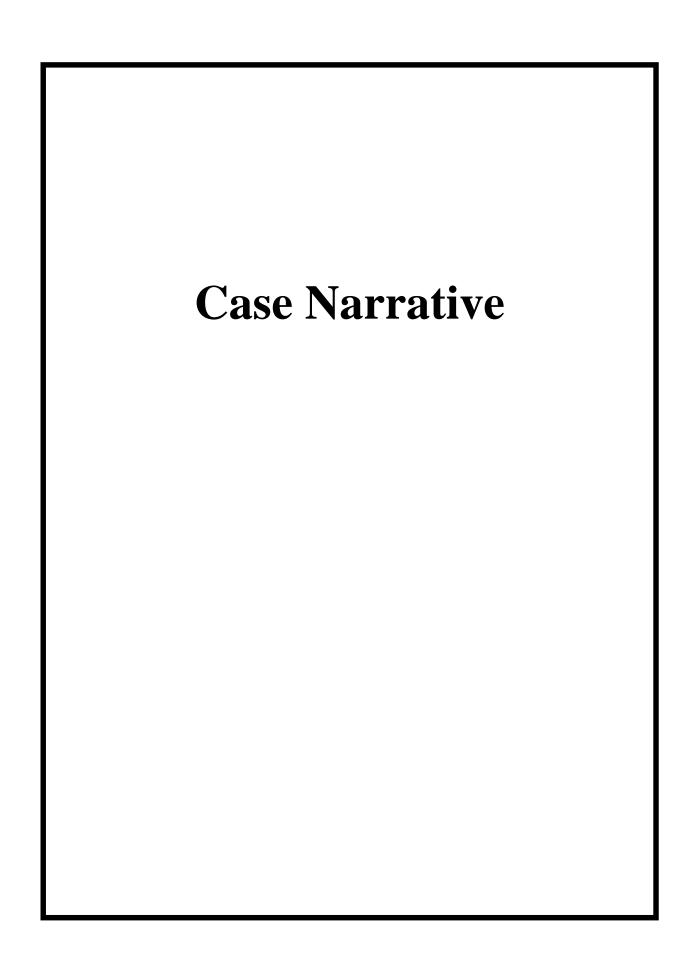
### LABORATORY TASK ORDER (LTO) FORM

INSTRUCTIONS: To be completed by Environmental Contractor & Emailed to Laboratory Project Manager, CH2M HILL (boeingedms@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 Sar	mpling, August 2009	Start:_	8/24/2009	End:	9/30/2009	
LTO DATE:			LTO	NUMBER:			
Consultant Name:		MWH	Contract Laboratory:		GEL		
Address:		. California Blvd. Ste. 600	Address:		040 Savage F		
	Wa	Inut Creek, CA 94596	_	Cha	rleston, SC 2	9407	
Contact Name		Sarah Van Daarfald	Lab Cantact Name		la alcia Turrala		
Contact Name: Phone Number:		Sarah Von Raesfeld 925-627-4654	Lab Contact Name: _ Phone Number:	Jackie Trudell 843-769-7388			
Fax Number:		925-627-4501	Frione Number: _	843-766-1178			
E-mail Address:	Sarah.\	VonRaesfeld@mwhglobal.com	E-mail Address:	jacqueline.trudell@gel.com			
	-		NTAINER ORDER FORM	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
Date Required:		SAIVIFEE CO	Requested Analyses:	(Specify # of Samples)			
•			· · · · · · · · · · · · · · · · · · · ·	Water	Soil	Contingent	
			Dioxins (1613B)	15	124	0	
Date Sample Pickup:			EPA 8015M (DRO)				
			EPA 8015M (JET FUEL)				
Ship Containers To:		( , , , , , , , , , , , , , , , , , , ,	EPA 8015M (CC)				
Project Site		(enter "X")	TCE (8260B)	5	12	0	
Consultant Office Other Location (specify in		(enter "X")	EPA 8270C SIM (SVOC) EPA 8310 (PAH)	<del></del>			
comments)		(enter "X")	EPA 8082 (PCB)	3	5	0	
		_(emer x)	Nickel (6020)	5	10	0	
Container Information:			Chromium (6020)	5	10	0	
Trip Blank (VOA only)	No	(Yes/No)	Silver (6020)	5	10	0	
Temp Blank (VOA Only)	No	(Yes/No)	Cadmium (6020)	10	35	0	
DI Water Required?	No	(Yes/No)	Arsenic (6020)	5	10	0	
MS/MSD Extra Bottles?	No	_(Yes/No)	% Moisture (D2216)	0	170	0	
OI- M-(-!			Lead (6020)	10	65	0	
Sample Matrix:	V	(	Copper (6020)	10	75	0	
Soil <sub>-</sub> Water	X	_ (select all applicable) _ (select all applicable)	Zinc (6020) _ Mercury by 7471A/7470A	5 5	20 25	0	
Vvaler_ Vapor		(select all applicable)	Mercury by 1471A/1470A	<u> </u>	23		
· -							
Est. Total # of Samples:	175	_ Est. Total # of EDDs _	40_PORTING REQUIREMENTS				
Project TAT:		LABORATORT RE	Laboratory Results/Repo	rts Delivera	ables:		
Normal:	Х	(10 Business days)	Draft Results Fax?:		(Yes/No)		
RUSH:	5	- (Specify- 24 / 48 / 72HRS)	Draft Results E-mail?:	Yes	(Yes/No)		
Other:		- (Specify # of Days)	On a sife a Faculty was it Occurs at		_		
Report Due Date:		_	Specify Fax/E-mail Contact Name, #, E-mail Address:	Sarah VonRae	sfeld@mwhglob	al.com	
			Send Original Reports To:		5.0.ug.		
Special Reporting Req	uireme	nts:	Project Site		(enter "X")		
Contingent Analysis?	No	(Yes/No)	Consultant Office		(enter "X")		
TIC (VOC) Required?	No	(Yes/No)	Other Location (specify		-		
TIC (SVOC) Required?	No	_(Yes/No)	in comments)	Х	(enter "X")		
Data Validation Pckge.:		( Boeing Tier I, II or III)	# of Copies Reports Req.:	1	_(		
-			TRUCTIONS/LTO NOTES		_		
		OI ESIAE INC	TROUTIONS, ETO NOTES				
CONFIRMATION OF TRANSMITTAL & RECEIPT							
LTO Sent By:			LTO Received By-				
Name: Sarah Von Raesfeld			Name:				
·-	09/02/09		Date:			_	
Date.	55, 5 <u>2</u> , 65		Date			-	

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Case Narrative for Boeing - SSFL (MWH) Work Order: 239273 SDG: 239273

November 04, 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 October 21, 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:

Laboratory	Sample
<b>Identification</b>	<b>Description</b>
239273001	HZET0726S001
239273002	HZET0727S001
239273003	HZET1002S001
239273004	HZET1100S001

## **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.

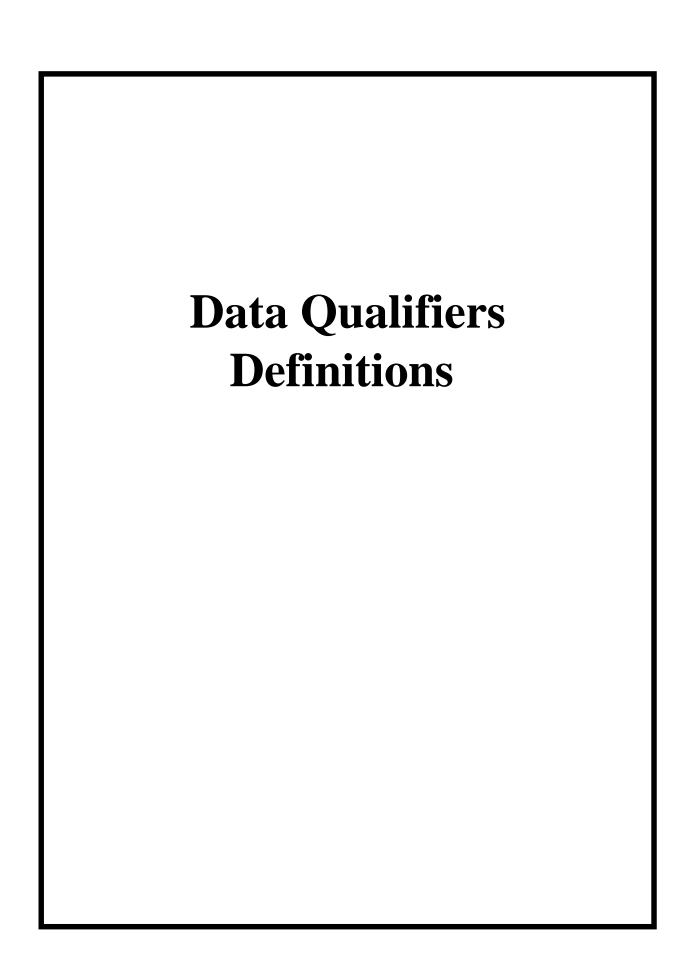
## **Data Package:**

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: GC Semivolatile PCB, Metals, Percent Moisture, Asbestos (EMLab P&K) and Dioxins (Cape Fear Analytical).

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

Jacqueline Trudell Project Manager

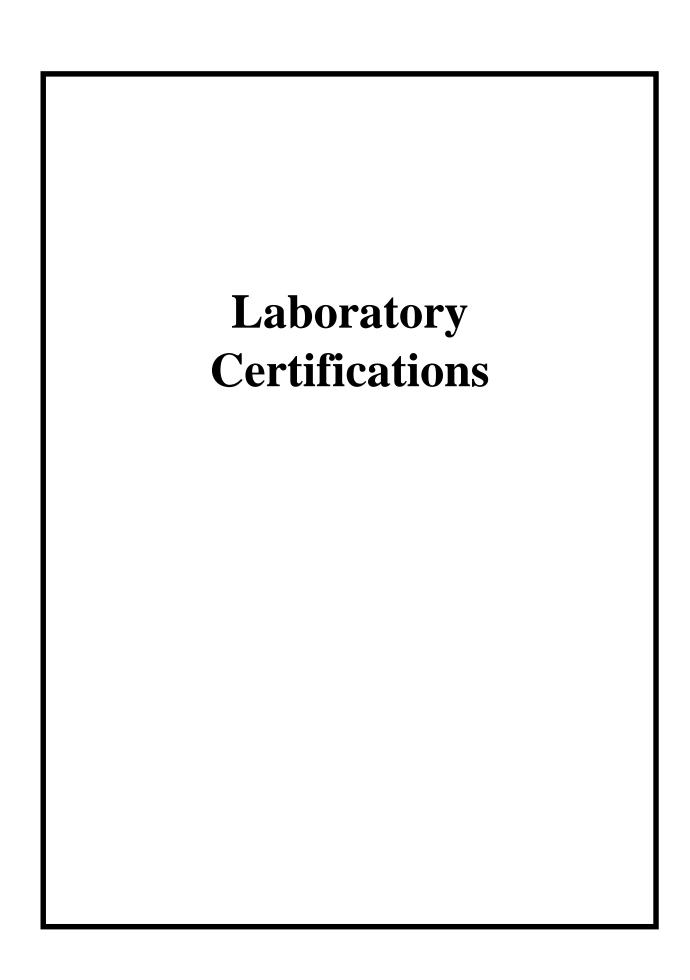
Jacqueline a Judel



## 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
- ${
  m N/A}$  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.



List of current GEL Certifications as of 23 October 2009

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



# DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: 239273

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: 239273

Project Manager: Dixie Hambrick

Matrix: soil

QC Level: V No. of Samples: 4

No. of Reanalyses/Dilutions: 0

Laboratory: GEL

**Table 1. Sample Identification** 

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
HZET0726S001	239273001	1102001	SOIL	10/19/2009	1613B, 6020
				8:55:00 AM	
HZET0727S001	239273002	1102002	SOIL	10/19/2009	1613B, 6020
				9:05:00 AM	
HZET1002S001	239273003	2628573-1	SOIL	10/19/2009	EPA 600/R-93/116,
				10:00:00 AM	8082
HZET1100S001	239273004	1102003	SOIL	10/19/2009	1613B, 6020
				12:05:00 PM	

## **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.

1

## **Data Qualifier Reference Table**

Qualifie	er 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- 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.

Project:

## **Qualification Code Reference Table**

Qualifier	Organics	Inorganics
Н	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
С	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.
В	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.
Е	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
Α	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
Т	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 be used be technically sound analysis is technically available.

The analysis be used be technically available.

P Instrument performance for pesticides was poor.

\*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.

The analysis with this flag should not be used because another more technically sound analysis is available.

Post Digestion Spike recovery was not within control limits.

Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (\*) will indicate the report section where a description of the problem can be found.

## III. Method Analyses

## A. EPA METHOD 600/R-93/116—Asbestos

Reviewed By: P. Meeks

Date Reviewed: November 9, 2009

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the  $MEC^{\times}$  Data Validation Procedure for General Minerals (DVP-6, Rev. 0), EPA Method 600/R-93/116, and the National Functional Guidelines for Inorganic Data Review (07/02).

- Holding Times: There is no established holding time for asbestos analysis; however, the sample was analyzed within 30 days of collection.
- Calibration: No polarized light microscope calibration information was provided by the laboratory, however, review is not applicable at a Level V validation.
- Blanks: Method blanks are not applicable to this analysis. The laboratory did not provide
  documentation indicating that supplies used in the analysis of the sample were checked
  and found to be free from asbestos contamination.
- Blank Spikes and Laboratory Control Samples: Not applicable to this analysis.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: Not applicable to this analysis.
- Sample Result Verification: Review is not applicable at a Level V validation.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: The field blank and equipment rinsate associated with the samples in this SDG were not analyzed for asbestos.
  - Field Duplicates: There were no filed duplicate samples identified in this SDG.

## B. EPA METHOD 1613—Dioxin/Furans

Reviewed By: P. Meeks

Date Reviewed: November 9, 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 reported detects below the PQL or estimated maximum possible concentrations (EMPCs) for all target compounds except TCDD. Detects less than the reporting limit or less than 5x the method blank detects were qualified as nondetected, "U," at the EDL. Detected results for all totals were qualified as estimated, "J," due to detects in the soil method blank.
- Blank Spikes and Laboratory Control Samples: Recoveries were within the acceptance criteria listed in Table 6 of Method 1613. RPDs were within the laboratory-established control limits.
- Matrix Spike/Matrix Spike Duplicate Samples: Recoveries were within the acceptance criteria listed in Table 6 of Method 1613. RPDs were within the laboratory-established control limits.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: FBQW2239 (235913) was the field blank associated with the samples in this SDG; however, the sample was not analyzed for dioxins. The samples in this SDG had no identified equipment rinsate.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.
- Internal Standards Performance: Internal standard recoveries are not routinely evaluated at a Level V validation; however, the recoveries were reported on the sample result summaries. The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613.

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• Compound Identification: Review is not applicable at a Level V validation. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613. The laboratory performed confirmation analyses for 2,3,7,8-TCDF. When the original result was reported as an EMPC, the original result was rejected, "R," in favor the confirmation result. When the original result was not reported as an EMPC, or if both the original analysis and the confirmation analysis were both reported as EMPCs, the confirmation result was rejected, "R," in favor of the initial result.

Compound Quantification and Reported Detection Limits: Review is not applicable at a
Level V validation. EMPCs were identified in the sample of this SDG, as denoted by the
laboratory "K," code. 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).

## C. EPA METHOD 6020—Metals

Reviewed By: P. Meeks

Date Reviewed: November 9, 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: The analytical holding time, six months for ICP-MS, was met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks and CCBs had no detects.
- Interference Check Samples: Review is not applicable at a Level V validation.
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratoryestablished QC limits.
- Laboratory Duplicates: A laboratory duplicate analysis was performed on HZET0726S001.
   The RPDs were within the method-established control limit.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on HZET0726S001. Both lead recoveries and the copper MSD recovery were below the

Project: Boeing SSFL RFI ISRA SDG: 239273

control limit. The copper MS recovery was below 30%. Detects for copper and lead were qualified as estimated, "J." Both RPDs were within method-established QC limits.

- Serial Dilution: A serial dilution analysis was performed on HZET0726S001. The %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. Any result reported between the MDL and the reporting limit was qualified as estimated, "J." Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: FBQW2239 (235913) was the field blank associated with the samples in this SDG. There were no applicable detects in this sample. The samples in this SDG had no identified equipment rinsate.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.

## D. EPA METHOD 8082—PCBs

Reviewed By: P. Meeks

Date Reviewed: November 9, 2009

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the  $MEC^{\times}$  Data Validation Procedure for Organochlorine Pesticides/PCBs by GC (DVP-4, Rev. 0), EPA Method 8082, and the National Functional Guidelines for Organic Data Review (10/99).

- Holding Times: Extraction and analytical holding times were met. The soil sample was extracted within 14 days of collection and analyzed within 40 days of extraction.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: The method blank had no target compound detects above the MDL.
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratoryestablished QC limits.

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- Surrogate Recovery: Recoveries were within laboratory-established QC limits.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on the sample in this SDG. 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: FBQW2239 (235913) was the field blank associated with the sample in this SDG. There were no detects above the MDL in this sample. The sample in this SDG had no associated equipment rinsate.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.
- Compound Identification: Review is not applicable at a Level V validation. The laboratory analyzed for Aroclors by Method 8082.
- Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation. 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: 239273

Analysis Method 1613B

Sample Name	HZET0726S001		Matrix 1	Гуре: SOIL	Resi	ult Type: Pr	imary Result
Lab Sample Name:	1102001	Sample l	Date: 10	0/19/2009 8:55:00 A	М ,	Validation Le	vel: 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	2.12	2.12	2.12 pg/g	JK	UJ	*III, result changed from 0.184 and EDL from 0.164
1,2,3,4,6,7,8-HpCDF	67562394	2.12	2.12	2.12 pg/g	JK	UJ	*III,result changed from 0.144 and EDL from 0.0858
1,2,3,4,7,8,9-HpCDF	55673897	0.145	2.12	0.145 pg/g	U	U	
1,2,3,4,7,8-HxCDD	39227286	0.0914	2.12	0.0914 pg/g	U	U	
1,2,3,4,7,8-HxCDF	70648269	0.0943	2.12	0.0943 pg/g	U	U	
1,2,3,6,7,8-HxCDD	57653857	0.104	2.12	0.104 pg/g	U	U	
1,2,3,6,7,8-HxCDF	57117449	0.0978	2.12	0.0978 pg/g	U	U	
1,2,3,7,8,9-HxCDD	19408743	2.12	2.12	2.12 pg/g	JK	UJ	*III, result changed from 0.124 and EDL from 0.102
1,2,3,7,8,9-HxCDF	72918219	0.146	2.12	0.146 pg/g	U	U	
1,2,3,7,8-PeCDD	40321764	0.0711	2.12	0.0711 pg/g	U	U	
1,2,3,7,8-PeCDF	57117416	0.0655	2.12	0.0655 pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.102	2.12	0.102 pg/g	U	U	
2,3,4,7,8-PeCDF	57117314	2.12	2.12	2.12 pg/g	JK	UJ	*III,result changed from 0.0745and EDL from 0.0631
2,3,7,8-TCDD	1746016	0.0893	0.423	0.0893 pg/g	U	U	
2,3,7,8-TCDF	51207319	0.267	0.423	0.0885 pg/g	J	R	D
2,3,7,8-TCDF	51207319	0.186	0.423	0.124 pg/g	J	J	
OCDD	3268879	4.23	4.23	4.23 pg/g	J	U	B, result changed from 0.8 and EDI from 0.266
OCDF	39001020	0.227	4.23	0.227 pg/g	U	U	
TEQ WHO2005 ND=0 with EMPCs		0.0568		pg/g			
TEQ WHO2005 ND=0.5 with EMPCs	h	0.171		pg/g			
Total HpCDD	37871004	0.184	2.12	0.164 pg/g	J	J	*III, B
Total HpCDF	38998753	0.144	2.12	0.0858 pg/g	J	J	*III, B
Total HxCDD	34465468	0.124	2.12	0.0914 pg/g	J	J	*III, B
Total HxCDF	55684941	0.0943	2.12	0.0943 pg/g	U	U	
Total PeCDD	36088229	0.0711	2.12	0.0711 pg/g	U	U	
Total PeCDF	30402154	0.0745	2.12	0.0435 pg/g	J	J	*III, B
Total TCDD	41903575	0.0893	0.423	0.0893 pg/g	U	U	
Total TCDFs	30402143	0.335	0.423	0.124 pg/g	J	J	В

Friday, November 13, 2009 Page 1 of 4

# Analysis Method 1613B

Sample Name	HZET0727S001		Matrix 7	Гуре: SOIL	Res	ult Type: Pr	imary Result
Lab Sample Name:	1102002	Sample	Date: 1	0/19/2009 9:05:00 A	M	Validation Le	evel: 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	0.453	2.33	0.19 pg/g	J	J	
1,2,3,4,6,7,8-HpCDF	67562394	0.332	2.33	0.091 pg/g	J	J	
1,2,3,4,7,8,9-HpCDF	55673897	2.33	2.33	2.33 pg/g	J	U	B, result changed from 0.285 and EDL from 0.159
1,2,3,4,7,8-HxCDD	39227286	0.239	2.33	0.106 pg/g	J	J	
1,2,3,4,7,8-HxCDF	70648269	2.33	2.33	2.33 pg/g	J	U	B, result changed from 0.207 and EDL from 0.0724
1,2,3,6,7,8-HxCDD	57653857	2.33	2.33	2.33 pg/g	JK	UJ	*III, result changed from 0.293 and EDL from 0.116
1,2,3,6,7,8-HxCDF	57117449	2.33	2.33	2.33 pg/g	JK	UJ	*III,result changed from 0.233 and EDL from 0.0733
1,2,3,7,8,9-HxCDD	19408743	2.33	2.33	2.33 pg/g	J	U	B, result changed from 0.334 and EDL from 0.116
1,2,3,7,8,9-HxCDF	72918219	2.33	2.33	2.33 pg/g	JK	UJ	*III, result changed from 0.351 and EDL from 0.108
1,2,3,7,8-PeCDD	40321764	0.168	2.33	0.0742 pg/g	J	J	
1,2,3,7,8-PeCDF	57117416	2.33	2.33	2.33 pg/g	JK	UJ	*III,result changed from 0.209 and EDL from 0.0683
2,3,4,6,7,8-HxCDF	60851345	2.33	2.33	2.33 pg/g	J	U	B, result changed from 0.352 and EDL from 0.0746
2,3,4,7,8-PeCDF	57117314	2.33	2.33	2.33 pg/g	J	U	B, result changed from 0.239 and EDL from 0.0694
2,3,7,8-TCDD	1746016	0.0921	0.466	0.0921 pg/g	U	U	
2,3,7,8-TCDF	51207319	0.371	0.466	0.099 pg/g	J	J	
2,3,7,8-TCDF	51207319	0.457	0.466	0.0994 pg/g	JK	R	D
OCDD	3268879	4.66	4.66	4.66 pg/g	JK	UJ	*III,result changed from 1.42 and EDL from 0.345
OCDF	39001020	4.66	4.66	4.66 pg/g	J	U	B, result changed from 0.841 and EDL from 0.283
TEQ WHO2005 ND=0 with EMPCs		0.495		pg/g			
TEQ WHO2005 ND=0.5 with EMPCs	h	0.541		pg/g			
Total HpCDD	37871004	0.453	2.33	0.19 pg/g	J	J	В
Total HpCDF	38998753	0.617	2.33	0.091 pg/g	J	J	В
Total HxCDD	34465468	0.865	2.33	0.106 pg/g	J	J	*III, B
Total HxCDF	55684941	1.14	2.33	0.0724 pg/g	J	J	*III, B
Total PeCDD	36088229	0.168	2.33	0.0742 pg/g	J	J	В
Total PeCDF	30402154	0.448	2.33	0.0683 pg/g	J	J	*III, B
Total TCDD	41903575	0.0921	0.466	0.0921 pg/g	U	U	
Total TCDFs	30402143	0.931	0.466	0.099 pg/g		J	*III, B

Friday, November 13, 2009 Page 2 of 4

# Analysis Method 1613B

Sample Name	HZET1100S001		Matrix 1	Гуре: SOIL	Res	ult Type: Pr	imary Result
Lab Sample Name:	1102003	Sample 1	Date: 10	0/19/2009 12:05:00 I	PM V	Validation Le	vel: 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	0.151	2.11	0.136 pg/g	J	J	
1,2,3,4,6,7,8-HpCDF	67562394	2.11	2.11	2.11 pg/g	JK	UJ	*III,result changed from 0.108 and EDL from 0.0682
,2,3,4,7,8,9-HpCDF	55673897	0.115	2.11	0.115 pg/g	U	U	
,2,3,4,7,8-HxCDD	39227286	0.0876	2.11	0.0876 pg/g	U	U	
,2,3,4,7,8-HxCDF	70648269	0.0655	2.11	0.0655 pg/g	U	U	
,2,3,6,7,8-HxCDD	57653857	2.11	2.11	2.11 pg/g	J	U	B, result changed from 0.644 and EDL from 0.0957
,2,3,6,7,8-HxCDF	57117449	2.11	2.11	2.11 pg/g	J	U	B, result changed from 0.563 and EDL from 0.0671
,2,3,7,8,9-HxCDD	19408743	2.11	2.11	2.11 pg/g	JK	UJ	*III,result changed from 0.893 and EDL from 0.0962
,2,3,7,8,9-HxCDF	72918219	2.11	2.11	2.11 pg/g	JK	UJ	*III, result changed from 0.14 and EDL from 0.103
,2,3,7,8-PeCDD	40321764	0.0719	2.11	0.0719 pg/g	U	U	
,2,3,7,8-PeCDF	57117416	0.0761	2.11	0.0761 pg/g	U	U	
2,3,4,6,7,8-HxCDF	60851345	0.0727	2.11	0.0727 pg/g	U	U	
2,3,4,7,8-PeCDF	57117314	2.11	2.11	2.11 pg/g	J	U	B, result changed from 0.0964 and EDL from 0.0715
2,3,7,8-TCDD	1746016	0.07	0.423	0.07 pg/g	U	U	
2,3,7,8-TCDF	51207319	0.24	0.423	0.114 pg/g	J	J	
2,3,7,8-TCDF	51207319	0.294	0.423	0.0797 pg/g	J	R	D
OCDD	3268879	4.23	4.23	4.23 pg/g	J	U	B, result changed from 0.445 and EDL from 0.233
OCDF	39001020	0.201	4.23	0.201 pg/g	U	U	
TEQ WHO2005 ND=0 with EMPCs		0.28		pg/g			
TEQ WHO2005 ND=0.5 with	h	0.364		pg/g			
Total HpCDD	37871004	0.151	2.11	0.136 pg/g	J	J	В
Total HpCDF	38998753	0.108	2.11	0.0682 pg/g	J	J	*III, B
Total HxCDD	34465468	1.54	2.11	0.0876 pg/g	J	J	*III, B
Гotal HxCDF	55684941	0.786	2.11	0.0655 pg/g	J	J	*III, B
Total PeCDD	36088229	0.0719	2.11	0.0719 pg/g	U	U	
Total PeCDF	30402154	0.179	2.11	0.0715 pg/g	J	J	В
Total TCDD	41903575	0.07	0.423	0.07 pg/g	U	U	
Total TCDFs	30402143	0.578	0.423	0.114 pg/g		J	В

Friday, November 13, 2009 Page 3 of 4

## Analysis Method 6020

Sample Name	HZET0726S001		Matrix 1	Гуре: SOIL	Resi	ult Type: Pri	imary Result
Lab Sample Name:	239273001	Sample 1	Date: 10	0/19/2009 8:55:00 A	M V	Validation Le	vel: V
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Copper	7440508	9.76	1.02	0.337 mg/kg	N	J	Q
Sample Name	HZET0727S001		Matrix 7	Гуре: SOIL	Resi	ult Type: Pri	imary Result
ab Sample Name:	239273002	Sample 1	Date: 10	0/19/2009 9:05:00 A	M V	Validation Le	vel: V
nalyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
opper	7440508	10.4	1.08	0.356 mg/kg	N	J	Q
ample Name	HZET1100S001		Matrix '	Гуре: SOIL	Resi	ult Type: Pri	imary Result
ab Sample Name:	239273004	Sample 1	Date: 10	0/19/2009 12:05:00 I	PM T	Validation Le	vel: V
nalyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
ead	7439921	4.63	0.406	0.102 mg/kg	N	J	Q
nalysis Metho	od 8082						
ample Name	HZET1002S001		Matrix 7	Type: SOIL	Resi	ult Type: Pri	imary Result
b Sample Name:	239273003	Sample 1	Date: 10	0/19/2009 10:00:00 A	AM T	Validation Le	vel: V
alyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
oclor-1016	12674112	3.51	3.51	1.17 ug/kg	U	U	
clor-1221							
	11104282	3.51	3.51	1.17 ug/kg	U	U	
	11104282 11141165	3.51	3.51	1.17 ug/kg 1.17 ug/kg	U U	U U	
oclor-1242	11141165	3.51	3.51	1.17 ug/kg	U U U	U	
oclor-1242 oclor-1248	11141165 53469219	3.51 3.51	3.51 3.51	1.17 ug/kg 1.17 ug/kg	U U	U	
clor-1242 clor-1248 clor-1254	11141165 53469219 12672296	3.51 3.51 3.51	3.51 3.51 3.51	1.17 ug/kg 1.17 ug/kg 1.17 ug/kg	U U U	U U U	
oclor-1242 oclor-1248 oclor-1254 oclor-1260	11141165 53469219 12672296 11097691 11096825	3.51 3.51 3.51 3.51 3.51	3.51 3.51 3.51 3.51 3.51	1.17 ug/kg 1.17 ug/kg 1.17 ug/kg 1.17 ug/kg	U U U	U U U	
oclor-1242 oclor-1248 oclor-1254 oclor-1260 Analysis Metho	11141165 53469219 12672296 11097691 11096825	3.51 3.51 3.51 3.51 3.51 0/R-93/	3.51 3.51 3.51 3.51 3.51	1.17 ug/kg 1.17 ug/kg 1.17 ug/kg 1.17 ug/kg 1.17 ug/kg	U U U U	U U U	imary Result
roclor-1232 roclor-1242 roclor-1248 roclor-1254 roclor-1260  Analysis Metho  Sample Name  Lab Sample Name:	11141165 53469219 12672296 11097691 11096825 od EPA 600	3.51 3.51 3.51 3.51 3.51 0/R-93/	3.51 3.51 3.51 3.51 3.51 3.51 Matrix 7	1.17 ug/kg 1.17 ug/kg 1.17 ug/kg 1.17 ug/kg 1.17 ug/kg	U U U U U	U U U U U	
roclor-1242 roclor-1248 roclor-1254 roclor-1260 Analysis Metho	11141165 53469219 12672296 11097691 11096825 od EPA 600 HZET1002S001	3.51 3.51 3.51 3.51 3.51 0/R-93/	3.51 3.51 3.51 3.51 3.51 3.51 Matrix 7	1.17 ug/kg 1.17 ug/kg 1.17 ug/kg 1.17 ug/kg 1.17 ug/kg 1.17 ug/kg	U U U U U	U U U U U ult Type: Pri	

# Chain of Custody and Supporting Documentation

MWHBM20091001\_00 COC #: C 39316H CHAIN OF CUSTODY RECORD

SSPEL   SSPER   SSPEL   SSPER   SSPE	Custome	Customer Information	Project Information	ion		Project Information	Inform	atlon								
Company:   MWH   MWH   MWH   MWH   MWH   Marrix   Marrix   MWH   Marrix	Site:	SSFL	Client Name:	Boeing		Collecto		Martasi	_				Boeli	Boeing PM:		
Matrix   Date   Company	Company:	MWH		ISRA Sampling	1, August 2009	Contact	**									
Sample Name   Project Manager: Alex Flech    Address: 2012 IN California Blvd   Project Manager: Alex Flech    Blvd   Martaria   Blvd   Martaria   Blvd   Martaria   Blvd   Martaria   Blvd	Report to:		Project Number:	1891614.0546	2				Rag	ested	Analys	Se			Inst	Instructions/TAT
Sample Name	Address:	2121 N. California Blvd	Project Manager:	Alex Fischi											Fed	Legend:
Page   Company:   Co		Suite 600	PM Phone #:	(925) 627-462.											Nun	Numerical values for
Final Company   Final Compan		Walnut Creek	Fleid Contact:	Brian Martasin											aron	around time in days
Sample Name   Sample Name   CEL Laboratoric Lab Company;   Sample Name   CEL Laboratoric Lab Company;   Comp		CA	Field Contact #:	(323) 304-496								sv			i	Hold
Company:		94596	Lab Name:	GEL Laborator	ies, LLC							OCs	T		HE	EH - EXTRACVEXTUGE & Hold
Sample Name	Email:	sarah.vonraesfeld@mwfngloba	+-	Jackie Trudell					F							
Company:   Time:   Charleston, SC 29407   Hz   Charleston, SC 29407   Hz   Charleston, SC 29407   Hz   Charleston, SC 29407   Hz   Containers   Hv6F33AS01   Hz   Containers   Hv6F33AS01   Hz   Containers   Hv6F33AS01   Hz   Containers   Hz   Company:   Time:   Company:   Time:   Company:   Time:   Company:   Time:   Time:   Company:   Time:   Tim		sean.leffler@mwhglobal.com	Lab Address:	2040 Savage	Road				CB				_		Note	Note: Values in the cells
Company:   Comments:   Company:   Comments:   Company:   Comments:   Comments:   Comments:   Comments:   Comments:   Comments:   Comments:   Company:				Charleston, SC	29407	_			y SV		_	_			bellow Times.	ow are Turn Arou es.
Sample Name         Matrix         Date         Time         No. of Accountaliners         Accountaliners <th< td=""><td></td><td></td><td>Lab Phone:</td><td>(843) 769-738</td><td>80</td><td></td><td></td><td></td><td>V808</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>			Lab Phone:	(843) 769-738	80				V808							
HVBF33AS01	Sample N	ате							2 - Soil				- Water		Š	Comments
HVBF33AS01         Soil         10/1/2009         10:18         2         6         5         6 <td>I EBOW224</td> <td></td> <td></td> <td>_</td> <td></td> <td></td> <td>-</td> <td>9</td> <td></td> <td>9</td> <td></td> <td>9</td> <td>9</td> <td></td> <td></td> <td></td>	I EBOW224			_			-	9		9		9	9			
HVBF33AS02         Solid         10/1/2009         10.40         2         6         5         5         6         5         6         5         6         5         6         5         6         5         6         5         6         5         6         5         6         5         6         5         6         5         6         7         6         7         6         7         6         7         7         6         7         6 </td <td>7 HVBF33AS</td> <td></td> <td></td> <td>L</td> <td></td> <td>-</td> <td></td> <td></td> <td>o</td> <td><math>\vdash</math></td> <td>9</td> <td>-</td> <td></td> <td>-</td> <td></td> <td></td>	7 HVBF33AS			L		-			o	$\vdash$	9	-		-		
HZBS0080AS001       Soli       10/12009       14:36       3       5       6       7       6       7       6       7       6       7       6       7       6       7       6       7       6       7       6       7       6 <th< td=""><td>4 HVBF33A</td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td>9</td><td>H</td><td>5</td><td>-</td><td></td><td>-</td><td></td><td></td></th<>	4 HVBF33A					-			9	H	5	-		-		
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Solf   10/1/2009   13:15   3   5   6   5   5   5   5   5   5   5   5	HZBS008	4AS002				2		2	9			_		_		
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	Customer	Customer Information	Project Information	ation			Project Information	t Infor	matio	_								
	Site:	SSFL	Cilent Name:	Boeing	מ		Collector:	_	B. Martasin	ısıu					Boein	Boeing PM:		
	Company: MWH	MWH	Sampling Event:	-	ISRA Sampling, August 2009	ugust 2009	Contact #:	#										
	Report to:	Report to: Sarah Von Raesfeld	Project Number:	₩	1891614.05462					æ	senbe	ted Ar	Requested Analyses					Instructions/TAT
	Address:	2121 N. California Blvd	Project Manager:	r. Alex Fischi	-ischl											_		Legend:
_		Suite 600	PM Phone #:	(822)	(925) 627-4627									_				Numerical values for
		Watnut Creek	Fleld Contact:	Brian	Brian Martasin					_								around time in days
		S.	Field Contact #:		(323) 304-4969					Me				-				H-Hold
		94596	Lab Name:	GEL	GEL Laboratories, LLC	, LLC				etals		Pe			T			EH - Extract/Extrude & Hold
	Email:	sarah.vonraesfeld@mwhglobal.c	c Lab Contact:	Jacki	Jackie Trudell							rchlo	_		РН Б			
		sean.leffler@mwhglobal.com	Lab Address:	2040	2040 Savage Road	Ę.		_				rate		_	y SW			Note: Values in the cells
				Charl	Charleston, SC 29407	9407					-	314			8015			bellow are Turn Around Times.
			Lab Phone:	(843)	(843) 769-7388							Soil E	-		5BM -			
	Sample Name	ате	Matrix	Date	Time	No. of Containers	B - Soil ure Soil	Water	- Water	2 - Soil A - Soil	Water	)-WET	Water M - Soil	M - Soit	Water			Comments
2	HZBS0123AS002		Soil	10/1/2009	13:30	3	. 2			2 , 5		5	2	\$				
، د	HZBS0124AS001		Soll	10/1/2009	11:00	3	9			2 5		9	9	9	1			
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2	HZBS0175S001		Soil	10/1/2009	13:50	9	5 2	_		2 5	_	5 .	2	2				
,	HZBS0175S002		Soil	10/1/2009	14:10	3	9 9			2 5	_	9	9	2			_	
	HZBS0177S001		Soil	10/1/2009	15:00	3	5	_		2 5	_	9	2	2			_	
	HZBS0177S002		Soil	10/1/2009	15:15	3	9 9			2 5	_	9	9	2				
	HZBS0180S001		Soil	10/1/2009	9:30	8	2			2 5		S	o.	9		-		
_	HZBS0180S002		Soil	10/1/2009	10:00	3	9 9			2 5	_	9	9	9			_	

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
12 C	10/1/09 R.	n Helling	po 2 0				
Company:	Time: パヤケ	Company:	Time: ' Times' ' Y	Company:	Time:	Company:	Time:
Comments:					Geotr	Geotracker EDF	
					Data	Data Validation Package 🗹 Level IV	N 10

# SAMPLE RECEIPT & REVIEW FORM 239316H

Client: 55F1			SDG/ARCOC/Work Order: 3 3 2 3 4 5 10 /20 /09
Received By: Ams			Date Received: 19 3 09
Suspected Hazard Information	Yes	8 N	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiatio Safety Group of further investigation.
COC/Samples marked as radioactive?	L	1	Maximum Counts Observed*:
Classified Radioactive II or III by RSO?		Z	30 cp ~
COC/Samples marked containing PCBs?		1	
Shipped as a DOT Hazardous?		1	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?	L	1	
Sample Receipt Criteria	Yes	NA	Comments/Qualifiers (Required for Non-Conforming Items).
Shipping containers received intact and sealed?			Circle Applicable: seals broken damaged container leaking container other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?	1		Preservation Method:  Output
Chain of custody documents included with shipment?			
4 Sample containers intact and sealed?			seals broken damaged container leaking container other (describe)  Teceived (Z) hoken Amber 12 10: EBRU2249
5 Samples requiring chemical preservation at proper pH?	1	1	Sample ID's, containers affected and observed pH:  If Preservation added, Lot#:
VOA vials free of headspace (defined as < 6mm bubble)?	1		Sample ID's and containers affected:
7 Are Encore containers present?	7		(If yes, immediately deliver to Volatiles laboratory)
8 Samples received within holding time?			Id's and tests affected:
Sample ID's on COC match ID's on bottles?	1		Sample ID's and containers affected:
Date & time on COC match date & time on bottles?	1		Sample ID's affected:
Number of containers received match number indicated on COC?	<i>&gt;</i>		Sample ID's affected:
2 COC form is properly signed in relinquished/received sections?	J		
Comments: Fx: 9457 5163 0800 11 11 0795 11 3159 3937			
PM (or PMA) review: 1	initi-	ole d	Amo Date 10/2/09

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: jacqueline.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 Originally Change (s) and Method (s) Date Now Requested ID(s) Collected Requested Analyses MWHBM2 HVBF33AS01, Add aluminum and boron by 6010 on 10/1/09 0091001\_0 HVBF33AS02 48 hour TAT The reason for these changes: Incorrectly marked on COC form Lack of sample volume X Change in analytical request Other:

Thank you

Date: 10/20/09

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# CHAIN OF CUSTODY RECORD

MWHBM20091001\_00 Page: 1 of 2

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Customer	Customer Information	Project Informati	mation			Project Information	Inform	atton						-	71	
Site:	SSFL	Cflent Name:	Boeing	8		Collector	-	B. Martasin					Boeing PM:	PM:		
Company: MWH	MWH	Sampling Event:	Ι-	ISRA Sampling, August 2009	ugust 2009	Contact #:	44									
Report to:	Sarah Von Raesfeld	Project Number:	╁	1891614,05462					Redu	Requested Analyses	павуве				Inst	Instructions/TAT
Address:	2121 N. California Blvd	Project Manager:		Alex Fischi										M	3	Legend:
	Suite 600	PM Phone #:	(926	(925) 627-4627									1010	eto		Numerical values for analyses equate to turn
	Walnut Creek	Field Contact	Γ	Brian Martasin									^10	als	<u>a</u>	around time in days
	40 V	Fleid Contact #:		(323) 304-4969			Meta					SV	60		± 4	H - Hold FH - Bywert/Extrade &
	94596	Lab Name:	뜅	GEL Laboratories, LLC	), LLC		is by			Per				010 10£	P	, and the second
Email:	sarah,vonraesfeld@rnwfnglobal.c	al.c Lab Contact:	Jac	Jacke Trudell		-										
	sean.leffler@mwhglobal.com	Lab Address:		2040 Savage Road	g.								SW	80	2	Note: Values in the cells
			Cha	Charleston, SC 29407	9407								8015	į!	Times.	bellow are Turn Around Times,
		Lab Phone:	98	(843) 769-7388									_	1		
Sample Name	вто	Matrix	Date	Пще	No. of Containers	B - Soil ure Soil	- Water - Water	A - Soil	2 - Soit	H-WET	A - Soil	A - Soil Water	Water (NW)	ron	Š	Comments
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1 HVBF33AS01	3	Sol	10/1/2009	10:18	2	10 10			<u>.</u>	4	<u>.</u>	10.				
7 HVBF33AS02	22	Soff	10/1/2009	10:40	2	\$0 08			10	4	اء	۵.		2 2	-	
HZBS0080AS001	18003	Soil	10/1/2009	14:35	6	25		~	<u>.</u>	۵.	<b>1</b> 0	۵.		<u> </u>	-	
HZBS0080AS002	(\$002	Soil	10/1/2009	14:45	3	<u>ئ</u> د	9	~	<u>~</u>	۰	<u>ن</u>	*		)		
HZBS0082AS001	15001	Soll	10/1/2009	8:30	60	10		7	<b>.</b>	۰۰	so.	S				
HZBS0082AS002	AS002	Soil	10/1/2009	8:05	80	9		2	10	••	•	20				
HZBS0084AS001	AS001	Soll	10/1/2008	7:50	3	5		2	10	<b>v</b> o	40	2			$\dashv$	
HZBS0084AS002	\\$002	Soil	10/1/2009	8:15	3	\$ \$	<u>ခ</u>	2	10	φ.	20	2			-	
X HZBS0123AS001	AS001	Soll	10/1/2009	13:15	3	9		2	<b>5</b>	\$	2	2			$\dashv$	
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# CHAIN OF CUSTODY RECORD

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·	Customer	Customer Information	Project Information	mation			Projec	Project Information	ation			1			***************************************	***************************************	() - pag () () - () - () - () - () - () - () -	-
	Site:	SSFL	Client Name:	Boeing	0		Collector	-	B. Martasin	=				B08	Boeing PM:			-
	Company: MWH	MWH	Sampling Event:	Ι	ISRA Sampling, August 2009	ugust 2009	Contact #:	#										-
	Report to:	Report to: Sarah Von Raesfeld	Project Number:	┢	1891614.05462					Requ	ested	Requested Analyses	994			=	Instructions/TAT	-
•	Address:	2121 N. California Blvd	Project Manager:	ger: Alex Fischi	ischi						-						Legend:	
		Suite 600	PM Phone #:	(825)	(925) 627-4627											20	Numerical values for analyses equate to turn	
		Walnut Creek	Fleid Contact:	Г	Brian Martasin									•		<b>4</b>	ground time in days	
		¢5	Field Contact #:	-	(323) 304-4989							ş	SV			Ξ.	H - Hold EH - Evracy/Evinda &	
		94596	Lab Name:	GEL	GEL Laboratories, LLC	nc					Pe		OCs:			1 =	Hold	
	Email:	sarah.vonraesfeld@mwhglobal.c	al.c Lab Contact:	Jacki	Jackie Trudeß					P			by 51					
		sean.leffler@mwhglobal.com	Lab Address:		2040 Savage Road	8				СВЬ			N827			2.	Note: Values in the cells	
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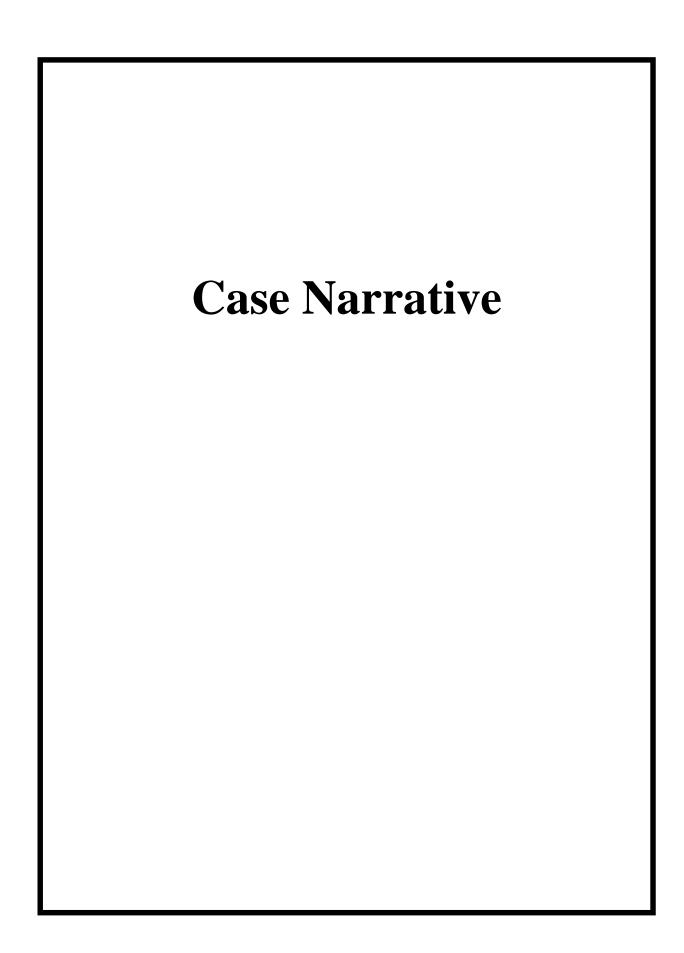
## LABORATORY TASK ORDER (LTO) FORM

INSTRUCTIONS: To be completed by Environmental Contractor & Emailed to Laboratory Project Manager, CH2M HILL (boeingedms@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 Sar	mpling, August 2009	Start:	8/24/2009	End:	9/30/2009
LTO DATE:			LTO	NUMBER:		
Consultant Name:		MWH	Contract Laboratory:		GEL	
Address:		I. California Blvd. Ste. 600	Address:		040 Savage F	
	Wa	Inut Creek, CA 94596	_	Cha	rleston, SC 2	9407
Contact Name		Sarah Van Daastald	Lab Cantact Name		la alvia Tuvala	
Contact Name: Phone Number:		Sarah Von Raesfeld 925-627-4654	Lab Contact Name: _ Phone Number:		Jackie Trude 843-769-738	
Fax Number:		925-627-4501	Frione Number:		843-766-117	
E-mail Address:	Sarah.\	VonRaesfeld@mwhglobal.com	E-mail Address:		line.trudell@g	
			NTAINER ORDER FORM			
Date Required:		SAMIFLE CO	Requested Analyses:	(Sı	pecify # of Sam	ples)
•			·	Water	Soil	Contingent
			Dioxins (1613B)	15	124	0
Date Sample Pickup:			EPA 8015M (DRO)			
			EPA 8015M (JET FUEL)			
Ship Containers To:		( , m, m)	EPA 8015M (CC)			
Project Site		_(enter "X")	TCE (8260B)	5	12	0
Consultant Office Other Location (specify in		_(enter "X")	EPA 8270C SIM (SVOC) EPA 8310 (PAH)			
comments)		(enter "X")	EPA 8082 (PCB)	3	5	0
		_(enter X)	Nickel (6020)	5	10	0
Container Information:			Chromium (6020)	5	10	0
Trip Blank (VOA only)	No	(Yes/No)	Silver (6020)	5	10	0
Temp Blank (VOA Only)	No	(Yes/No)	Cadmium (6020)	10	35	0
DI Water Required?	No	(Yes/No)	Arsenic (6020)	5	10	0
MS/MSD Extra Bottles?	No	_(Yes/No)	% Moisture (D2216)	0	170	0
OI- M-(-!			Lead (6020)	10	65	0
Sample Matrix:	V	(11HH	Copper (6020)	10	75	0
Soil <sub>-</sub> Water	X	_ (select all applicable) (select all applicable)	Zinc (6020) Mercury by 7471A/7470A	<u>5</u>	20 25	0
Vvaler_ Vapor		(select all applicable)	Mercury by 1411A/1410A	<u> </u>	23	
· -		_, , , , ,				
Est. Total # of Samples:	175	_ Est. Total # of EDDs _	PORTING REQUIREMENTS			
Project TAT:		LABORATORT RE	Laboratory Results/Repo	rts Delivera	ables:	
Normal:	Х	(10 Business days)	Draft Results Fax?:		(Yes/No)	
RUSH:	5	(Specify- 24 / 48 / 72HRS)	Draft Results E-mail?:	Yes	(Yes/No)	
Other:		(Specify # of Days)			<u> </u>	
Report Due Date:		-	Specify Fax/E-mail Contact Name, #, E-mail Address:	Sarah VonRae	sfeld@mwhglob	al.com
			Send Original Reports To:	<u> </u>	5.5.a ©g.5.	
Special Reporting Req	uireme	ents:	Project Site		(enter "X")	
Contingent Analysis?	No	(Yes/No)	Consultant Office		(enter "X")	
TIC (VOC) Required?	No	(Yes/No)	Other Location (specify		-	
TIC (SVOC) Required?	No	_(Yes/No)	in comments)	Х	(enter "X")	
Data Validation Pckge.:		<del>-</del> ' ′	# of Copies Reports Req.:	1	_(-,,,,,	
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LTO Sent By:			LTO Received By-			
Name:	Sarah Vo	on Raesfeld	Name:			
·-	09/02/09		Date:			_
Date.	55,52,65		Date			-

## **Table of Contents**

Case Narrative	1
Chain of Custody and Supporting Documentation	3
Data Qualifiers Definitions	11
Laboratory Certifications	13
Percent Moisture	15
Metals Analysis	19 20 25 28 42 51 142



Case Narrative for Boeing - SSFL (MWH) Work Order: 239316

SDG: 239316H

## October 26, 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 October 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:

Laboratory	Sample
<b>Identification</b>	<b>Description</b>
239316001	HVBF33AS01
239316002	HVBF33AS02

## **Items of Note**

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

## **Case Narrative**

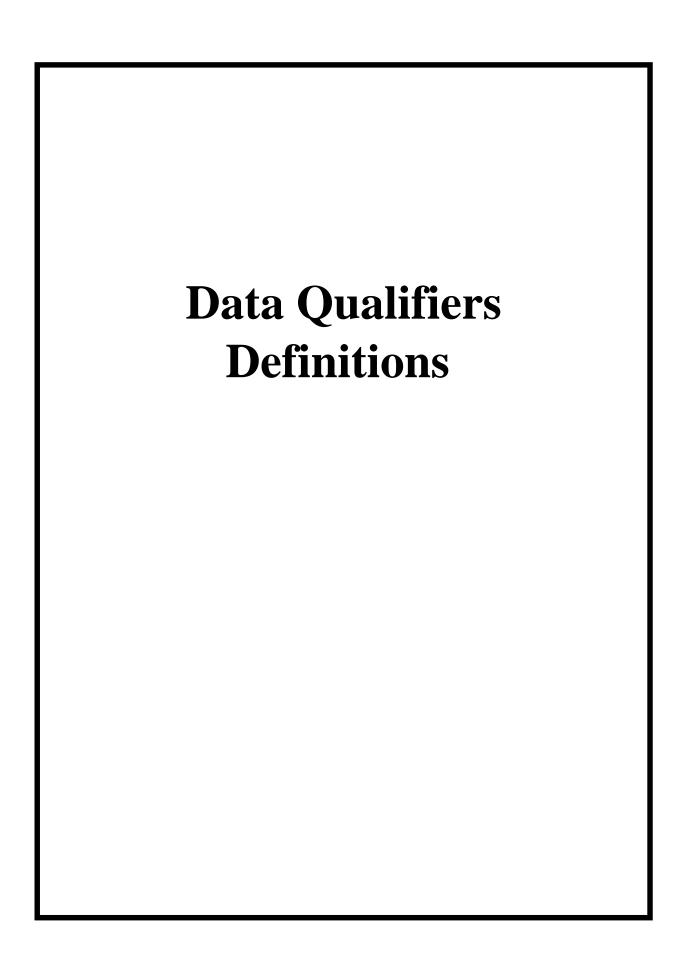
Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

## **Data Package:**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Metals and Percent Moisture.

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

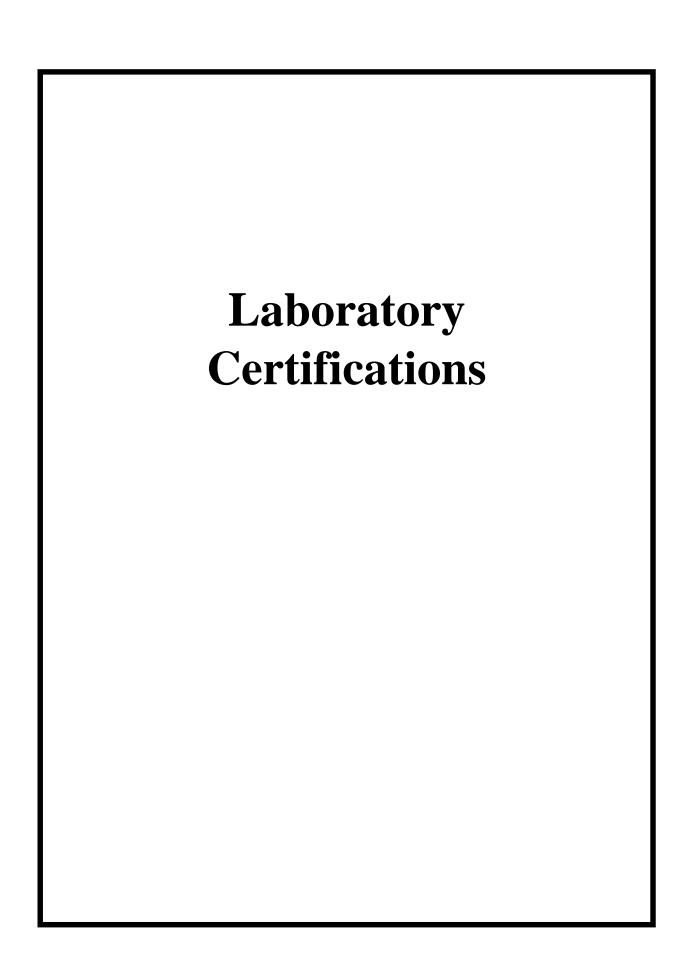
Jacqueline Trudell Project Manager



## Data 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
- $^{\circ}$  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
- ${
  m N/A}$  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.



List of current GEL Certifications as of 22 October 2009

Certification		
AZ0668		
88-0651		
42D0904046		
01151CA		
GEL		
PH-0169		
NFESC 413		
WG-15J		
E87156		
E87156 (FL/NELAP)		
967		
N/A		
2567.01		
SC00012		
200029		
C-SC-01		
E-10332		
90129		
03046		
270		
M-SC012		
SC00012		
SC002		
FL NELAP E87156		
11501		
233		
45709		
9904		
68-00485		
10120001/10120002		
TN 02934		
T104704235-07B-TX		
S-52597		
GEL		
VT87156		
00151		
C1641		



# DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: 239316H

Prepared by

MEC<sup>X</sup>, LP 12269 East Vassar Drive Aurora, CO 80014 DATA VALIDATION REPORT Project: Boeing SSFL RFI ISRA SDG: 239316H

## I. INTRODUCTION

Task Order Title: Boeing SSFL RFI ISRA

Contract Task Order: 1261.500D.00 Sample Delivery Group: 239316H

Project Manager: Dixie Hambrick

Matrix: soil QC Level: V

No. of Samples: 2

No. of Reanalyses/Dilutions: 0

Laboratory: GEL

**Table 1. Sample Identification** 

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
HVBF33AS01	239316001	N/A	SOIL	10/1/2009 10:18:00 AM	6010B
HVBF33AS02	239316002	N/A	SOIL	10/1/2009 10:40:00 AM	6010B

## **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.

1

## **Data Qualifier Reference Table**

Qualifier	Organics	Inorganics
	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.
	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.
	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
	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.
	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

Project: Boeing SSFL RFI ISRA SDG: 239316H

DATA VALIDATION REPORT

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- 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
Н	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
С	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.
В	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.
Е	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
Α	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
Т	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.

Project: Boeing SSFL RFI ISRA SDG: 239316H

## DATA VALIDATION REPORT

## **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.

\*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.

Post Digestion Spike recovery was not within control limits.

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.

DATA VALIDATION REPORT Project: Boeing SSFL RFI ISRA SDG: 239316H

## III. Method Analyses

## A. EPA METHOD 6010B—Metals

Reviewed By: P. Meeks

Date Reviewed: November 5, 2009

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the  $MEC^{X}$  Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0), EPA Method 6010B, and the National Functional Guidelines for Inorganic Data Review (7/02).

- Holding Times: The analytical holding time, six months for ICP metals, was met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks and CCBs had no detects.
- Interference Check Samples: Review is not applicable at a Level V validation.
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratoryestablished QC limits.
- Laboratory Duplicates: A laboratory duplicate analysis was performed on HVBF33AS01.
  The aluminum RPD exceeded the control limit; therefore, aluminum detected in the samples was qualified as estimated, "J." The boron RPD was within the methodestablished control limit.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on HVBF33AS01. Recoveries and RPDs were within laboratory-established QC limits.
- Serial Dilution: A serial dilution analysis was performed on HVBF33AS01. The %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. 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

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

 Field Blanks and Equipment Rinsates: FBQW2239 (236913) was the field blank and EBQW2249 (239234) was the equipment rinsate associated with the samples in this SDG. There were no applicable detects in these samples.

o Field Duplicates: There were no field duplicate samples identified for this SDG.

# Validated Sample Result Forms: 239316H

Analysis Metho	od 6010B							
Sample Name	HVBF33AS01		Matrix '	Гуре: Soil	Re	sult Type: Pi	rimary Result	
Lab Sample Name:	239316001	<b>Sample Date:</b> 10/1/2009 10:18:00 AM			M	Validation Level: V		
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Qualifier	Validation Notes	
Aluminum	7429905	13600	20.4	6.94 mg/kg	*	J	E	
Boron	7440428	2.01	5.1	1.02 mg/kg	J	J		
Sample Name	HVBF33AS02	Matrix Type: Soil			Res	Result Type: Primary Result		
Lab Sample Name:	239316002	<b>Sample Date:</b> 10/1/2009 10:40:00 AM			Validation Level: V			
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Qualifier	Validation Notes	
Aluminum	7429905	12000	20.2	6.86 mg/kg	*	J	E	
Boron	7440428	1.01	5.05	1.01 mg/kg	U	U		