854058860

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IR1 2/25/09

Site: Email: **Customer Information** Company: MWH Sample Name Address: Report to: Sarah Von Raesfeld and the states of the HZBS0090S001SP SSFL 2121 N. California Blvd Walnut Creek sarah.vonraesfeld@mwhglobal.c 94596 Ş Suite 500 sean.teffler@mwhglobal.com Lab Contact: **Client Name: Project Information** Sampling Event: ISRA Sampling, Feb 2009 Lab Phone: Lab Address: Lab Name: Field Contact #: Field Contact: PM Phone #: Project Manager: Alex Fischi Project Number: 1891614.050104 Matrix 2/24/2009 Date Boeing Brian Martasin (925) 627-4627 4955 Yarrow (323) 304-4969 (303) 735-0103 Arvada, CO 80002 Lisa Antonczak TestAmerica-Denver CHAIN OF CUSTODY RECORD 10:09 Time No. of Containers 1 Contact #: **Project Information** Collector: D2210 Wolstme 201 ž lios - Berat ya nixola ъ 5 bseJ lio2 0208 alsteM A. Leavitt ä oniS lioS 0508 sleisM **Requested Analyses** 000 # **Boeing PM:** Legend: Numerical values for analyses equate to turn around time in days H - Hald EH - Extract/Extrude & Hold Note: Values in the cells believe are Turn Around Times. MWHAL20090224_01 Instructions/TAT Page: 1 of 1 Comments

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TestAmerica Denver Sample Receiving Checklist
Lot #: <u>D9B250253</u> Date/Time Received: <u>2/25/09</u> 0900
Company Name & Sampling Site: MWH Boeing ISRA
PM to Complete This Section: YesNoYesNoResidual chlorine check required:Image: Complete This Section: YesNoImage: Complete This Section: YesImage: Complete This Section: YesNoQuarantined :Image: Complete This Section: YesImage: Complete This Section: YesImage: Complete This Section: YesImage: Complete This Section: YesNoResidual chlorine check required:Image: Complete This Section: YesNo
Quote #: 80017 - D
Special Instructions:
Sub Dioxin to Knoxville
• EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER
Unpacking Checks:
Cooler #(s):
Temperatures (°C): _2, ?
N/A Yes No Initials
Image: A state of the stat
\checkmark 2. Coolers scanned for radiation. Is the reading \leq to background levels? Yes: \checkmark No:
3. Chain of custody present? If no, document on CUR.
4. Bottles broken and/or are leaking? If yes, document on CUR.
5. Multiphasic samples obvious? If yes, document on CUR.
6. Proper container & preservatives used? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR.
7. pH of all samples checked and meet requirements? If no, document on COR.
document on CUR, and contact PM before proceeding.
9. Did chain of custody agree with labels ID and samples received? If no, document on CUR.
☐ ☐ 10. Were VOA samples without headspace? If no, document on CUR.
✓ □ □ 11. Were VOA vials preserved? Preservative □HCl □4±2°C □Sodium Thiosulfate □ Ascorbic Acid
□ □ 12. Did samples require preservation with sodium thiosulfate?
☐ ☐ 13. If yes to #11, did the samples contain residual chlorine? If yes, document on CUR.
14. Sediment present in dissolved/filtered bottles? If yes, document on CUR.
I I Sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and contact PM before proceeding.
\Box / 16. Receipt date(s) > 48 hours past the collection date(s)? If yes, notify PA/PM.
□ Z 17. Are analyses with short holding times requested?
18. Was a quick Turn Around (TAT) requested?

\QA\Edit\FORMS\Sample Receiving\Sample Receiving Checklist 9-2-08

TestAmerica Denver Sample Receiving Checklist

Login Checks:		ks:		Initials		
N/2	4 Yes	No			JB	
			19.	Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) document on CUR, and contact PM before proceeding.	If no,	
Z			20.	Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document or contact PM before proceeding.	n CUR, and	
	ø		21.	Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?		
	Ø		22.	Were special log in instructions read and followed?		
Ø			23.	Were AFCEE metals logged for refrigerated storage?		
	ø		24.	Were tests logged checked against the COC? Which samples were confirmed?		
₽			25.	Was a Rush form completed for quick TAT?		
ُ۲			26.	Was a Short Hold form completed for any short holds?		
,	Ø		27.	Were special archiving instructions indicated in the General Comments? If so, what were they?	1	
				45 cold / 5 months	-	
La	beling	g an	d S	torage Checks:	Initials	
بیکمو ر	<u></u>				± 0	
Ľ			28.	Was the subcontract COC signed and sent with samples to bottle prep?		
			29.	Were sample labels double-checked by a second person?		
	₽		30.	Were sample bottles and COC double checked for dissolved/filtered metals by a second person?		
	₽.		31.	Did the sample ID, Date, and Time from label match what was logged?		
D,	Í		32.	Were stickers for special archiving instructions affixed to each box? See #27		
Z			33.	Were AFCEE metals stored refrigerated?		

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

racker EDF	Geot		GEL.	Sample not received at		Comments:
Company: TA	Time:	Company:	Time:	Company:	Time: 1605	Company: MWH
Samo mail			2/25/09	that tolen	2/24/09	B. C.
4. Received by:	Date:	3. Relinquished by:	Date:	2. Received by:	Date:	1. Relinquished by:

1/15/19				VINTORY DEC	>>= =)))	67 <i>6</i> ,
			CHAIN OF	CUSTODY REC	CORD	COC #:	M
e							P
Customer	Information	Project Inform	mation	Project	t Information		
Site:	SSFL	Client Name:	Boeing	Collecto	or: A. Leavitt	Boeir	g PM:
Company:	MWH	Sampling Ever	nt: ISRA Sampling, Fe	2009 Contact	t #		
Report to:	Sarah Von Raesfeld	Project Numbe	3r: 1891614.050104		Requested	Analyses	Ins
Address:	2121 N. California Blvd	Project Manag	er: Alex Fischl				
	Suite 600	PM Phone #:	(925) 627-4627				N _L
	Walnut Creek	Field Contact:	Brian Martasin				arc
	CA	Field Contact #	#: (323) 304-4969	-			ļŢ
	94596	Lab Name:	TestAmerica-Denve				۲. ۲. ۳.
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Lisa Antonczak]	y		
	sean.leffler@mwhglobal.com	Lab Address:	4955 Үаггом	iixoiC SSCI	Metal		No
			Arvada, CO 80002	V 912	09 sl		be: Tin
	- revenues and the second s	Lab Phone:	(303) 736-0103	1613 Voistu	50 S OZ		
Sample Nar	me	Matrix	Date Time	No. of lios au	oil Zinc		ç
HZBS0090S0	01SP Soil		2/24/2009 10:09	2 10 10	10 10		

TestAmerica

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3 <u>ample I.D.</u> D9B250253-1	Laboratory
Knoxville, TN Client Code: <u>LocID</u>	TestAmerica Knoxville 5815 Middlebrook Pike
99400 <u>Work Order No. Client Sample ID</u> K7PPA HZBS0090S01SP	TestAmerica SAMPLE ANALYSIS REQUISITION Lab Request SR 10080
Project Manager: <u>Sampling Date</u> <u>Analysis Required</u> 2009-02-24 10:09 SOLID, 1613B Dioxins (K.nox) [BOE10]	Report Package: Expanded Deliverables Need Analytical Report 2009-03-09
	Knoxville, TN37921Client Code:99400Project Manager:annole LD. 39B250233-1LocID K TPP AClient Sample ID HZBS0090S01SPSampling Date 2009-02-24Analysis Required SOLID, 1613B Dioxins (Knox)BDE10

Sample Receiving Associate:

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Quote #:

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Are the shipping containers intact?

PAHs), do samples have visible solids present? For SOG water samples (1613B, 1668A, 8290, LR For rad samples, was sample activity info. provided?

SOG notified?

Incomplete information □ 10a Holding time expired

If yes & appears to be >1%, was

2

10.

Were samples received within holding time?

Was COC relinquished? (Signed/Dated/Timed)

Are tests/parameters listed for each sample?

18. Is the client and project name/# identified? 17. Is the date/time of sample collection noted? 16. Is the matrix of the samples noted?

Was the sampler identified on the COC?

PM Instructions:

Date: 2/2/6/09

QA026R19.doc, 080707

15a Incomplete information 15a Incomplete information 13b Other: 15a Incomplete information □ 15a Incomplete information 14a Not relinquished O 13a Leaking

Q

Did you check for residual chlorine, if necessary?

Were samples received in appropriate containers? Were VOA samples received without headspace?

٢

39a Could not be determined due

to matrix interference

□8a Improper container □7a Headspace (VOA only) 6b Broken

□ 6a Leaking

□ 5b Samples not received-on COC □ 5a Samples received-not on COC 14c Other: □4b Not intact 4a Not present 3a Sample preservative =

□2b Cooler Temp =

□2a Temp Blank =

I g Other:

If COC not received I le No label I 1d Label torn

□ 1c Marking smeared □ 1b Incomplete information

Were all of the sample containers received intact?

Were all of the samples listed on the COC received?

containers?

Were custody seals present/intact on cooler and/or

Were samples received with correct chemical

preservative (excluding Encore)?

VOST: 10°C; MA: 2-6 °C)

Is the cooler temperature within limits? (> freezing

temp. of water to 6°C; NC, 1668, 1613B; 0-4°C;

TA DENNER_	TESTAMERICA KNOX
Project:	VILLE SAMPLE RECEIPT/C
	ONDITION UPON RECEIPT
Lot Number: <u>D98250253</u>	F ANOMALY CHECKLIST

Review Items

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If No, what was the problem?

Comments/Actions Taken

□ Ia Do not match COC

Project: X

(IDs, Dates, Times)

Do sample container labels match COC?

Client:

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Report Cover Page	1
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Wet Chemistry Raw Data	720
% Moisture	720
Total Number of Pages in this Package	722



TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

Boeing SSFL – ISRA

Lot D9B250253

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

TestAmerica Laboratories, Inc.

3. Ariel

Lisa B. Uriell Project Manager

March 20, 2009

Case Narrative

Enclosed is the report for one sample received at TestAmerica Laboratories, Inc. – Denver laboratory on February 25, 2009. The results included in this report relate only to the sample in this report and has been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any items noted below.

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

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

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

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Quality Control Summary for Lot D9B250253

Sample Receiving

The cooler temperature for the sample received on February 25, 2009, at the Denver laboratory was 2.9°C. All sample containers were received in acceptable condition.

Sample HZBS0090S001SP was received at the laboratory on February 25, 2009, with an unassociated chain-of-custody intended for another Laboratory. The client was notified and provided the correct Chain of Custody, received vial email transmission on February 25, 2009. The hard copy of the Chain of Custody was received on February 26, 2009. Both the Chain of Custody received via US Mail have been included.

The requested Dioxin/Furan analyses were performed at TestAmerica's Knoxville laboratory located at 8515 Middlebrook Pike, Knoxville, TN 37921.

Dioxin - SW846 Method 8290

Several results are reported at the maximum possible concentration in several samples. These results have been flagged with "Q", and should be considered estimated.

Low levels of 1,2,3,7,8-PeCDD, Total PeCDD, 1,2,3,7,8,9-HxCDD, Total HxCDD, 1,2,3,4,6,7,8-HpCDD, Total HpCDD, OCDD, 1,2,3,7,8-PeCDF, Total PeCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, Total HxCDF, 1,2,3,4,6,7,8-HpCDF, Total HpCDF and OCDF were detected in the method blank associated with QC batch 9068200. However, because the concentrations in the method blank were not present at levels greater than one half the reporting limits, corrective action was deemed unnecessary.

Dioxin – SW846 Method 8290 (cont.)

Matrix Spike analysis for QC batch 9068200 was performed on sample HZBS0090S001SP (D9B250253-001). All spike parameters were within QC control limits.

The matrix spike duplicate, HZBS0090S001SP, exhibited no internal standard, native standard or clean up standard recoveries. The extract was lost during the column clean up step. The matrix spike and laboratory control sample met all QC requirements. The incident was confined to the MSD. All other samples exhibited recoveries which were with in limits. The data was reported as is with no adverse effect to data quality.

All QC criteria were met.

The following flags are used to qualify results for chlorinated dioxin and furan results:

J – The reported result is an estimate. The amount reported is below the Minimum Level (ML). The qualitative definition of the ML is "the lowest level at which the analytical system must give a reliable signal and an acceptable calibration point". The ML was introduced in EPA Methods 1624 and 1625 in 1980 and was promulgated in these methods in 1984 at 40 CFR Part 136, Appendix A. For the purposes of this report the ML is qualitatively defined as described above, and quantitatively defined as follows: Minimum Level: The concentration or mass of analyte in the sample that corresponds to the lowest calibration level in the initial calibration. It represents a concentration (in the sample extract) equivalent to that of the lowest calibration standard, after corrections for method-specified sample weights, volumes and cleanup procedures has been employed.

E – The reported result is an estimate. The amount reported is above the UCL described below. The E qualifier is applied on the basis of the Upper Calibration Level (UCL). The quantitative definition of the UCL is listed below:

Upper Calibration Level: The concentration or mass of analyte in the sample that corresponds to the highest calibration level in the initial calibration. It is equivalent to the concentration of the highest calibration standard, assuming that all method-specified sample weights, volumes, and cleanup procedures have been employed.

B – The analyte is present in the associated method blank at a reportable level. For this analysis, there is no method specified reporting level, other than the qualitative criterion that peaks must exhibit a signal-to-noise ratio of 2.5-to-1. Therefore, the presence of any amount of the analyte present in the blank will result a B qualifier on all associated samples.

If the blank has analytes present above the ML (described above) the need for corrective action beyond qualifying the associated data is evaluated. The determination is made whether the amount in the blank is less than 5% of the lowest amount in associated client samples or regulatory limit. If this is the case, sample processing may continue with the qualification of the data. If the amount in the blank is greater than 5% of the lowest amount in associated client samples or regulatory limit, corrective action must be taken.

The corrective actions may include extracting a second aliquot of sample if available, or notifying the client to assess the impact on the project objectives.

Note: Some laboratories do not report contamination in the blank unless it is above their lower calibration limit, or an established percentage of the level in the samples, or an established percentage of the regulatory limit. Likewise, some laboratories set a reporting limit at one half the lower calibration limit.

Q – Estimated maximum possible concentration. This qualifier is used when the result is generated from chromatographic data that does not meet all the qualitative criteria for a positive identification given in the method. The criteria include the following areas:

Dioxin - SW846 Method 8290 (cont.)

• Ion abundance ratios must be within specified limits (+/-15% of theoretical ion abundance ratio.)

• Retention time criteria (relative to the method-specified isotope labeled retention time standard).

• Co-maximization criterion. The two quantitation ion peaks must reach their maxima within 2 seconds of each other.

• Polychlorinated dibenzofuran purity. No peak can be identified as a polychlorinated dibenzofuran if a polychlorinated diphenyl ether peak maximizes within +/- 2 seconds of the furan candidate.

S – Ion suppression evident. The trace indicating the signal from the lock mass of the calibration compound shows a deflection at the retention time of the analyte. This may indicate a temporary suppression of the instrument sensitivity, due to a matrix-borne interference.

C – Coeluting Isomer. The isomer is known to coelute with another member of its homologue group, or the peak shape is shouldered, indicating the likelihood of a coeluting isomer

X – Other. See explanation in narrative.

Laboratory studies supporting risk assessment and TMDL evaluations frequently use qualified data reported as low as the MDL, or the Estimated Detection Limit (EDL). Several of EPA's isotope dilution methods employ the EDL^{1,2,3}. The EDL is based on a direct measurement of the signal-to-noise ratio acquired during sample analysis. This s/n measurement is used to calculate the concentration in the sample corresponding to the minimum intensity of the smallest quantifiable peak. The EDL reflects the amount of the particular analyte which would be required to cause a positive result for the particular analysis. Because the s/n obtained covaries with recovery, instrument sensitivity and sample-specific cleanup efficacy, the EDL is a more valid measure of the sensitivity of the entire analytical process for the specific sample, than is an MDL run periodically on a reference matrix.

This method of estimating the detection limit differs from the MDL in that it does not carry the requirement that the sample be statistically distinguished as being from a contaminated population. As results approach the EDL, the risk of false positives and the analytical uncertainty increase significantly. However, a low false positive well below the ML or MDL is often more accurate than the assumption is that contamination is present at the DL or ML. For relatively clean samples, MDL studies may give an elevated estimate of the detection limit. Additionally, on contaminated samples, the MDL may give a falsely low estimate of the detection limit.

In sample data, peaks must have an intensity of 2.5 times the height of the background noise in order to be considered. Careful examination of the two equations above, and a bit of high school algebra reveals that for the concentration of the smallest peak detectable (per the EDL equation) to exactly equal the smallest peaks that are calculated, requires that the average height to area ratio obtained during the calibration must equal the area to height ratio for every peak obtained near 2.5 times the noise. When the area to height ratio on a peak in a sample is less than the average obtained during calibration, the calculated result will correspond to a peak that would have been less than 2.5 X the noise on the calibration. This is the result of normal variability. Because the source method for the EDL (SW-846 8290 and 8280A) does not provide for censoring of results by any other magnitude standard than being 2.5 times the noise, the laboratory does not censor at the calculated EDL. Hence, detections may be reported below the estimated detection limits.

No other anomalies were observed.

Total Metals - SW846 Methods 6020

Low levels of Zinc were detected in the method blank associated with QC batch 9058236. However, because the concentration in the method blank was not present at a level greater than one half the reporting limit, corrective action was deemed unnecessary.

Matrix spike analyses for Method 6020 QC batch 9058236 were performed on a sample from another lot, and were in control.

Post digestion spike analysis for Method 6020, QC batch 9058236 was performed on a sample from another lot. All spike parameters were within QC control limits.

The Serial Dilution analysis for Method 6020 QC batch 9058236 was performed on a sample from another lot, and was in control.

No other anomalies were observed.

General Chemistry – Method ASTM D 2216-90

The duplicate analysis for Percent Moisture (batch 9057178) was performed on sample HZBS0090S001SP (D9B250253-001) and was in control.

No anomalies were observed.

METHODS SUMMARY

D9B250253

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Dioxins/Furans, HRGC/HRMS	EPA-5 1613B	EPA-5 1613
ICP-MS (6020)	SW846 6020	SW846 3050B
Method for Determination of Water Content of Soil	ASTM D 2216-90	ASTM D2216-90

References:

- ASTM Annual Book Of ASTM Standards.
- EPA-5 "Method 1613: Tetra- through Octa- Chlorinated Dioxins and Furans by Isotope Dilution, HRGC/HRMS, Revision B", EPA, OCTOBER 1994
- SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9B250253

ANALYTICAL		ANALYST
METHOD	ANALYST	ID
ASTM D 2216-90	Reva M. Golden	010906
EPA-5 1613B	Melissa A. Davidson	010265
SW846 6020	Thomas Lill	6929
EPA-5 1613B SW846 6020	Melissa A. Davidson Thomas Lill	010265 6929

References:

ASTM Annual Book Of ASTM Standards.

- EPA-5 "Method 1613: Tetra- through Octa- Chlorinated Dioxins and Furans by Isotope Dilution, HRGC/HRMS, Revision B", EPA, OCTOBER 1994
- SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9B250253

<u>wo #</u>	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
K7PPA	001	HZBS0090S001SP	02/24/09	10:09
NOTE (s):			
- The analy	ytical results of th	he samples listed above are presented on the following pages.		
- All calcu	lations are perfor	rmed before rounding to avoid round-off errors in calculated results.		

- Results noted as "ND" were not detected at or above the stated limit.

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

- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor,

paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

QC DATA ASSOCIATION SUMMARY

D9B250253

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS_RUN#
001	SO	EPA-5 1613B		9068200	9068130
	SO	SW846 6020		9058236	9058147
	SO	ASTM D 2216-90		9057178	9057102



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: D9B250253

Prepared by

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

I. INTRODUCTION

Task Order Title:	Boeing SSFL RFI ISRA
Contract Task Order:	1261.500D.00
Sample Delivery Group:	D9B250253
Project Manager:	Dixie Hambrick
Matrix:	soil
QC Level:	V
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Laboratory:	Testamerica

Table 1. Sample Identification

Sample Name	Lab Name	Sample	Sub-Lab Sample Name	Matrix	Collection	Method
HZBS0090S001SP	D9B250	253001	N/A	SOIL	2/24/2009 10:09:00 AM	1613B, 6020

II. Sample Management

No anomalies were observed regarding sample management. The samples in this SDG were received at the laboratory within the temperature limits of $4^{\circ}C \pm 2^{\circ}C$. 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.

D9B250253

D9B250253

Qualif	ier Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
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

Data Qualifier Reference Table

D9B250253

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
Т- III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

3

D9B250253

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.
А	Not applicable.	ICP Serial Dilution %D were not within control limits.
Μ	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

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.
Ρ	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*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 indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. EPA METHOD 1613—Dioxin/Furans

Reviewed By: K. Shadowlight Date Reviewed: March 20, 2009

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[×] Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0), USEPA Method 1613,* and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review* (10/99).

- Holding Times: Extraction and analytical holding times were met. The sample was 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: There were several detects above the EDL that were identified as EMPCs and required no qualification. The method blank had no other target compound detects above the EDL.
- Blank Spikes and Laboratory Control Samples: Recoveries were within the acceptance criteria listed in Table 6 of Method 1613.
- Matrix Spike/Matrix Spike Duplicate Samples: An MS analysis was performed for the sample in this SDG. The recoveries were within the laboratory established QC limits for the matrix spike sample.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
 - Field Blanks and Equipment Rinsates: FBQW2229 (225106) was the field blank associated with the sample in this SDG. There were no detects above the EDL in the field blank. This SDG had no identified equipment rinsate sample.
 - Field Duplicates: There were no field duplicate samples identified for this SDG.
- Internal Standards Performance: Internal standard recoveries are not routinely evaluated at a Level V validation; however, the recoveries were reported on the sample result summaries. The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613.

- Compound Identification: Review is not applicable at a Level V validation. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613.
- Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation. The laboratory calculated and reported compound-specific detection limits. Estimated maximum possible concentrations (EMPCs) were identified in the sample of this SDG, as denoted by the laboratory "Q," code. For individual isomers identified as EMPCs, the results were qualified as estimated nondetects, "UJ." EMPCs reported as totals were qualified as estimated, "J," as only a portion of the total was identified as an EMPC. Any detect below the laboratory lower calibration level was qualified as estimated, "J." Nondetects are valid to the estimated detection limit (EDL).

B. EPA METHOD 6020—Metals

Reviewed By: P. Meeks Date Reviewed: March 20, 2009

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

- Holding Times: The analytical holding time, six months for ICP-MS metals, was met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks and CCBs had no detects.
- Interference Check Samples: Review is not applicable at a Level V validation.
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratoryestablished QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on the sample in this SDG. Method accuracy was evaluated based on LCS results.
- Serial Dilution: No serial dilution analyses were performed on the sample in this SDG.
- Internal Standards Performance: Review is not applicable at a Level V validation.

- Sample Result Verification: Review is not applicable at a Level V validation. As the 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: FBQW2229 (225106) was the field blank associated with the sample in this SDG. There were no applicable in the field blank. This SDG had no identified equipment rinsate sample.
 - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: D9B250253

Analysis Method 1613B

Sample Name	HZBS0090S	001SP	Matr	іх Туре	: SOIL		Result Type: Primary Result			
Lab Sample Name:	D9B250253001		Sample Date:	2/24/20	009 10:09	:00 AM	Valio	dation Level	: V	
Analyte	CA	AS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes	
1,2,3,4,6,7,8-Heptachlorod	ibenzofuran 67	562394	0.96	2.8	0.13	3 ng/kg	B J	J		
1,2,3,4,6,7,8-Heptachlorod	ibenzo-p-dioxin 35	5822469	5.4	2.8	0.24	1 ng/kg	В			
1,2,3,4,7,8,9-Heptachlorod	ibenzofuran 55	5673897	0.21	2.8	0.21	ng/kg	U	U		
1,2,3,4,7,8-Hexachlorodibe	enzofuran 70)648269	0.16	2.8	0.085	5 ng/kg	ВJ	J		
1,2,3,4,7,8-Hexachlorodibe	enzo-p-dioxin 39	227286	0.14	2.8	0.14	1 ng/kg	U	U		
1,2,3,6,7,8-Hexachlorodibe	enzofuran 57	117449	0.14	2.8	0.08	8 ng/kg	Q 1	J	*III	
1,2,3,6,7,8-Hexachlorodibe	enzo-p-dioxin 57	653857	0.33	2.8	0.16	ó ng/kg	Q 1	J	*III	
1,2,3,7,8,9-Hexachlorodibe	enzofuran 72	2918219	0.12	2.8	0.12	2 ng/kg	U	U		
1,2,3,7,8,9-Hexachlorodibe	enzo-p-dioxin 19	9408743	0.24	2.8	0.14	1 ng/kg	Q B J	J	*III	
1,2,3,7,8-Pentachlorodiber	zofuran 57	117416	0.13	2.8	0.13	3 ng/kg	U	U		
1,2,3,7,8-Pentachlorodiber	zo-p-dioxin 40	321764	0.18	2.8	0.18	8 ng/kg	U	U		
2,3,4,6,7,8-Hexachlorodibe	enzofuran 60	851345	0.092	2.8	0.092	2 ng/kg	U	U		
2,3,4,7,8-Pentachlorodiber	zofuran 57	117314	0.11	2.8	0.11	ng/kg	U	U		
2,3,7,8-TCDD	17	46016	0.36	0.55	0.36	6 ng/kg	U	U		
2,3,7,8-Tetrachlorodibenzo	ofuran 51	207319	0.24	0.55	0.24	1 ng/kg	U	U		
Heptachlorodibenzofurans	38	3998753	2	2.8	0.16	ó ng/kg	QJB	J	*III	
Heptachlorodibenzo-p-dio	xins 37	871004	- 14	2.8	0.24	1 ng/kg	В			
Hexachlorodibenzofurans	55	684941	1.3	2.8	0.092	2 ng/kg	J B Q	J	*III	
Hexachlorodibenzo-p-diox	ins 34	465468	1.7	2.8	0.15	5 ng/kg	QJB	J	*III	
Octachlorodibenzofuran	39	001020	2.1	5.5	0.2	2 ng/kg	ВJ	J		
Octachlorodibenzo-p-dioxi	in 32	268879	72	5.5	0.23	3 ng/kg	В			
Pentachlorodibenzofurans	30	0402154	0.8	2.8	0.12	2 ng/kg	J Q	J	*III	
Pentachlorodibenzo-p-diox	kins 36	5088229	0.18	2.8	0.18	8 ng/kg	U	U		
Tetrachlorodibenzofurans	55	5722275	0.24	0.55	0.24	l ng/kg	U	U		
Tetrachlorodibenzo-p-diox	ins 41	903575	0.36	0.55	0.36	ó ng/kg	U	U		

Sample Name	HZBS0090S001SP	Matri	х Туре	SOIL		Result T	ype: Prima	ry Result
Lab Sample Name:	D9B250253001	Sample Date:	2/24/2	009 10:09:0	0 AM	Valid	lation Level	· V
Analyte	CAS No	Result Value	RL	MDL R U	Result Jnits	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	7.4	0.44	0.02	mg/kg			
Zinc	7440666	60	5.5	0.35	mg/kg	В		

Analysis Method 6020

Comments:	Company: MWH		1. Relinquished by:
	Time: 1630	2/25/09	Date:
	Company:		2. Received by:
	Time:		Date:
	Company:		3. Relinquished by:
Geo	Time:		Date:
otracker EDF a Validation Package ✔ Leve	Company: 1 A Den	Inn Muller	4. Received by:
IIV	Time: 09/5	bolacle	Date:

	AC 2/20/5		£		CUSTOE)Y RI	ECO	RD					COC #			MN DS	1 5°00°27 2 5°00°27 ИНАГ2009022
	•															P	age: 1 of 1
Customer	Information	Project Inform	nation			Proje	ect Inf	orma	tion								
Site:	SSFL	Client Name:	Boein	G		Colle	ctor:	A. Le	avitt					Ð	being PM:		
Company:	MMH	Sampling Even	t: ISRA	Sampling, F	eb 2009	Conta	act #:										
Report to:	Sarah Von Raesfeld	Project Number	: 18916	14.050104						Req	uestec	f Analy	ses		.	Ins	tructions/TAT
Address:	2121 N. California Blvd	Project Manage	r: Alex F	ischl	and the second sec											<u>-</u>	607.
1	Suite 600	PM Phone #:	(925)	627-4627												Nu	merical values for
	Walnut Creek	Field Contact:	Brian	Martasin												ana	und time in days
	CA .	Field Contact #	(323)	304-4969	and and and and and and allowed the											Ŧ	Hold
	94596	Lab Name:	TestA	merica-Den	ver											Hol	- Extract/Extrude & ld
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Lisa U	riell			isien Me	эM	1								
	sean.leffler@mwhglobal.com	Lab Address:	4955	Yarrow		053	.0d 2l D 2l6t) slet	letəN	etəM						Not	e: Values in the cells
			Arvada	a, CO 8000	2	N 912	9050 50 20	0208	:09 s	09 sli						Tim	low are Turn Around
		Lab Phone:	(303)	736-0103	5	nteioN	s:) IIC IICS	lio2	20 Sc	S 02							
Sample Nam	ē	Matrix	Date	Time	No. of Containers	lio2 əıı	Arsenic Arsenic	Copper	b s əJ liq	oil Zinc						Co	mments
HZBS0071S00)1SP Soil	N	/25/2009	13:06	1	10	10		10	10							
HZBS0085S00)1SP Soil	N	1/25/2009	12:00		10	10 10	10	10								

TestAmerica Denver Sample Receiving Checklist
Lot #: D913240297 Date/Time Received: 2/24/09 0915
Company Name & Sampling Sile: Borios MUIH ISRA
PM to Complete This Section: YesNoYesNoResidual chlorine check required:Image: Section of the section
Quote #: 80017-D
Special Instructions:
Time Zone:
• EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER
Unpacking Checks:
Cooler #(s):
Temperatures (°C): $\propto 1$
N/A Tes No
\square
\Box \Box 3. Chain of custody present? If no, document on CUR.
4. Bottles broken and/or are leaking? If yes, document on CUR.
5. Multiphasic samples obvious? If yes, document on CUR.
6. Proper container & preservatives used? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR.
7. pH of all samples checked and meet requirements? If no, document on CUR.
 8. Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR, and contact PM before proceeding.
9. Did chain of custody agree with labels ID and samples received? If no, document on CUR.
D D 10. Were VOA samples without headspace? If no, document on CUR.
🖆 🖸 🔲 11. Were VOA vials preserved? Preservative 🛛 HCl 🖓 4±2°C 🖓 Sodium Thiosulfate 🖓 Ascorbic Acid
□ □ 12. Did samples require preservation with sodium thiosulfate?
13. If yes to #11, did the samples contain residual chlorine? If yes, document on CUR.
1 I A. Sediment present in dissolved/filtered bottles? If yes, document on CUR.
Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and contact PM before proceeding.
\Box 16. Receipt date(s) > 48 hours past the collection date(s)? If yes, notify PA/PM.
□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □
18. Was a quick Turn Around (TAT) requested?

TestAmerica Denver Sample Receiving Checklist

Lot # <u>D913260297</u>

Lo	gin C	hec	ks:		Initials
N/A	Yes	No			Jus
	كر	D	19.	Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) document on CUR, and contact PM before proceeding.	If no,
Þ			20.	Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document of contact PM before proceeding.	on CUR, and
	Ŋ		21.	. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?	
	þ,		22.	Were special log in instructions read and followed?	
Ŕ	Ľ	Ċ	23.	Were AFCEE metals logged for refrigerated storage?	
	Q		24.	Were tests logged checked against the COC? Which samples were confirmed?	
þ			25.	Was a Rush form completed for quick TAT?	
Þ			26.	Was a Short Hold form completed for any short holds?	
	Þ		27.	Were special archiving instructions indicated in the General Comments? If so, what were they?	1
	,			45d/5m	
La	belin	g an	d S	torage Checks:	Initials

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

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

Report Cover Page Case Narrative Executive Summary - Detection Highlights Methods Summary Method / Analyst Summary Sample Summary QC Data Association Summary Metals Forms Wet Chemistry Forms Chain of Custody	1 2 3 4 5 6 7 8 28 32
Sample Receipt Documents Supporting Documentation ICPMS Metals Raw Data Wet Chemistry Raw Data	33 35 35 119 119
Total Number of Pages in this Package	122



TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

Boeing SSFL – ISRA

Lot D9B260297

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

TestAmerica Laboratories, Inc.

-D. Unill

Lisa B. Uriell Project Manager

March 9, 2009

Case Narrative

Enclosed is the report for two samples received at TestAmerica Laboratories, Inc. – Denver laboratory on February 26, 2009. The results included in this report relate only to the samples in this report and have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any items noted below.

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

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

TestAmerica Laboratories, Inc. utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the analytical methods summary page in accordance with the methods indicated. A summary of quality control parameters is provided below.

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

Quality Control Summary for Lot D9B260297

Sample Receiving

The cooler temperature for the sample received on February 26, 2009, at the Denver laboratory was 2.9°C. All sample containers were received in acceptable condition.

Total Metals - SW846 Methods 6020

Low levels of Copper and Zinc were detected in the method blank associated with QC batch 9058236. However, because the concentrations in the method blank were not present at levels greater than one half the reporting limits, corrective action was deemed unnecessary.

Matrix spike analyses for Method 6020 QC batch 9058236 were performed on a sample from another lot, and were in control.

Post digestion spike analysis for Method 6020, QC batch 9058236 was performed on a sample from another lot. All spike parameters were within QC control limits.

The Serial Dilution analysis for Method 6020 QC batch 9058236 was performed on a sample from another lot, and was in control.

No other anomalies were observed.

General Chemistry – Method ASTM D 2216-90

The duplicate analysis for Percent Moisture (batch 9061148) was performed on a sample from another lot and was in control.

No anomalies were observed.

METHODS SUMMARY

D9B260297

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
ICP-MS (6020)	SW846 6020	SW846 3050B
Method for Determination of Water Content of Soil	ASTM D 2216-90	ASTM D2216-90

References:

ASTM Annual Book Of ASTM Standards.

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

METHOD / ANALYST SUMMARY

D9B260297

ANALYTICAL		ANALYST	
METHOD	ANALYST	ID	
ASTM D 2216-90	Reva M. Golden	010906	
SW846 6020	Thomas Lill	6929	

References:

ASTM Annual Book Of ASTM Standards.

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

SAMPLE SUMMARY

D9B260297

<u>wo #</u>	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
K7RRE	001	HZBS0071S001SP	02/25/09	13:06
K7RRL	002	HZBS0085S001SP	02/25/09	12:00

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.

- All calculations are performed before rounding to avoid round-off errors in calculated results.

- Results noted as "ND" were not detected at or above the stated limit.

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

- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor,

paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.
QC DATA ASSOCIATION SUMMARY

D9B260297

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	SO SO	SW846 6020 ASTM D 2216-90		9058236 9061148	9058147 9061093
002	SO SO	SW846 6020 ASTM D 2216-90		9058236 9061148	9058147 9061093

7



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: D9B260297

Prepared by

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

I. INTRODUCTION

Task Order Title:	Boeing SSFL RFI ISRA
Contract Task Order:	1261.500D.00
Sample Delivery Group:	D9B260297
Project Manager:	Dixie Hambrick
Matrix:	soil
QC Level:	V
No. of Samples:	2
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica

Table 1. Sample Identification

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
HZBS0071S001SP	D9B260297001	N/A	Soil	2/25/2009 1:06:00 PM	6020
HZBS0085S001SP	D9B260297002	N/A	Soil	2/25/2009 12:00:00 PM	6020

II. Sample Management

No anomalies were observed regarding sample management. The samples in this SDG were received at the laboratory within the temperature limits of $4^{\circ}C \pm 2^{\circ}C$. 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.

Quali	ifier Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
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

Data Qualifier Reference Table

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
Т- III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

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.
А	Not applicable.	ICP Serial Dilution %D were not within control limits.
М	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

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.
Ρ	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*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 indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. EPA METHOD 6020—Metals

Reviewed By: P. Meeks Date Reviewed: March 19, 2009

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

- Holding Times: The analytical holding time, six months for ICP-MS metals, was met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks and CCBs had no applicable detects.
- Interference Check Samples: Review is not applicable at a Level V validation.
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratoryestablished QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed on a sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on a sample in this SDG. Method accuracy was evaluated based on LCS results.
- Serial Dilution: No serial dilution analyses were performed on a sample in this SDG.
- Internal Standards Performance: Review is not applicable at a Level V validation.
- Sample Result Verification: Review is not applicable at a Level V validation. As the 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: FBQW2229 (225106) was the field blank and EBQW2205 (225170) was the equipment rinsate associated with the soil samples in this SDG. There were no applicable detects in either sample.
- Field Duplicates: There were no field duplicate samples identified in this SDG.

Validated Sample Result Forms: D9B260297

Analysis Method 6020

Sample Name	HZBS0071S001SF	9 Matri	іх Туре	SOIL		Result 7	Г уре: Primar	y Result
Lab Sample Name:	D9B260297001	Sample Date:	2/25/2	009 1:06:	00 PM	Valio	dation Level	· V
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cadmium	7440439	0.38	0.24	0.011	mg/kg			
Lead	7439921	11	0.47	0.022	mg/kg			
Zinc	7440666	45	5.9	0.37	mg/kg	В	J	
Sample Name	HZBS0085S001SF	Matri	іх Туре	SOIL		Result 7	Г уре: Prima	y Result
Lab Sample Name:	D9B260297002	Sample Date:	2/25/2	009 12:00):00 PM	Valio	dation Level	: V
Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Arsenic	7440382	5.4	0.55	0.055	mg/kg			
Cadmium	7440439	0.48	0.22	0.01	mg/kg			
Copper	7440508	17	0.22	0.078	mg/kg	В	J	
Lead	7439921	42	0.44	0.02	mg/kg			



			CHAIN OF		iy RECORD り9 Foよさよらり #		Page:
Customer I	Information	Project Informa	tion		Project Information		
Site:	SSFL	Client Name:	Boeing		Collector: B. Martasin E	Boeing PM:	
Company:	HWM	Sampling Event:	ISRA Sampling,	June 2009	Contact #:		
Report to:	Sarah Von Raesfeld	Project Number:	1891614.054521		Requested Analyses		Instructions
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl				Legend:
	Suite 600	PM Phone #:	(925) 627-4627				Numerical valu
	Walnut Creek	Field Contact:	Brian Martasin				around time in
	CA	Field Contact #:	(323) 304-4969				H - Hold
	94596	Lab Name:	TestAmerica-Der	IVer			Hold
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Lisa Uriełl		N 9M		
	sean.leffler@mwhglobal.com	Lab Address:	4955 Yarrow	-	Aetal Jioxir		Note: Values i
1			Arvada, CO 8000)2	s 602 5020 5020		bellow are Tur Times.
		Lab Phone:	(303) 736-0103		Voistu 20 20		
Sample Narr	Te	Matrix C	Date Time	No. of Containers	il Lead		Comments
HZBS0124S00)1SP Soil	6/2	1/2009 10:58	1	10 10 10 10		

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<i>TestAmerica Denver</i> Sample Receiving Checklist
Lot #: D9F020251 Date/Time Received: 6/2/09 0845
Company Name & Sampling Site: Boeing MWH - ISRA
PM to Complete This Section: YesNoYesNoResidual chlorine check required:XQuarantined :V
Quote #: 80017 - D
Special Instructions:
Time Zone: • FDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER
• EDT/EST • CDT/CST • MEDT/MBT TDT/TE
Unpacking Checks:
Cooler #(s): _/
Temperatures (°C): <u>4.3</u>
N/A Yes No
□ □ 1. Cooler seals intact? (N/A if hand delivered) If no, document on CUR.
$=$ 2. Coolers scanned for radiation. Is the reading \leq to background levels? Yes: \rightarrow NO
3. Chain of custody present? If no, document on CUR.
4. Bottles broken and/or are leaking? If yes, document on CUR.
5. Multiphasic samples obvious? If yes, document on CUR.
6. Proper container & preservatives used? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR.
□ □ 7. pH of all samples checked and meet requirements? If no, document on CUR.
 8. Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR, and contact PM before proceeding.
9. Did chain of custody agree with labels ID and samples received? If no, document on CUR.
🔎 🗖 10. Were VOA samples without headspace? If no, document on CUR.
A D D 11. Were VOA vials preserved? Preservative DHCl D4±2°C DSodium Thiosulfate D Ascorbic Acid
□ □ 12. Did samples require preservation with sodium thiosulfate?
13. If yes to #11, did the samples contain residual chlorine? If yes, document on CUR.
□ □ 14. Sediment present in dissolved/filtered bottles? If yes, document on CUR.
In the sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and contact PM before proceeding.
\Box 16. Receipt date(s) > 48 hours past the collection date(s)? If yes, notify PA/PM.
17. Are analyses with short holding times requested?
🖸 🗹 18. Was a quick Turn Around (TAT) requested?

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TestAmerica Denver Sample Receiving Checklist

Lot # D9F020257

Log	gin C	hec	ks:		Initials
N/A	Yes	No			<u>Im</u>
	Þ		19.	Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) document on CUR, and contact PM before proceeding.	If no,
Ъ			20.	Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document c contact PM before proceeding.	on CUR, and
	9		21.	. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?	
	à		22.	Were special log in instructions read and followed?	
	Ū		23.	Were AFCEE metals logged for refrigerated storage?	
	Þ		24.	Were tests logged checked against the COC? Which samples were confirmed?	
_ل ل	ù		25.	Was a Rush form completed for quick TAT?	
Þ			26.	Was a Short Hold form completed for any short holds?	1
	Þ		27.	Were special archiving instructions indicated in the General Comments? If so, what were they?	, ,
	`			45days/5months.	
Lat	oelin	g an	id S	torage Checks:	Initials
بعر					N
	ø		28.	Was the subcontract CQC signed and sent with samples to bottle prep?	
	1		29.	Were sample labels double-checked by a second person?	
R			30.	Were sample bottles and COC double checked for dissolved/filtered metals by a second person?	

☑ □ 31. Did the sample ID, Date, and Time from label match what was logged?

□ □ 32. Were stickers for special archiving instructions affixed to each box? See #27

□ □ 33. Were AFCEE metals stored refrigerated?

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

		TestAnte	tea	; ;	1	
2400 Hot J	1 est America Knoxville 5815 Middlebrook Pike	Lab Requ	Jest SR112404	Need Analytical Report	2009-06-12	
	Knoxville, TN	37921				
	Client Code:	99400		Project Manager:		
Sample I.D. D9F020257-1	LociD	Work Order No.Client Sample IDLD63GHZBS0124S001SP		<u>Sampling Date</u> 2009-06-01 10:58	<u>Analysis Required</u> SOLID, 1613B Dioxins (Knox)	BOE10
			REC CUS Fed L	тору <i>s</i> еяс митяс; оосек кн 6/3/69 5x # 966 27780446 9	~ 1	
		Please use Client Sample ID for Call with questions at 303-736-010	ør report O			
Need detection ir Please send a sig Retinquished by: .	nil and analysis date included in re ned copy of this form with the repo	port. ort at completion of analysis. Date/Time: <u>ダーノーップ 16:00</u>		Shipping Method:		
Refinquished by:	. Lynn Henry	Date/Fime: $\frac{1}{10 \text{ J}/09}$) JALYSIS REQUISITION			

QA026R19.doc, 080707

Date:

3/09

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Sample Receiving Associate:

					1
	na na anala ana ana ana ana ana ana ana			Quote #: PM Instructions:	Ç
				2. was use sampler identified on the COC?	17
	□ 15a Incomplete information		5	o. 15 the client and project name/# identified?	5 5
	□ 15a Incomplete information		5	7. IS the date/time of sample collection noted?	ة <u>:</u>
	□ 15a Incomplete information	 	5	o. is the matrix of the samples noted?	10
	□ 15a Incomplete information		5	3. Are tests/parameters listed for each sample?	, i
	14a Not relinquished		R	4. Was CUC relinquished? (Signed/Dated/Timed)	- 4
	13b Other:		5		:
	🛛 13a Leaking		<u> </u>	3. Are the shipping containers intact?	Ļ
	✓ SOG notified?			r Arts), do samples have visible solids present?	5
	If yes & appears to be $>1\%$, was			2. For SUG water samples (1613B, 1668A, 8290, LR	12,
	✓ □ Incomplete information			1. For rad samples, was sample activity info. provided?	5]=
	□ 10a Holding time expired		5		Ē
	v to matrix interference		<u> </u>		5
	9a Could not be determined due	·		2. Did you check for residual chlorine, if necessary?	2
	□ 8a Improper container		5	5. Were samples received in appropriate containers?	۳.«
	✓ □7n Headspace (VOA only)			 Were VUA samples received without headspace? 	<u>.</u>
	□ 6b Broken		<		Ţ
	🗆 6a Leaking		<u> </u>	b. Were all of the sample containers received intact?	Ģ
	5b Samples not received-on COC		<		T
	□ 5a Samples received-not on COC			3. Were all of the samples listed on the COC received?	Ņ
	4c Other:				η
	4b Not infact	`	7		
	🗆 4a Not present	\		+. were custody sears presenvintact on cooler and/or containers?	÷
			<u> </u>	preservative (excluding Encore)?	<u>-</u>
	✓ □3a Sample preservative =			3. Were samples received with correct chemical	÷.
				VOST: 10°C; MA: 2-6°C)	T
	2b Cooler Temn =		7	temp. of water to 6°C; NC, 1668, 1613B: 0-4°C;	·
	02á Temp Blank = ·			2. Is the cooler temperature within limits? (> freezing	-i-
	□ 1g Other:				1
	□ If COC not received				
	11 le No label		۲		
	ld Label torn	\			
	□ 1c Marking smeared				
	□ 1b Incomplete information			(1D3, Dates, 1 imes)	
	1a Do not match COC			1. Do sample container labels match COC?	
Comments/Actions Taken	NA If No, what was the problem?	Z,	Ya	Review Items	1
$\frac{1}{1000} \frac{1}{1000} \frac{1}{1000} \frac{1}{1000} \frac{1}{1000} \frac{1}{1000} \frac{1}{1000} \frac{1}{1000} \frac{1}{10000} \frac{1}{10000} \frac{1}{10000000000000000000000000000000000$					٦
I at Numbers DQF 171057	inot:	Pro		Client:	

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ICPMS Metals Raw Data	48
Subcontracted Raw Data	123
Wet Chemistry Raw Data	734
% Moisture	734
Total Number of Pages in this Package	735
I Vial Multiper VI I ages III (IIIS I ackage	1 33



TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

Boeing SSFL – ISRA

Lot D9F020257

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

TestAmerica Laboratories, Inc.

B chiel

Lisa B. Uriell Project Manager

June 30, 2009

Case Narrative

Enclosed is the report for one sample received at TestAmerica Laboratories, Inc. – Denver laboratory on June 2, 2009. The results included in this report relate only to the sample in this report and have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any items noted below.

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

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

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

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Quality Control Summary for Lot D9F020257

Sample Receiving

The cooler temperature for the sample received on June 2, 2009, at the Denver laboratory was 4.3°C. All sample containers were received in acceptable condition.

The requested Dioxin/Furan analysis was performed at TestAmerica's Knoxville laboratory located at 8515 Middlebrook Pike, Knoxville, TN 37921.

Dioxin - SW846 Method 1613B

Several results are reported at the maximum possible concentration in several samples. These results have been flagged with "Q", and should be considered estimated.

Low levels of OCDD, 1,2,3,7,8,9-HxCDF, Total HxCDF and OCDF were detected in the method blank associated with QC batch 9155120. However, because the concentrations in the method blank were not present at levels greater than one half the reporting limits, corrective action was deemed unnecessary.

Matrix Spike analysis for QC batch 9155120 was performed on sample HZBS0124S001SP (D9F020257-001). All spike parameters were within QC control limits.

All QC criteria were met.

The following flags are used to qualify results for chlorinated dioxin and furan results:

Dioxin – SW846 Method 1613B (cont.)

i,

J – The reported result is an estimate. The amount reported is below the Minimum Level (ML). The qualitative definition of the ML is "the lowest level at which the analytical system must give a reliable signal and an acceptable calibration point". The ML was introduced in EPA Methods 1624 and 1625 in 1980 and was promulgated in these methods in 1984 at 40 CFR Part 136, Appendix A. For the purposes of this report the ML is qualitatively defined as described above, and quantitatively defined as follows: Minimum Level: The concentration or mass of analyte in the sample that corresponds to the lowest calibration level in the initial calibration. It represents a concentration (in the sample extract) equivalent to that of the lowest calibration standard, after corrections for method-specified sample weights, volumes and cleanup procedures has been employed.

E – The reported result is an estimate. The amount reported is above the UCL described below. The E qualifier is applied on the basis of the Upper Calibration Level (UCL). The quantitative definition of the UCL is listed below:

Upper Calibration Level: The concentration or mass of analyte in the sample that corresponds to the highest calibration level in the initial calibration. It is equivalent to the concentration of the highest calibration standard, assuming that all method-specified sample weights, volumes, and cleanup procedures have been employed.

B – The analyte is present in the associated method blank at a reportable level. For this analysis, there is no method specified reporting level, other than the qualitative criterion that peaks must exhibit a signal-to-noise ratio of 2.5-to-1. Therefore, the presence of any amount of the analyte present in the blank will result a B qualifier on all associated samples.

If the blank has analytes present above the ML (described above) the need for corrective action beyond qualifying the associated data is evaluated. The determination is made whether the amount in the blank is less than 5% of the lowest amount in associated client samples or regulatory limit. If this is the case, sample processing may continue with the qualification of the data. If the amount in the blank is greater than 5% of the lowest amount in associated client samples or samples or regulatory limit, corrective action must be taken.

The corrective actions may include extracting a second aliquot of sample if available, or notifying the client to assess the impact on the project objectives.

Note: Some laboratories do not report contamination in the blank unless it is above their lower calibration limit, or an established percentage of the level in the samples, or an established percentage of the regulatory limit. Likewise, some laboratories set a reporting limit at one half the lower calibration limit.

Q – Estimated maximum possible concentration. This qualifier is used when the result is generated from chromatographic data that does not meet all the qualitative criteria for a positive identification given in the method. The criteria include the following areas:

- Ion abundance ratios must be within specified limits (+/-15% of theoretical ion abundance ratio.)
- Retention time criteria (relative to the method-specified isotope labeled retention time standard).

• Co-maximization criterion. The two quantitation ion peaks must reach their maxima within 2 seconds of each other.

• Polychlorinated dibenzofuran purity. No peak can be identified as a polychlorinated dibenzofuran if a polychlorinated diphenyl ether peak maximizes within +/- 2 seconds of the furan candidate.

S – Ion suppression evident. The trace indicating the signal from the lock mass of the calibration compound shows a deflection at the retention time of the analyte. This may indicate a temporary suppression of the instrument sensitivity, due to a matrix-borne interference.

C – Coeluting Isomer. The isomer is known to coelute with another member of its homologue group, or the peak shape is shouldered, indicating the likelihood of a coeluting isomer

ş.

X – Other. See explanation in narrative.

Dioxin - SW846 Method 1613B (cont.)

Laboratory studies supporting risk assessment and TMDL evaluations frequently use qualified data reported as low as the MDL, or the Estimated Detection Limit (EDL). Several of EPA's isotope dilution methods employ the EDL^{1,2,3}. The EDL is based on a direct measurement of the signal-to-noise ratio acquired during sample analysis. This s/n measurement is used to calculate the concentration in the sample corresponding to the minimum intensity of the smallest quantifiable peak. The EDL reflects the amount of the particular analyte which would be required to cause a positive result for the particular analysis. Because the s/n obtained covaries with recovery, instrument sensitivity and sample-specific cleanup efficacy, the EDL is a more valid measure of the sensitivity of the entire analytical process for the specific sample, than is an MDL run periodically on a reference matrix.

This method of estimating the detection limit differs from the MDL in that it does not carry the requirement that the sample be statistically distinguished as being from a contaminated population. As results approach the EDL, the risk of false positives and the analytical uncertainty increase significantly. However, a low false positive well below the ML or MDL is often more accurate than the assumption is that contamination is present at the DL or ML. For relatively clean samples, MDL studies may give an elevated estimate of the detection limit. Additionally, on contaminated samples, the MDL may give a falsely low estimate of the detection limit.

In sample data, peaks must have an intensity of 2.5 times the height of the background noise in order to be considered. Careful examination of the two equations above, and a bit of high school algebra reveals that for the concentration of the smallest peak detectable (per the EDL equation) to exactly equal the smallest peaks that are calculated, requires that the average height to area ratio obtained during the calibration must equal the area to height ratio for every peak obtained near 2.5 times the noise. When the area to height ratio on a peak in a sample is less than the average obtained during calibration, the calculated result will correspond to a peak that would have been less than 2.5 X the noise on the calibration. This is the result of normal variability. Because the source method for the EDL (SW-846 8290 and 8280A) does not provide for censoring of results by any other magnitude standard than being 2.5 times the noise, the laboratory does not censor at the calculated EDL. Hence, detections may be reported below the estimated detection limits.

No other anomalies were observed.

Total Metals - SW846 Methods 6020

Matrix spike analyses for Method 6020 QC batch 9159169 were performed on a sample from another lot, and were in control.

Post digestion spike analysis for Method 6020, QC batch 9159169 was performed on a sample from another lot. All spike parameters were within QC control limits.

The Serial Dilution analysis for Method 6020 QC batch 9159169 was performed on a sample from another lot, and was in control.

No anomalies were observed.

General Chemistry - Method ASTM D 2216-90

The duplicate analysis for Percent Moisture (batch 9154206) was performed on sample HZBS0124S001SP (D9F020257-001) and was in control.

No anomalies were observed.

METHODS SUMMARY

D9F020257

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Dioxins/Furans, HRGC/HRMS	EPA-5 1613B	EPA-5 1613
ICP-MS (6020)	SW846 6020	SW846 3050B
Method for Determination of Water Content of Soil	ASTM D 2216-90	ASTM D2216-90

References:

ASTM Annual Book Of ASTM Standards.

- EPA-5 "Method 1613: Tetra- through Octa- Chlorinated Dioxins and Furans by Isotope Dilution, HRGC/HRMS, Revision B", EPA, OCTOBER 1994
- SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9F020257

ANALYTICAL METHOD	ANALYST	ANALYST
ASTM D 2216-90	Reva M. Golden	010906
EPA-5 1613B	Patricia(Trish) M. Parsly	050655
SW846 6020	Thomas Lill	6929

References:

ASTM Annual Book Of ASTM Standards.

- EPA-5 "Method 1613: Tetra- through Octa- Chlorinated Dioxins and Furans by Isotope Dilution, HRGC/HRMS, Revision B", EPA, OCTOBER 1994
- SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9F020257

<u>wo #</u>	SAMPLE#	CLIENT SAMPLE II	D DATE	SAMP TIME
LD63G	001	HZBS0124S001SP	06/01/09	10:58
NOTE (S	5):			

- The analytical results of the samples listed above are presented on the following pages.

- All calculations are performed before rounding to avoid round-off errors in calculated results.

- Results noted as "ND" were not detected at or above the stated limit.

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

- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor,

paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

QC DATA ASSOCIATION SUMMARY

D9F020257

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	SO	EPA-5 1613B		9155120	9155207
	SO	SW846 6020		9159169	9159127
	SO	ASTM D 2216-90		9154206	9155218

£



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: D9F020257

Prepared by

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

I. INTRODUCTION

Task Order Title:	Boeing SSFL RFI ISRA
Contract Task Order:	1261.500D.00
Sample Delivery Group:	D9F020257
Project Manager:	Dixie Hambrick
Matrix:	soil
QC Level:	V
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica-Denver

Table 1. Sample Identification

Sample Name	Lab Name	Sample	Sub-Lab Sample Name	Matrix	Collection		Method
HZBS0124S001SP	D9F020	257001	N/A	Soil	6/1/2009 AM	10:58:00	1613B, 6020

II. Sample Management

No anomalies were observed regarding sample management. The samples in this SDG were received at TestAmerica-Denver laboratory within the temperature limits of $4^{\circ}C \pm 2^{\circ}C$. The samples were received below the temperature control limit at TestAmerica-Knoxville; however, the samples were not noted to be frozen or damaged. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were appropriately signed and dated by field and/or laboratory personnel. Custody seals were intact. If necessary, the client ID was added to the sample result summary by the reviewer.

D9F020257

D9F020257

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.	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.
Ν	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

Data Qualifier Reference Table

D9F020257

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
Т- III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

D9F020257

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.
Ι	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
А	Not applicable.	ICP Serial Dilution %D were not within control limits.
М	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

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.
Ρ	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*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 indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. EPA METHOD 1613—Dioxin/Furans

Reviewed By: P. Meeks Date Reviewed: July 14, 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 Dioxins and Furans (DVP-19, Rev. 0), USEPA Method 1613, and the National Functional Guidelines Chlorinated Dioxin/Furan Data Review (10/99).

- Holding Times: Extraction and analytical holding times were met. The sample was extracted and analyzed within one year of collection.
- Instrument Performance: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: OCDD (0.50 pg/g), 1,2,3,7,8,9-HxCDF (0.096 pg/g), total HxCDF (0.096 pg/g), and OCDF (0.23 pg/g) were detected in the method blank; however, any sample detects exceeded 5x the method blank results. The method blank had no other target compound detects above the EDL.
- Blank Spikes and Laboratory Control Samples: Recoveries were within the acceptance criteria listed in Table 6 of Method 1613.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
 - Field Blanks and Equipment Rinsates: FBQW2229 (225106) was the field blank associated with the sample in this SDG. There were no detects above the EDL in the field blank. This SDG had no identified equipment rinsate sample
 - Field Duplicates: There were no field duplicate samples identified for this SDG.
- Internal Standards Performance: Internal standard recoveries are not routinely evaluated at a Level V validation; however, the recoveries were reported on the sample result summaries. The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613.
- Compound Identification: Review is not applicable at a Level V validation. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613.

 Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation. Estimated maximum possible concentrations (EMPCs) were identified in the sample of this SDG, as denoted by the laboratory "Q," code. For individual isomers identified as EMPCs, the results were qualified as estimated nondetects, "UJ." EMPCs reported as totals were qualified as estimated, "J," as only a portion of the total was identified as an EMPC. The laboratory calculated and reported compound-specific detection limits. Any detect below the laboratory lower calibration level was qualified as estimated, "J." Nondetects are valid to the estimated detection limit (EDL).

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

Reviewed By: P. Meeks Date Reviewed: July 14, 2009

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

- Holding Times: Analytical holding times, six months for ICP-MS metals, was met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks and CCBs had no detects.
- Interference Check Samples: Review is not applicable at a Level V validation.
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratoryestablished QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on the sample in this SDG. Method accuracy was evaluated based on LCS results.
- Serial Dilution: No serial dilution analyses were performed on the sample in this SDG.
- Internal Standards Performance: Review is not applicable at a Level V validation.
- Sample Result Verification: Review is not applicable at a Level V validation. As the 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: FBQW2229 (225106) was the field blank associated with the sample in this SDG. There were no applicable detects in the field blank. This SDG had no identified equipment rinsate sample.
 - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: D9F020257

Analysis Method 1613B

Sample Name H	HZBS0124S001	SP	Matrix T	ype: S	oil	Res	ult Type: Pr	imary
Lab Sample Name: I	D9F020257001	Sample	6/	1/2009 10	:58:00 AM	I V	alidation	V
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8- Heptachlorodibenzofuran	67562394	5	5	5	pg/g	QJ	UJ	*III, result changed from 0.69 and MDL
1,2,3,4,6,7,8-Heptachlorodiber p-dioxin	nzo- 35822469	2.8	5	0.12	pg/g	J	J	
1,2,3,4,7,8,9- Heptachlorodibenzofuran	55673897	0.11	5	0.11	pg/g	U	U	
1,2,3,4,7,8- Hexachlorodibenzofuran	70648269	0.15	5	0.045	pg/g	J	J	
1,2,3,4,7,8-Hexachlorodibenzo dioxin	р-р- 39227286	0.072	5	0.072	pg/g	U	U	
1,2,3,6,7,8- Hexachlorodibenzofuran	57117449	5	5	5	pg/g	QJ	UJ	*III, result changed from 0.091 and
1,2,3,6,7,8-Hexachlorodibenzo dioxin	р-р- 57653857	5	5	5	pg/g	Q1	UJ	*III, result changed from 0.19 and MDL
1,2,3,7,8,9- Hexachlorodibenzofuran	72918219	0.071	5	0.071	pg/g	U	U	
1,2,3,7,8,9-Hexachlorodibenzo dioxin	р-р- 19408743	0.25	5	0.073	pg/g	J	J	
1,2,3,7,8- Pentachlorodibenzofuran	57117416	0.081	5	0.081	pg/g	U	U	
1,2,3,7,8-Pentachlorodibenzo-j dioxin	p- 40321764	0.11	5	0.11	pg/g	U	U	
2,3,4,6,7,8- Hexachlorodibenzofuran	60851345	0.049	5	0.049	pg/g	U	U	
2,3,4,7,8- Pentachlorodibenzofuran	57117314	0.15	5	0.069	pg/g	J	J	
2,3,7,8-TCDD	1746016	0.19	1	0.19	pg/g	U	U	
2,3,7,8-Tetrachlorodibenzofura	an 51207319	1	1	1	pg/g	QJ	UJ	*III, result changed from 0.15 and MDL
Heptachlorodibenzofurans	38998753	1.6	5	0.088	pg/g	JQ	J	*III
Heptachlorodibenzo-p-dioxins	37871004	7.6	5	0.12	pg/g	J	J	
Hexachlorodibenzofurans	55684941	1.6	5	0.051	pg/g	ВJQ	J	*III

Analysis Metho	d 1613B							
Hexachlorodibenzo-p-dioxin	s 34465468	1.5	5	0.076	pg/g	QJ	J	*III
Octachlorodibenzofuran	39001020	1.4	10	0.1	pg/g	ВJ	J	
Octachlorodibenzo-p-dioxin	3268879	23	10	0.19	pg/g	В		
Pentachlorodibenzofurans	30402154	2.2	5	0.075	pg/g	J Q	J	*III
Pentachlorodibenzo-p-dioxir	ns 36088229	0.11	5	0.11	pg/g	U	U	
Tetrachlorodibenzofurans	55722275	2.1	1	0.13	pg/g	J Q	J	*III
Tetrachlorodibenzo-p-dioxin	s 41903575	0.19	1	0.19	pg/g	U	U	
Analysis Metho	d 6020							
Sample Name	HZBS0124S001S	Р	Matrix T	ype: So	oil	Res	ult Type: Pr	imary
Lab Sample Name:	D9F020257001	Sample	6/1	/2009 10:	:58:00 AM	,	Validation	V
Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Copper	7440508	8.1	0.2	0.072	mg/kg			
Lead	7439921	12	0.4	0.018	mg/kg			

and the			
11/h 200	R	8	5.1
79	ŕ		

CHAIN OF CUSTODY RECORD

MWHAG20090910_01

COC #:

\$								1 1 4001 710		Page: 1 of 1
Customer	Information	Project Inform	ation			Proje	ct Info	rmation		
Site:	SSFL	Client Name:	Boeing			Collec	tor:	4. Goldenberg	Boeing PM:	
Company:	HMMH	Sampling Event:	ISRA Sa	impling, Au	gust 2009	Conta	ct #			
Report to:	Sarah Von Raesfeld	Project Number:	189161-	1.05462		-		Requested Analyses		Instructions/TAT
Address:	2121 N. California Blvd	Project Manager	: Alex Fis	chí						Legend:
	Suite 600	PM Phone #:	(925) 62	7-4627						Numerical values for
	Walnut Creek	Field Contact:	Benjami	n Stewart						around time in days
	CA	Field Contact #:	(818) 26	6-1378						H - Hold
	94596	Lab Name:	TestAm	erica-Denve	e					Hold
Email:	sarah.vonraesfeld@mwhglobal.	c Lab Contact:	Lisa Uri	B			N			
	sean.leffler@mwhglobal.com	Lab Address:	4955 Ya	ITOW		D22	Istal			Note: Values in the cells
			Arvada,	CO 80002		N 913	209 \$			Times.
		Lab Phone:	(303) 73	6-0103		utsio l	05.04			
Sample Na	me	Matrix	Date	Time	No. of Containers	lioS an	bea l li			Comments
 HZET0200S 	001SP Sc	9	/10/2009	9:40	1	10 1	0			
 HZET0209S 	001SP Sc	oil 9.	/10/2009	13:30	_	10 1	0			


TestAmerica Denver Sample Receiving Checklist
Lot #: D9I110277 Date/Time Received: 9/11/09 0900
Company Name & Sampling Site: BORIOG - MWH ISRA
PM to Complete This Section: Yes No Yes No Residual chlorine check required: Image: Complete This Section: Yes No Image: Complete This Section: Yes No Residual chlorine check required: Image: Complete This Section: Yes No Image: Yes No Residual chlorine check required: Image: Complete This Section: Yes No Image: Yes No
Quote #: $\mathcal{S}(\mathcal{N}) = \mathcal{N}$
Special Instructions:
• EDI/ESI • CDI/CSI • MDI/MSI • PDI/PSI • OTHER
Unpacking Checks:
Cooler #(s):
N/A Yes No
□ ∠ □ 1. Cooler seals intact? (N/A if hand delivered) If no, document on CUR.
\square 2. Coolers scanned for radiation. Is the reading \leq to background levels? Yes: \square No:
→ → → → → → → → → → → → → → → → → → →
4. Bottles broken and/or are leaking? If yes, document on CUR.
5. Multiphasic samples obvious? If yes, document on CUR.
6. Proper container & preservatives used? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR.
Image: The second se
 8. Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR, and contact PM before proceeding.
9. Did chain of custody agree with labels ID and samples received? If no, document on CUR.
Image: Description of the second sector of the s
In the second
$\Box \nearrow 12$. Did samples require preservation with sodium thiosulfate?
Image:
□ □ 14. Sediment present in dissolved/filtered bottles? If yes, document on CUR.
15. Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and contact PM before proceeding.
\Box , \neg 16. Receipt date(s) > 48 hours past the collection date(s)? If yes, notify PA/PM.
□ ∠ 1/. Are analyses with short holding times requested?

TestAmerica Denver Sample Receiving Checklist

Lot # <u>D97/10277</u>

Login Checks:		cks:		Initials			
N/A Yes No				B			
	ø		19.	Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) document on CUR, and contact PM before proceeding.	If no,		
Ø			20.	Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document or contact PM before proceeding.	n CUR, and		
	Ø		21	. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?			
	Z		22.	Were special log in instructions read and followed?			
Ø			23.	Were AFCEE metals logged for refrigerated storage?			
	ø		24.	Were tests logged checked against the COC? Which samples were confirmed?			
ø			25.	Was a Rush form completed for quick TAT?			
Ń			26.	26. Was a Short Hold form completed for any short holds?			
	ø		27.	Were special archiving instructions indicated in the General Comments? If so, what were they?			
	45 cold 5 months						
La	belin	g ar	id S	torage Checks:	Initials		
į					CIK		
ø			28.	Was the subcontract COC signed and sent with samples to bottle prep?			
1	ø		29.	Were sample labels double-checked by a second person?			
þ			30.	Were sample bottles and COC double checked for dissolved/filtered metals by a second person?			
	ø		31.	Did the sample ID, Date, and Time from label match what was logged?			
D,	Ø		32.	Were stickers for special archiving instructions affixed to each box? See #27			
ø	Z _ 33. Were AECEE metals stored refrigerated?						

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

Report Cover Page Case Narrative Executive Summary - Detection Highlights Methods Summary Method / Analyst Summary Sample Summary QC Data Association Summary Metals Forms Wet Chemistry Forms Chain of Custody Sample Receipt Documents	1 2 3 4 5 6 7 8 30 34 35
Supporting Documentation ICPMS Metals Raw Data Wet Chemistry Raw Data	37 37 131 131
Total Number of Pages in this Package	134



TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

Boeing SSFL – ISRA

Lot D9I110277

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

TestAmerica Laboratories, Inc.

In B (build

Lisa B. Uriell Project Manager

September 24, 2009

TestAmerica

4955 Yarrow Street Arvada, CO 80002 tel 303,736,0100 fax 303,431,7171 www.testamericainc.com

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Case Narrative

Enclosed is the report for two samples received at TestAmerica Laboratories, Inc. – Denver laboratory on September 11, 2009. The results included in this report relate only to the samples in this report and has been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data has been found to be compliant with laboratory protocol, with the exception of any items noted below.

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

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

TestAmerica Laboratories, Inc. utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the analytical methods summary page in accordance with the methods indicated. A summary of quality control parameters is provided below.

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Quality Control Summary for Lot D9I110277

Sample Receiving

The cooler temperature for the samples received on September 11, 2009, at the Denver laboratory was 3.7°C. All sample containers were received in acceptable condition.

Total Metals – SW846 Method 6020

Matrix spike analyses for Method 6020 QC batch 9257403 were performed on a sample from another lot, and were in control.

Post digestion spike analysis for Method 6020, QC batch 9257403 was performed on a sample from another lot. All spike parameters were within QC control limits.

The Serial Dilution analysis for Method 6020 QC batch 9257403 was performed on a sample from another lot, and was in control.

No anomalies were observed.

General Chemistry – Method ASTM D 2216-90

The duplicate analysis for Percent Moisture (batch 9257166) was performed on a sample from another lot and was in control.

No anomalies were observed.

METHODS SUMMARY

D9I110277

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
ICP-MS (6020)	SW846 6020	SW846 3050B
Method for Determination of Water Content of Soil	ASTM D 2216-90	ASTM D2216-90

References:

ASTM Annual Book Of ASTM Standards.

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

METHOD / ANALYST SUMMARY

D9I110277

ANALYTICAL METHOD	ANALYST	ANALYST
ASTM D 2216-90	Braden H. Peterson	6733
SW846 6020	Thomas Lill	6929

References:

ASTM Annual Book Of ASTM Standards.

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

SAMPLE SUMMARY

D9I110277

			SAMPLED	SAMP
<u>WO #</u>	SAMPLE#	CLIENT SAMPLE I	D DATE	TIME
LKNGC LKNGP	001	HZET0200S001SP HZET0209S001SP	09/10/09 09/10/09	09:40 13:30

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.

- All calculations are performed before rounding to avoid round-off errors in calculated results.

- Results noted as "ND" were not detected at or above the stated limit.

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

- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor,

paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

QC DATA ASSOCIATION SUMMARY

D9I110277

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	SO SO	SW846 6020 ASTM D 2216-90		9257403 9257166	9257219 9257086
002	SO SO	SW846 6020 ASTM D 2216-90		9257403 9257166	9257219 9257086

7



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: D9I110277

Prepared by

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

I. INTRODUCTION

Task Order Title:	Boeing SSFL RFI ISRA
Contract Task Order:	1261.500D.00
Sample Delivery Group:	D9I110277
Project Manager:	Dixie Hambrick
Matrix:	water/soil
QC Level:	V
No. of Samples:	2
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica

Table 1. Sample Identification

Sample Name	Lab Samp Name	e Sub-Lab Sample Name	Matrix	Collection	Method
HZET0200S001SP	D9I110277001	N/A	SOIL	9/10/2009 9:40:00 AM	6020
HZET0209S001SP	D9I110277002	N/A	SOIL	9/10/2009 1:30:00 PM	6020

II. Sample Management

No anomalies were observed regarding sample management. The samples in this SDG were received at the laboratory within the temperature limits of $4^{\circ}C \pm 2^{\circ}C$. 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.

Qualifie	- 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.
Ν	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

Data Qualifier Reference Table

2

T-II	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a class of compound but not of sufficient identification quality to represent a specific compound.	Not applicable
T- III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified

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.
Ι	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
А	Not applicable.	ICP Serial Dilution %D were not within control limits.
Μ	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

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.
Ρ	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*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 indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. EPA METHODS 6020—Lead

Reviewed By: P. Meeks Date Reviewed: October 1, 2009

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

- Holding Times: The analytical holding time, six months for ICP-MS metals, was met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks and CCBs had no detects.
- Interference Check Samples: Review is not applicable at a Level V validation.
- Blank Spikes and Laboratory Control Samples: The recoveries were within laboratoryestablished QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on a sample in this SDG. Method accuracy was evaluated based on LCS results.
- Serial Dilution: No serial dilution analyses were performed.
- 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. Lead was not detected in the field blank. The samples in this SDG had no identified equipment rinsate.
- Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: D9I110277

Analysis Method 6020

Sample NameHZET0200S001SPMatrix Type:SOIL			Result Type: Primary Result				
Lab Sample Name:	D9I110277001	Sample	Date: 9	9/10/2009 9:40:00 AM	Validation Level: V		
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Validation Notes Qualifier	
Lead	7439921	5.4	0.41	0.018 mg/kg			
Sample Name	HZET0209S00	1SP	Matrix	Type: SOIL	Res	ult Type: Primary Result	
Lab Sample Name:	D9I110277002	Sample	Date: 9	0/10/2009 1:30:00 PM	v	Validation Level: V	
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Validation Notes Qualifier	
Lead	7439921	7.7	0.41	0.018 mg/kg			

Company: 77 Olavelt . stracker EDF	Time:	Company:	Time:	Company:	Time:	Company: MWH Comments: 5 Day TAT
Low Mille					9-14-09	Allon m Fridal
4. Received by:	Date:	3. Relinquished by:	Date:	2. Received by:	Date:	1. Relinquished by:

	Sample Nan		r	[]	Email:		1			Address:	Report to:	Company:	Site:	Customer	(**	Pac.	ZS:
	ne			sean.leffler@mwhglobal.com	sarah.vonraesfeld@mwhglobal	94596	CA	Walnut Creek	Suite 600	2121 N. California Blvd	Sarah Von Raesfeld	MWH	SSFL	Information		22/3	r) <1/r
-	Matrix	Lab Phone:		Lab Address:	.c Lab Contact:	Lab Name:	Field Contact #:	Field Contact:	PM Phone #:	Project Manage	Project Number	Sampling Event	Client Name:	Project Inform			
	Date	(303)	Arvad	4955	Lisa U	TestA	(818)	Benja	(818)	r: Benja	: 18916	: ISRA	Boein	ation		유	
	Time	736-0103	a, CO 800	Yarrow	Iriell	merica-De	266-1378	min Stewa	266-1378	min Stewa	14.05462	Sampling,	g			IAIN O	
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Q	à	ū	1. Cooler seals intac	ct? (N/A if hand de	elivered) If no, document	t on CUR.	-fm
	Þ		2. Coolers scanned	for radiation. Is the	e reading \leq to backgroun	d levels? Yes: N	o:
	Þ.		3. Chain of custody	present? If no, doc	ument on CUR.		v
		þ	4. Bottles broken an	nd/or are leaking? I	f yes, document on CUR		
		Ŕ	5. Multiphasic samp	oles obvious? If yes	, document on CUR.		
	þ		6. Proper container	& preservatives use	ed? (ref. Attachment D o	f SOP# DV-QA-0003) I	f no, document on CUR.
à	_ `		7. pH of all samples	checked and meet	requirements? If no, do	cument on CUR.	
1.1	· 4		8. Sufficient volume document on CUI	provided for all an R, and contact PM	aalysis requested? (refA before proceeding.	ttachment D of SOP# D	V-QA-0003) If no,
	þ		9. Did chain of custo	ody agree with labe	ls ID and samples receiv	ed? If no, document on (CUR.
þ			10. Were VOA samp	oles without headsp	ace? If no, document on	CUR.	
þ		Ū,	11. Were VOA vials	preserved? Preserv	vative HCl 4±2°C	Sodium Thiosulfate 🖬	Ascorbic Acid
		Þ	12. Did samples requi	ire preservation wit	h sodium thiosulfate?		
ф			13. If yes to #11, did t	the samples contair	n residual chlorine? If ye	s, document on CUR.	
ф			14. Sediment present	in dissolved/filtere	d bottles? If yes, docume	ent on CUR.	
ф			15. Is sufficient volun contact PM before	ne provided for clie e proceeding.	ent requested MS, MSD	or matrix duplicates? If n	io, document on CUR, and
		φ	16. Receipt date(s) $>$	48 hours past the co	ollection date(s)? If yes,	notify PA/PM.	
	0	Þ	17. Are analyses with	short holding time:	s-requested?		
	4		18. Was a quick Turn	Around (TAT) req	uested?		

TestAmerica Denver Sample Receiving Checklist

Lot # D9 I150142

Login Checks: Yes No N/A φ 19. Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) If no. document on CUR, and contact PM before proceeding. 20. Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and φ contact PM before proceeding. 4 21. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times? Þ 22. Were special log in instructions read and followed? 23. Were AFCEE metals logged for refrigerated storage? 24. Were tests logged checked against the COC? Which samples were confirmed? ____/ 25. Was a Rush form completed for quick TAT? 26. Was a Short Hold form completed for any short holds? 27. Were special archiving instructions indicated in the General Comments? If so, what were they? Þ 45 days/5months

Labeling and Storage Checks:

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

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

Initials

Initials

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Total Number of Pages in this Package	185



THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

Boeing SSFL – ISRA

Lot D9I150142

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

TestAmerica Laboratories, Inc.

The B. Und

Lisa B. Uriell Project Manager

September 21, 2009

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Case Narrative

Enclosed is the report for one sample received at TestAmerica Laboratories, Inc. – Denver laboratory on September 15, 2009. The results included in this report relate only to the sample in this report and have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data has been found to be compliant with laboratory protocol, with the exception of any items noted below.

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

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

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

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

Quality Control Summary for Lot D9I150142

Sample Receiving

The cooler temperature for the sample received on September 15, 2009, at the Denver laboratory was 2.1°C. All sample containers were received in acceptable condition.

Total Metals – SW846 Method 6020

Matrix spike analyses for Method 6020 QC batch 9258264 were performed on sample HZET0219S001SP (D9I150142-001), and were in control.

Post digestion spike analysis for Method 6020, QC batch 9258264 was performed on sample HZET0219S001SP (D9I150142-001). All spike parameters were within QC control limits.

The Serial Dilution analysis for Method 6020 QC batch 9258264 was performed on sample HZET0219S001SP (D9I150142-001), and was in control.

No anomalies were observed.

<u>General Chemistry – Method ASTM D 2216-90</u>

The duplicate analysis for Percent Moisture (batch 9260113) was performed on sample HZET0219S001SP (D9I150142-001) and was in control.

No anomalies were observed.

METHODS SUMMARY

D9I150142

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD	
ICP-MS (6020)	SW846 6020	SW846 3050B	
Method for Determination of Water Content of Soil	ASTM D 2216-90	ASTM D2216-90	

References:

ASTM Annual Book Of ASTM Standards.

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

METHOD / ANALYST SUMMARY

D9I150142

ANALYTICAL METHOD	ANALYST	ANALYST ID
ASTM D 2216-90	Braden H. Peterson	6733
SW846 6020	Thomas Lill	6929

References:

ASTM Annual Book Of ASTM Standards.

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

SAMPLE SUMMARY

D91150142

NOTE (S	5):			
LKR3A	001	HZET0219S001SP	09/14/09	13:40
<u>WO #</u>	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME

- The analytical results of the samples listed above are presented on the following pages.

- All calculations are performed before rounding to avoid round-off errors in calculated results.

- Results noted as "ND" were not detected at or above the stated limit.

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

- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor,

paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

QC DATA ASSOCIATION SUMMARY

D9I150142

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	SO SO	SW846 6020 ASTM D 2216-90		9258264 9260113	9258169 9260064

7



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: D9I150142

Prepared by

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

I. INTRODUCTION

Boeing SSFL RFI ISRA
1261.500D.00
D9I150142
Dixie Hambrick
water/soil
V
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TestAmerica

Table 1. Sample Identification

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
HZET0219S001SP	D9I150142001	N/A	SOIL	9/14/2009 1:40:00 PM	6020

II. Sample Management

No anomalies were observed regarding sample management. The samples in this SDG were received at the laboratory within the temperature limits of $4^{\circ}C \pm 2^{\circ}C$. 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.

Qualifie	or 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.
Ν	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

Data Qualifier Reference Table

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
Т- III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

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.
А	Not applicable.	ICP Serial Dilution %D were not within control limits.
Μ	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

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.
Ρ	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
* , *	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. EPA METHOD 6020—Lead

Reviewed By: P. Meeks Date Reviewed: October 1, 2009

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

- Holding Times: The analytical holding time, six months for ICP-MS metals, was met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks and CCBs had no detects.
- Interference Check Samples: Review is not applicable at a Level V validation.
- Blank Spikes and Laboratory Control Samples: The recovery was within laboratoryestablished QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on the sample in this SDG. 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. Any result reported between the MDL and the reporting limit was qualified as estimated, "J." Reported nondetects are valid to the MDL.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

- Field Blanks and Equipment Rinsates: FBQW2239 (235913) was the field blank associated with the samples in this SDG. Lead was not detected in the field blank. The samples in this SDG had no identified equipment rinsate.
- Field Duplicates: There were no field duplicate samples identified for this SDG.
Validated Sample Result Forms: D9I150142

Analysis Method 6020

Sample Name	HZET0219S00	1SP	Matrix '	Type: SOIL	Res	Ilt Type: Primary	Result
Lab Sample Name:	D9I150142001	Sample	Date: 9	/14/2009 1:40:00 PM	۲	alidation Level:	V
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Val Qualifier	lidation Notes
Lead	7439921	4.1	0.4	0.018 mg/kg			

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ICPMS Metals Raw Data Wet Chemistry Raw Data % Moisture	33 228 228
Total Number of Pages in this Package	231



THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

Boeing SSFL – ISRA

Lot D9I260153

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

TestAmerica Laboratories, Inc.

La B. Unill

Lisa B. Uriell Project Manager

October 2, 2009

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Case Narrative

Enclosed is the report for one sample received at TestAmerica Laboratories, Inc. – Denver laboratory on September 26, 2009. The results included in this report relate only to the sample in this report and have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data has been found to be compliant with laboratory protocol, with the exception of any items noted below.

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

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

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

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

Quality Control Summary for Lot D9I260153

Sample Receiving

The cooler temperature for the sample received on September 26, 2009, at the Denver laboratory was 2.3°C. All sample containers were received in acceptable condition.

The requested Dioxin/Furan analysis is being reported under another cover, D9I260156.

Total Metals - SW846 Method 6020

Matrix spike analyses for Method 6020 QC batch 9271123 were performed on sample HZET0710S001SP (D9I260153-001). The MS/MSD exhibited percent recoveries below the QC control limits for Copper. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Post digestion spike analysis for Method 6020, QC batch 9271123 was performed on sample HZET0710S001SP (D9I260153-001). All spike parameters were within QC control limits.

The Serial Dilution analysis for Method 6020 QC batch 9271123 was performed on sample HZET0710S001SP (D9I260153-001), and was in control.

No other anomalies were observed.

General Chemistry – Method ASTM D 2216-90

The duplicate analysis for Percent Moisture (batch 9272153) was performed on a sample from another client and/or lot and was in control.

No anomalies were observed.

METHODS SUMMARY

D91260153

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
ICP-MS (6020)	SW846 6020	SW846 3050B
Method for Determination of Water Content of Soil	ASTM D 2216-90	ASTM D2216-90

References:

ASTM Annual Book Of ASTM Standards.

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

METHOD / ANALYST SUMMARY

D91260153

ANALYTICAL METHOD	ANALYST	 ANALYST ID
ASTM D 2216-90 SW846 6020	Braden H. Peterson Thomas Lill	6733 6929
References:		

ASTM Annual Book Of ASTM Standards.

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

SAMPLE SUMMARY

D91260153

WO # SAMPLE# CLIENT SAMPLE ID

LLJ81 001 HZET0710S001SP

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.

- All calculations are performed before rounding to avoid round-off errors in calculated results.

- Results noted as "ND" were not detected at or above the stated limit.

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

- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor,

paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

09/25/09 07:15

SAMP TIME

SAMPLED

DATE

QC DATA ASSOCIATION SUMMARY

D91260153

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	SO	SW846 6020		9271123	9271094
	SO	ASTM D 2216-90		9272153	9272183



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: D9I260153

Prepared by

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

I. INTRODUCTION

Task Order Title:	Boeing SSFL RFI ISRA
Contract Task Order:	1261.500D.00
Sample Delivery Group:	D9I260153
Project Manager:	Dixie Hambrick
Matrix:	soil
QC Level:	V
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica

Table 1. Sample Identification

Sample Name	Lab Name	Sample	Sub-Lab Sample Name	Matrix	Collection	Method
HZET0710S001SP	D9I2601	53001	N/A	SOIL	9/25/2009 7:15:00 AM	6020

II. Sample Management

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

Qualifie	- 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.
Ν	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

Data Qualifier Reference Table

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
Т- III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified

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.
Ι	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
А	Not applicable.	ICP Serial Dilution %D were not within control limits.
М	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

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.
Ρ	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*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 indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. EPA METHOD 6020—Copper

Reviewed By: P. Meeks Date Reviewed: October 6, 2009

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

- Holding Times: The analytical holding time, six months for ICP-MS metals, was met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks and CCBs had no detects.
- Interference Check Samples: Review is not applicable at a Level V validation.
- Blank Spikes and Laboratory Control Samples: The recovery was within laboratoryestablished QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on the sample in this SDG. Both recoveries were below the control limit; therefore, copper detected in the sample was qualified as estimated, "J." The RPD was within method-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. 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 sample in this SDG. Copper was not detected in the field blank. The sample in this SDG had no identified equipment rinsate.
- Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: D9I260153

Analysis Method 6020

Sample Name	HZET0710S00	1SP	Matrix '	Type: SOIL	Res	ult Type: P	rimary Result
Lab Sample Name:	D9I260153001	Sample	Date: 9	0/25/2009 7:15:00 AM	, v	alidation L	evel: V
Analyte	CAS No	Result Value	RL	MDL Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Copper	7440508	16	0.22	0.078 mg/kg		J	Q

Time: Company: Geotracker EDF Data Validation Pack

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\$			CHAIN OF	CUSTODY	RECO	coc US	*
N.						09I160153	
Customer	nformation	Project Informa	tion	q	⁹ roject Inf	yrmation	
Site:	SSFL	Client Name:	Boeing	0	Sollector:	M. Baumgardner	
Company:	HWM	Sampling Event:	ISRA Sampling, Au	ugust 2009 C	Contact #:		
Report to:	Sarah Von Raesfeld	Project Number:	1891614.05462			Requested Analyses	
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl				
	Suite 600	PM Phone #:	(925) 627-4627				
	Walnut Creek	Field Contact:	Benjamin Stewart				
	CA	Field Contact #:	(818) 266-1378			· · · · · · · · · · · · · · · · · · ·	
	94596	Lab Name:	TestAmerica-Denv	/er			
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Lisa Uriell	~]		
	sean.leffler@mwhglobal.com	Lab Address:	4955 Yarrow		D 215 Nixoi(
			Arvada, CO 80002		, kq u		
		Lab Phone:	(303) 736-0103		16131 15131 Utsiol		
Sample Nar	6	Matrix	Date Time	No. of Containers	iodqoc fio2 - 5 fio2 - 5		
- HZET0710S0	JISP Soil	2/6	25/2009 7:15	1	5 5 5		

TestAmerica Denver Sample Receiving Checklist
Lot #: D9I240153 Date/Time Received: 9/24/09 0830
Company Name & Sampling Site: Boeing - MWH - ISRA
PM to Complete This Section: Yes No Yes No Residual chlorine check required: Image: Complete This Section: Yes No Image: Complete This Section: Yes No Residual chlorine check required: Image: Complete This Section: Yes No Image: Complete This Section: Yes No Residual chlorine check required: Image: Complete This Section: Yes No Image: Complete This Section: Yes No
Quote #: 80017-D
Special Instructions: * Log Dioxins in OTHER Lot
* Analytical = 10/2
+ Report = 10/5
Time Zone: • EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER
Unpacking Checks:
Cooler #(s):
Temperatures (°C): <u>2.3</u>
N/A Yes No
□ □ 1. Cooler seals intact? (N/A if hand delivered) If no, document on COR.
\square 2. Coolers scanned for radiation. Is the reading \leq to background levels? Fes. \checkmark [No]
3. Chain of custody present? If no, document on COR.
\Box Δ 4. Bottles broken and/or are leaking? If yes, document on CUR.
\Box 5. Multiphasic samples obvious? If yes, document on CUR.
6. Proper container & preservatives used? (ref. Attachment D of SOF# DV-QA-0003) If no, document of COR.
7. pH of all samples checked and meet requirements? If no, document on CUR.
 8. Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0005) If no, document on CUR, and contact PM before proceeding.
9. Did chain of custody agree with labels ID and samples received? If no, document on CUR.
□ □ 10. Were VOA samples without headspace? If no, document on CUR.
🔯 🗅 11. Were VOA vials preserved? Preservative 🛛 HCl 🖓 4±2°C 🖓 Sodium Thiosulfate 🖓 Ascorbic Acid
□ \□ 12. Did samples require preservation with sodium thiosulfate?
□ □ 13. If yes to #11, did the samples contain residual chlorine? If yes, document on CUR.
14. Sediment present in dissolved/filtered bottles? If yes, document on CUR.
15. Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and contact PM before proceeding.
16. Receipt date(s) > 48 hours past the collection date(s)? If yes, notify PA/PM.
\mathcal{T} (\mathcal{V}) 17. Are analyses with short holding times requested?
18. Was a quick Turn Around (TAT) requested?

TestAmerica Denver Sample Receiving Checklist

Lot # D9I240153

Lo	ogin C	hec	ks:		Initials
N/2	4 Yes	No			Im
	Ŕ		19.	Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) document on CUR, and contact PM before proceeding.	If no,
کتر			20.	Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document of contact PM before proceeding.	on CUR, and
	Þ		21.	Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?	
	Ŕ		22.	Were special log in instructions read and followed?	
Þ	D		23.	Were AFCEE metals logged for refrigerated storage?	
	Þ		24.	Were tests logged checked against the COC? Which samples were confirmed?	
	\mathbf{a}		25.	Was a Rush form completed for quick TAT?	
Þ			26.	Was a Short Hold form completed for any short holds?	
	۶ą		27.	Were special archiving instructions indicated in the General Comments? If so, what were they?	
				45 days/ 5 months	_ · ·

Labeling and Storage Checks:

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

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

Initials XC

	ဂ္ဂ	M C	7
	vmments:	vmpany: NH	Relinquished by: VUL-1-W.FAR
		Time: 14:54	Date:
		Company:	2. Received by:
		Time:	Date:
		Company:	3. Relinquished by:
Da	Ge	Time:	Date:
ıta Validation Package 🛛 🗹	otracker EDF	Company: TA Denver	4. Received by: Ann Mulle
		Time: 0830	q_{26}

P	EINC.		CHAIN (OF CUSTO	DY REC	ORD			COC #
Customer	Information	Project Informa	tion		Project	Informat	<u>g</u>	ion	ion
Site:	SSFL	Client Name:	Boeing		Collecto	ה א	Baum	Baumgardner	Baumgardner Bo6
Company:	MWH	Sampling Event:	ISRA Samplin	g, August 2009	Contact	*			
Report to:	Sarah Von Raesfeld	Project Number:	1891614.0546	Ñ				Requested A	Requested Analyses
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl						
	Suite 600	PM Phone #:	(925) 627-462	7	I.				
	Walnut Creek	Field Contact:	Benjamin Stev	vart					
	CA	Field Contact #:	(818) 266-137	8	I				
	94596	Lab Name:	TestAmerica-I	Denver	k				
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Lisa Uriell		l 	эM			
	sean.leffler@mwhglobal.com	Lab Address:	4955 Yarrow		iixoiC SCI) elst			
			Arvada, CO 8	0002	N 912	0209			
- - -		Lab Phone:	(303) 736-010	ũ	IC13I Uteiol				
Sample Na				No. of	2 - 8 ; en	do			
	ITTE	Matrix	Date Time	Containers	lioĉ lioĝ	und	19000		

TestAmerica Denver Sample Receiving Checklist

Lot	<i>#</i> ·	D	9	I240154 Date/Time Received: 9126(09 0830
D01	<i></i>		I	Frank Barris Barris Market
Cor	npan	iy N	ame	e & Sampling Site: <u>OCEING</u> - MWH ISICH
PM Resi	to Co dual o	ompl chlor	ete 🛛 ine c	It is Section: YesNoYesNowheck required: \checkmark \checkmark \checkmark \checkmark
Quo	te #:		80	5017-D
Spec	cial In	struc	tion	* Log Dioxing in this Lot
Time • ED	e Zon)T/ES	e: .T ● (CDT	/CST • MDT/MST • PDT/PST • OTHER
		<u> </u>		
Unj	pack	ing	Ch	ecks:
	Co	oler	#(s)	
Tem	perati	ires ("C):	2,3
N/A	Yes	No	(-).	Initials
	þ		1.	Cooler seals intact? (N/A if hand delivered) If no, document on CUR.
	P		2.	Coolers scanned for radiation. Is the reading \leq to background levels? Yes: \checkmark No:
	Þ		3.	Chain of custody present? If no, document on CUR.
		<u>کر</u>	4.	Bottles broken and/or are leaking? If yes, document on CUR.
		φ	5.	Multiphasic samples obvious? If yes, document on CUR.
,	Þ	à	6.	Proper container & preservatives used? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR.
Ø	D		7.	pH of all samples checked and meet requirements? If no, document on CUR.
	<u>D</u>	Q	8.	Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR, and contact PM before proceeding.
	Þ		9.	Did chain of custody agree with labels ID and samples received? If no, document on CUR.
Þ			10.	Were VOA samples without headspace? If no, document on CUR.
Ľ			11.	Were VOA vials preserved? Preservative HCl 4±2°C Sodium Thiosulfate Ascorbic Acid
		৸	12.	Did samples require preservation with sodium thiosulfate?
Q	Q	٦	13.	If yes to #11, did the samples contain residual chlorine? If yes, document on CUR.
			14.	Sediment present in dissolved/filtered bottles? If yes, document on CUR.
			15.	Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and contact PM before proceeding.
	D	þ	16.	Receipt date(s) > 48 hours past the collection date(s)? If yes, notify PA/PM.
		þ	17.	Are analyses with short holding times requested?
	D	ф	18.	Was a quick Turn Around (TAT) requested?

TestAmerica Denver Sample Receiving Checklist

Lot# D9 I260156

Log	gin C	hec	ks:		Initials
N/A	Yes	No		~	Pm
	Þ	۵	19.	Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) document on CUR, and contact PM before proceeding.	If no,
à			20.	Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document of contact PM before proceeding.	on CUR, and
	Ŕ		21.	Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?	
	Ŕ		22.	Were special log in instructions read and followed?	
Þ			23.	Were AFCEE metals logged for refrigerated storage?	
	È		24.	Were tests logged checked against the COC? Which samples were confirmed?	
q'	D		25.	Was a Rush form completed for quick TAT?	
Ŕ			26.	Was a Short Hold form completed for any short holds?	
		Þ	27.	Were special archiving instructions indicated in the General Comments? If so, what were they?	
					_
Lat	oeling	g an	d S	torage Checks:	Initials
					<u>ac</u>
	, b		28.	Was the subcontract COC signed and sent with samples to bottle prep?	
	Z		29.	Were sample labels double-checked by a second person?	
			30.	Were sample bottles and COC double checked for dissolved/filtered metals by a second person?	
			31.	Did the sample ID, Date, and Time from label match what was logged?	

□ 33. Were AFCEE metals stored refrigerated? ØD

Z

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

□ 32. Were stickers for special archiving instructions affixed to each box? See #27

	Relinquished by: Received for lab by	Need detection lin Please send a sign Relinquished by: _			<u>Sample I.D.</u> D91260156-1	Laboratory
	Malbut	ill and analysis date included in re red copy of this form with the rep of VVV			LocID	TestAmerica Knoxville 5815 Middlebrook Pike Knoxville, TN Client Code:
PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION	Date/Time: 9/29/09_101:20/AVM	sport. ort at completion of analysis. Date/Time: ターンチェィア /6:00	Please use Client Sample ID for report Call with questions at 303-736-0100		Work Order No.Client Sample IDLLJ9FHZET0710S001SP	TestAmerica SAMPLE ANALYSIS REQUISITION Lab Request SR115074 37921
		Shipping Method:		FED EX # ALUGZ 77B4 1750 CUSTUDU SEAL INTACT TE 9/29/09	<u>Sampling Date</u> <u>Analysis Required</u> 2009-09-25 7:15 SOLID, 1613B Dioxins (Knox) [BOE10]	Report Package: Expanded Deliverables Need Analytical Report 2009-10-09 Project Manager:

27

4 Sample Receiving Associate: 17. Is the date/time of sample collection noted? 16. Is the matrix of the samples noted? ŝ 12. 9 ŝ ដ 0 Quote #: **Review Items** Are tests/parameters listed for each sample? For rad samples, was sample activity info. provided? Were samples received within holding time? Was the sampler identified on the COC? Is the client and project name/# identified? Was COC relinquished? (Signed/Dated/Timed) For 1613B water samples is pH<9? Are the shipping containers intact? temp. of water to 6 °C; NC, 1668, 1613B: 0-4°C; VOST: 10°C; MA: 2-6 °C) Did you check for residual chlorine, if necessary? Were samples received in appropriate containers? Were VOA samples received without headspace? Were all of the sample containers received intact? Were all of the samples listed on the COC received? containers? Were custody seals present/intact on cooler and/or Were samples received with correct chemical Is the cooler temperature within limits? (> freezing (IDs, Dates, Times) Do sample container labels match COC? preservative (excluding Encore)? PM Instructions: MAALIN < < C ۲a N < Ņ ۷ Date: □ 15a Incomplete information □ 13b Other: 🗆 13a Leaking If no, was pH adjusted to pH 7 - 9 with sulfuric acid? □ 9a Could not be determined due 6b Broken 15a Incomplete information □ 15a Incomplete information I 15a Incomplete information 14a Not relinquished □ Incomplete information 10a Holding time expired to matrix interference Ba Improper container □ 7a Headspace (VOA only) 1 6a Leaking **5b** Samples not received-on COC **5a** Samples received-not on COC U 4c Other: 4b Not intact 3a Sample preservative = 2b Cooler Temp = 🗆 2a Temp Blank = 🗆 1g Other: □ 1f COC not received II 1e No label Id Label tom Ic Marking smeared □ 1b Incomplete information I In Do not match COC 4a Not present If No, what was the problem? \mathbb{C} 29 00 **Comments/Actions Taken** QA026R21.doc, 090409

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST Lot Number: <u>1912/60/5(</u>6

Report Cover Page	1
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Methods Summary	6
Method / Analyst Summary	7
Sample Summary	8
QC Data Association Summary	9
Dioxins & Furans Forms	10
Wet Chemistry Forms	20
Chain of Custody	24
Sample Receipt Documents	25
Supporting Documentation	29
Subcontracted Raw Data- Dioxins/Furans	29
Subcontracted Raw Data - Percent Moisture	526
Total Number of Pages in this Package	528



THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

Boeing SSFL – ISRA

Lot D9I260156

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

TestAmerica Laboratories, Inc.

The B. Unil

Lisa B. Uriell Project Manager

October 7, 2009

1

Case Narrative

Enclosed is the report for one sample received at TestAmerica Laboratories, Inc. – Denver laboratory on September 26, 2009. The results included in this report relate only to the sample in this report and have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data has been found to be compliant with laboratory protocol, with the exception of any items noted below.

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

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

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

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Quality Control Summary for Lot D9l260156

Sample Receiving

The cooler temperature for the sample received on September 26, 2009, at the Denver laboratory was 2.3°C. All sample containers were received in acceptable condition.

The requested Dioxin/Furan analyses were performed at TestAmerica's Knoxville laboratory located at 8515 Middlebrook Pike, Knoxville, TN 37921.

Please note that additional analyses requested on the Chain of Custody for sample HZET0710S001SP are reported under a separate cover.

Dioxins & Furans – SW846 Method 1613B

Several results are reported at the maximum possible concentration in several samples. These results have been flagged with "Q", and should be considered estimated.

Matrix Spike analysis for QC batch 9272082 was performed on sample HZET0710S001SP (D9I260156-001). All spike parameters were within QC control limits.

All QC criteria were met.

The following flags are used to qualify results for chlorinated dioxin and furan results:

Dioxin – SW846 Method 1613B (cont.)

J – The reported result is an estimate. The amount reported is below the Minimum Level (ML). The qualitative definition of the ML is "the lowest level at which the analytical system must give a reliable signal and an acceptable calibration point". The ML was introduced in EPA Methods 1624 and 1625 in 1980 and was promulgated in these methods in 1984 at 40 CFR Part 136, Appendix A. For the purposes of this report the ML is qualitatively defined as described above, and quantitatively defined as follows: Minimum Level: The concentration or mass of analyte in the sample that corresponds to the lowest calibration level in the initial calibration. It represents a concentration (in the sample extract) equivalent to that of the lowest calibration standard, after corrections for method-specified sample weights, volumes and cleanup procedures has been employed.

E – The reported result is an estimate. The amount reported is above the UCL described below. The E qualifier is applied on the basis of the Upper Calibration Level (UCL). The quantitative definition of the UCL is listed below:

Upper Calibration Level: The concentration or mass of analyte in the sample that corresponds to the highest calibration level in the initial calibration. It is equivalent to the concentration of the highest calibration standard, assuming that all method-specified sample weights, volumes, and cleanup procedures have been employed.

B – The analyte is present in the associated method blank at a reportable level. For this analysis, there is no method specified reporting level, other than the qualitative criterion that peaks must exhibit a signal-to-noise ratio of 2.5-to-1. Therefore, the presence of any amount of the analyte present in the blank will result a B qualifier on all associated samples.

If the blank has analytes present above the ML (described above) the need for corrective action beyond qualifying the associated data is evaluated. The determination is made whether the amount in the blank is less than 5% of the lowest amount in associated client samples or regulatory limit. If this is the case, sample processing may continue with the qualification of the data. If the amount in the blank is greater than 5% of the lowest amount in associated client samples or regulatory limit, corrective action must be taken.

The corrective actions may include extracting a second aliquot of sample if available, or notifying the client to assess the impact on the project objectives.

Note: Some laboratories do not report contamination in the blank unless it is above their lower calibration limit, or an established percentage of the level in the samples, or an established percentage of the regulatory limit. Likewise, some laboratories set a reporting limit at one half the lower calibration limit.

Q – Estimated maximum possible concentration. This qualifier is used when the result is generated from chromatographic data that does not meet all the qualitative criteria for a positive identification given in the method. The criteria include the following areas:

- Ion abundance ratios must be within specified limits (+/-15% of theoretical ion abundance ratio.)
- Retention time criteria (relative to the method-specified isotope labeled retention time standard).

• Co-maximization criterion. The two quantitation ion peaks must reach their maxima within 2 seconds of each other.

• Polychlorinated dibenzofuran purity. No peak can be identified as a polychlorinated dibenzofuran if a polychlorinated diphenyl ether peak maximizes within +/- 2 seconds of the furan candidate.

S – Ion suppression evident. The trace indicating the signal from the lock mass of the calibration compound shows a deflection at the retention time of the analyte. This may indicate a temporary suppression of the instrument sensitivity, due to a matrix-borne interference.

C – Coeluting Isomer. The isomer is known to coelute with another member of its homologue group, or the peak shape is shouldered, indicating the likelihood of a coeluting isomer

X – Other. See explanation in narrative.

3

Dioxin – SW846 Method 1613B (cont.)

Laboratory studies supporting risk assessment and TMDL evaluations frequently use qualified data reported as low as the MDL, or the Estimated Detection Limit (EDL). Several of EPA's isotope dilution methods employ the EDL^{1,2,3}. The EDL is based on a direct measurement of the signal-to-noise ratio acquired during sample analysis. This s/n measurement is used to calculate the concentration in the sample corresponding to the minimum intensity of the smallest quantifiable peak. The EDL reflects the amount of the particular analyte which would be required to cause a positive result for the particular analysis. Because the s/n obtained covaries with recovery, instrument sensitivity and sample-specific cleanup efficacy, the EDL is a more valid measure of the sensitivity of the entire analytical process for the specific sample, than is an MDL run periodically on a reference matrix.

This method of estimating the detection limit differs from the MDL in that it does not carry the requirement that the sample be statistically distinguished as being from a contaminated population. As results approach the EDL, the risk of false positives and the analytical uncertainty increase significantly. However, a low false positive well below the ML or MDL is often more accurate than the assumption is that contamination is present at the DL or ML. For relatively clean samples, MDL studies may give an elevated estimate of the detection limit. Additionally, on contaminated samples, the MDL may give a falsely low estimate of the detection limit.

In sample data, peaks must have an intensity of 2.5 times the height of the background noise in order to be considered. Careful examination of the two equations above, and a bit of high school algebra reveals that for the concentration of the smallest peak detectable (per the EDL equation) to exactly equal the smallest peaks that are calculated, requires that the average height to area ratio obtained during the calibration must equal the area to height ratio for every peak obtained near 2.5 times the noise. When the area to height ratio on a peak in a sample is less than the average obtained during calibration, the calculated result will correspond to a peak that would have been less than 2.5 X the noise on the calibration. This is the result of normal variability. Because the source method for the EDL (SW-846 8290 and 8280A) does not provide for censoring of results by any other magnitude standard than being 2.5 times the noise, the laboratory does not censor at the calculated EDL. Hence, detections may be reported below the estimated detection limits.

No other anomalies were observed.

General Chemistry – Method ASTM D 2216-90

No anomalies were observed.

METHODS SUMMARY

D9I260156

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Dioxins/Furans, HRGC/HRMS	EPA-5 1613B	EPA-5 1613
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD

References:

EPA-5 "Method 1613: Tetra- through Octa- Chlorinated Dioxins and Furans by Isotope Dilution, HRGC/HRMS, Revision B", EPA, OCTOBER 1994

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

METHOD / ANALYST SUMMARY

D9I260156

ANALYTICAL METHOD		ANALYST	ANALYST
EPA-5 1613B	MOD	Melissa A. Davidson	010265
MCAWW 160.3		Lauren L. Walker	400461

References:

EPA-5 "Method 1613: Tetra- through Octa- Chlorinated Dioxins and Furans by Isotope Dilution, HRGC/HRMS, Revision B", EPA, OCTOBER 1994

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

SAMPLE SUMMARY

D91260156

WO # SAMPLE# CLIENT SAMPLE ID

LLJ9F 001 HZET0710S001SP

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.

- All calculations are performed before rounding to avoid round-off errors in calculated results.

- Results noted as "ND" were not detected at or above the stated limit.

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

- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor,

paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

09/25/09 07:15

SAMP

TIME

SAMPLED

DATE

.

QC DATA ASSOCIATION SUMMARY

D9I260156

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	SO SO	EPA-5 1613B MCAWW 160.3 MOD		9272082 9273163	9272046

9



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: D9I260156

Prepared by

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

I. INTRODUCTION

Task Order Title:	Boeing SSFL RFI ISRA
Contract Task Order:	1261.500D.00
Sample Delivery Group:	D9I260156
Project Manager:	Dixie Hambrick
Matrix:	soil
QC Level:	V
No. of Samples:	2
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica

Table 1. Sample Identification

Sample Name	Lab Name	Sample	Sub-Lab Sample Name	Matrix	Collection	Method
HZET0710S001SP	D9I260	156001	N/A	SOIL	9/25/2009 7:15:00 AM	1613B

II. Sample Management

No anomalies were observed regarding sample management. The sample in this SDG was received at the laboratories within the temperature limits of $4^{\circ}C \pm 2^{\circ}C$. According to the case narrative for this SDG, the sample was 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.
Qualifie	- 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.
Ν	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

Data Qualifier Reference Table

T-II	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a class of compound but not of sufficient identification quality to represent a specific compound.	Not applicable
T- III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

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.
Ι	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
А	Not applicable.	ICP Serial Dilution %D were not within control limits.
М	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

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.
Ρ	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*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 indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. EPA METHOD 1613—Dioxin/Furans

Reviewed By: P. Meeks Date Reviewed: October 8, 2009

The sample listed in Table 1 for this analysis was 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 sample was 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 method blank had no target compound detects above the EDL.
- Blank Spikes and Laboratory Control Samples: Recoveries were within the acceptance criteria listed in Table 6 of Method 1613.
- Matrix Spike/Matrix Spike Duplicate Samples: 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: The sample in this SDG had no identified field blank or 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 summary. The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613.
- Compound Identification: Review is not applicable at a Level V validation. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613.
- Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation. Estimated maximum possible concentrations (EMPCs) were

identified in the sample of this SDG, as denoted by the laboratory "Q," flag. For individual isomers identified as EMPCs, the results were qualified as estimated nondetects, "UJ." EMPCs reported as totals 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: D9I260156

Analysis Method	1613B						
Sample Name H	JZET0710S001	SP 1	Matrix T	vpe: Soil	Res	ult Type: Pr	imarv
Lab Sample Name:	09I260156001	Sample	9/2	25/2009 7:15:00 AM	[Validation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
1,2,3,4,6,7,8- Heptachlorodibenzofuran	67562394	5.5	5.5	5.5 pg/g	Q1	UJ	*III, result changed from 0.25 and EDL from 0.11
1,2,3,4,6,7,8-Heptachlorodiber p-dioxin	azo- 35822469	2.3	5.5	0.34 pg/g	J	J	
1,2,3,4,7,8,9- Heptachlorodibenzofuran	55673897	0.18	5.5	0.18 pg/g	U	U	
1,2,3,4,7,8- Hexachlorodibenzofuran	70648269	0.096	5.5	0.096 pg/g	U	U	
1,2,3,4,7,8-Hexachlorodibenzo dioxin	-р- 39227286	0.15	5.5	0.15 pg/g	U	U	
1,2,3,6,7,8- Hexachlorodibenzofuran	57117449	0.71	5.5	0.098 pg/g	J	J	
1,2,3,6,7,8-Hexachlorodibenzo dioxin	-p- 57653857	5.5	5.5	5.5 pg/g	Q1	UJ	*III, result changed from 0.96 and EDL from 0.21
1,2,3,7,8,9- Hexachlorodibenzofuran	72918219	0.17	5.5	0.17 pg/g	U	U	
1,2,3,7,8,9-Hexachlorodibenzo dioxin	-р- 19408743	1.1	5.5	0.16 pg/g	J	J	
1,2,3,7,8- Pentachlorodibenzofuran	57117416	0.13	5.5	0.13 pg/g	U	U	
1,2,3,7,8-Pentachlorodibenzo-j dioxin	- 40321764	0.17	5.5	0.17 pg/g	U	U	
2,3,4,6,7,8- Hexachlorodibenzofuran	60851345	0.1	5.5	0.1 pg/g	U	U	
2,3,4,7,8- Pentachlorodibenzofuran	57117314	0.1	5.5	0.1 pg/g	U	U	
2,3,7,8-TCDD	1746016	0.42	1.1	0.42 pg/g	U	U	
2,3,7,8-Tetrachlorodibenzofura	un 51207319	0.28	1.1	0.28 pg/g	U	U	
Heptachlorodibenzofurans	38998753	0.75	5.5	0.14 pg/g	QJ	J	*III
Heptachlorodibenzo-p-dioxins	37871004	6.5	5.5	0.34 pg/g	J	J	
Hexachlorodibenzofurans	55684941	0.71	5.5	0.11 pg/g	J	J	
Hexachlorodibenzo-p-dioxins	34465468	2	5.5	0.17 pg/g	JQ	J	*III
Octachlorodibenzofuran	39001020	11	11	11 pg/g	Q 1	UJ	*III, result changed from 1 and EDL from 0.26
Octachlorodibenzo-p-dioxin	3268879	27	11	0.34 pg/g			

Wednesday, October 28, 2009

Analysis Method 1613B

Pentachlorodibenzofurans	30402154	0.11	5.5	0.11 pg/g	U	U
Pentachlorodibenzo-p-dioxins	36088229	0.17	5.5	0.17 pg/g	U	U
Tetrachlorodibenzofurans	55722275	0.28	1.1	0.28 pg/g	U	U
Tetrachlorodibenzo-p-dioxins	41903575	0.42	1.1	0.42 pg/g	U	U

MWH Comments: 1. Relinquished by: Company: Date: 11-10-11 Time: Company: 2. Received by: Date: Time: 3. Relinquished by: Company: Date: Time: Data Validation Package 🗹 Level IV Geotracker EDF Company: TA Deriver 4. Received by: 4. Received by: Date: Time: 0930

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Custome	- Information	Project Informa	ıtion	Pro	oject Info	rmation	
Site:	SSFL	Client Name:	Boeing	Col	llector:	A. Goldenberg	Boeing PM:
Company:	MWH	Sampling Event:	ISRA Sampling, Aug	gust 2009 Con	ntact #:		
Report to:	Sarah Von Raesfeld	Project Number:	1891614.05462			Requested Analyses	
Address:	2121 N. California Blvd	Project Manager	Alex Fischi				
	Suite 600	PM Phone #:	(925) 627-4627				
	Walnut Creek	Field Contact:	Shelby Valenzuela				
		Eiald Contrast #1	16761 766 0602				
	94596	Lab Name:	TestAmerica-Denve	ÿ			
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Lisa Uriell]		
	sean.leffler@mwhglobal.com	Lab Address:	4955 Yarrow	220	iixoiQ		
			Arvada, CO 80002	N 912	λq ι		
		Lab Phone:	(303) 736-0103	visioN	5191		
Sample Na	me e	Matrix	Date Time (No. of Containers	lio2 - 8		
AZET0101S	001SP Soil	11,	10/2009 14:29	1 10	10		

CHAIN OF CUSTODY RECORD

1.5 arc 1.11.1 109 IP.1

Date:	11/12/09

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

Laboratory	Test America - Denver
Laboratory	Test America - Denver
Caboratory	

signature:

From: Requestor

Z Sean Leffler

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

Phone: 303-736-0103

lisa.uriell@testamericainc.com

E-mail:

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
MWHAG200 91110_01	A2ET0101S001SP	11/10/09		Change sample ID from AZET0101S001SP

The reason for these changes:

Incorrectly marked on COC form	X
Lack of sample volume	
Change in analytical request	
Other:	1

Thank you

Company: Time: Company: Time: Company: MWH JSW Company: Time: Company: Comments: Data Validation	1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Receiv
Comments: Geotracker El Data Validatio	Company:	Time: JSYA	Company:	Time:	Company:	Time:	Comp
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Site: SSFL Client Name: Boeing Collector: A. Goldenberg Boeing PM: Struction Company: MWH Sampling Event ISRA Sampling, August 2009 Contact#: Event Israh Von Raesfeld Project Number: 1991614.06462 Contact#: Event Israh Von Raesfeld Project Number: 1991614.06462 Event Israh Von Raesfeld Project Manager: Alex Fisch Israh Von Raesfeld Project Manager: Alex Fisch Israh Von Raesfeld Field Contact: Sheby Valenzuela Israh Von Raesfeld@mm/global. Israh Von Rae	Customer	Information	Project Inform	ation		Proje	oct Info	ormation		ar , <u>mar - and an and and</u>
Company: MWH Sampling Event ISRA Sampling, August 2009 Contact#: Requested Analyses Report to: Sarah Von Raesfeld Project Number: 1891614.06462 Requested Analyses Instructio Address: 2121 N. California Blvd Project Namager: Alex Fischi Instructio Instructio Suite 600 PM Phone #: (925) 627-4627 Valnut Creek Field Contact: Shelby Valenzuela Instructio CA Field Contact: Shelby Valenzuela Field Contact: Shelby Valenzuela Instructio 94596 Field Contact: No. of Isa Unieli Isa Unieli Held sean.lefiler@mwhglobal.com Lab Contact: 1003) 736-0103 Valenzugggggggg Valenzugggggggg Valenzuggggggggggg Sample Name Matrix Date Time Containers 1002 Valenzugggggggggg Valenzugggggggg	Site:	SSFL	Client Name:	Boeing		Colle	ctor:	A. Goldenberg	Boeing PM:	
Report to: Sarah Von Raesfeld Project Number: 1891614.05462 Requested Analyses Instructio Address: 2121 N. California Blvd Project Manager: Alex Fisch1 Lagand: Lagand: Lagand: Lagand: Lagand: Numerical N Numerical N Numerical N Numerical N Sutte 600 Numerical N	Company:	HMM	Sampling Event	: ISRA Sampl	ling, August 2009	Cont	act 推			
Address: 2121 N. California Blvd Project Manager: Alex Fisch1 Legend: Sulte 600 PM Phone #: (925) 627.4627 Legend: Numerical CA Field Contact: Shelby Valenzuela Numerical Numerical GA Field Contact: Shelby Valenzuela Numerical Numerical 94596 Lab Name: TestAmerica-Denver H- Hold H- Hold Email: sarah.vonraesfeld@mwhglobal.com Lab Adress: 4955 Yarrow H- Hold sean.leffler@mwhglobal.com Lab Adress: 4955 Yarrow H- Hold H- Hold Sample Name Matrix Date Time Containers 100 PM	Report to:	Sarah Von Raesfeld	Project Number	1891614.05	462 ·			Requested Analyses		Instructions/TAT
Suite 600 PM Phone #: (925) 627-4627 Valnut Creek Field Contact: Shelby Valenzuela CA Field Contact: Shelby Valenzuela 94596 Lab Name: Field Contact: G26) 255-0503 Email: sarah.vonraesfeld@mwhglobal.c Lab Contact: Lisa Uniel! sean.leffler@mwhglobal.com Lab Address: 4955 Yarrow around time H- Hold H- Hold H- Extrac Hold Email: Sample Name Matrix Date Time Containers Sog auntsiow 9122C0 Kore: Value bellow are Time Containers Sog auntsiow 9122C0 Field containers Times. Comment Times. Time Containers Times. Times.	Address:	2121 N. California Blvd	Project Manage	r: Alex Fischi						l prand:
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CA Field Contact #: (626) 255-0503 H-Hold Email: sarah.vonraesfeld@mwhglobal.c Lab Name: TestAmerica-Denver sean.leffler@mwhglobal.com Lab Address: 4955 Yarrow H-Hold Arvada, CO 80002 Arvada, CO 80002 No. of Note: Value bellow are 1 Lab Phone: (303) 736-0103 Hold Value Void: Value No. of Sample Aarren SalutatioW 912200 Image: Value Date Time Containers So SalutatioW 912200 Image: Value Containers So SalutatioW 912200 SalutatioW 912200 Times.		Walnut Creek	Field Contact:	Shelby Vale	nzuela					analyses equate to turn around time in days
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Email: sarah.vonraesfel@mwhglobal.c Lab Contact: Lisa Uriell sean.leffler@mwhglobal.com Lab Address: 4955 Yarrow Value Arvada, CO 80002 SIZZO SIZZO Value Sample Name Matrix Date Time Containers Sizzo Sample Name Matrix Date Time Containers Sizzo Containers		94598	Lab Name:	TestAmerica	t-Denver	<u>ن</u> ي (EH - Extract/Extrude & Hold
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CHAIN OF CUSTODY RECORD

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TestAmerica Denver Sample Receiving Checklist
Lot #: D9 K110632 Date/Time Received: 11/11/09 0930
Company Name & Sampling Site: Boeing - MWH ISRA
PM to Complete This Section: YesNoYesNoYesNoResidual chlorine check required: \checkmark \checkmark Quarantined : \Box \checkmark MIS prep : \Box \checkmark
Quote #: 80017-
Special Instructions: # Sub all to Know
Time Zone:
• EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER
Unpacking Checks:
Cooler #(s):
N/A Yes No Initials
\square \square \square 1. Cooler seals intact? (N/A if hand delivered) If no, document on CUR.
\square 2. Coolers scanned for radiation. Is the reading \leq to background levels? Yes: \checkmark No:
□ 3. Chain of custody present? If no, document on CUR.
4. Bottles broken and/or are leaking? If yes, document on CUR.
5. Multiphasic samples obvious? If yes, document on CUR.
6. Proper container & preservatives used? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR.
7. pH of all samples checked and meet requirements? If no, document on CUR.
8. Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR, and contact PM before proceeding.
9. Did chain of custody agree with labels ID and samples received? If no, document on CUR.
△ □ 10. Were VOA samples without headspace? If no, document on CUR.
□ □ 11. Were VOA vials preserved? Preservative □HCl □4±2°C □Sodium Thiosulfate □ Ascorbic Acid
\Box $\dot{\Delta}$ 12. Did samples require preservation with sodium thiosulfate?
2 I 13. If yes to #11, did the samples contain residual chlorine? If yes, document on CUR.
D 14. Sediment present in dissolved/filtered bottles? If yes, document on CUR.
15. Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and contact PM before proceeding.
\Box 16. Receipt date(s) > 48 hours past the collection date(s)? If yes, notify PA/PM.
□ 17. Are analyses with short holding times requested?
18. Was a quick Turn Around (TAT) requested?

TestAmerica Denver Sample Receiving Checklist

Lot # D9K110632

Lo	gin C	hec	ks:		Initials
N/A	Yes	No			_fnr.
	Þ		19.	Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) document on CUR, and contact PM before proceeding.	If no,
Þ			20.	Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document or contact PM before proceeding.	n CUR, and
	Þ		21.	Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?	
	Þ		22.	Were special log in instructions read and followed?	
$\sqrt{\mathbf{P}}$			23.	Were AFCEE metals logged for refrigerated storage?	
	Ŕ		24.	Were tests logged checked against the COC? Which samples were confirmed?	
Þ	ù		25.	Was a Rush form completed for quick TAT?	
NQ.			26.	Was a Short Hold form completed for any short holds?	
		Ŕ	27.	Were special archiving instructions indicated in the General Comments? If so, what were they?	

Labeling and Storage Checks:

Initials LC

	ষ্	۵	28. Was the subcontract COC signed and sent with samples to bottle prep?
	\times		29. Were sample labels double-checked by a second person?
X		۵	30. Were sample bottles and COC double checked for dissolved/filtered metals by a second person?
	`×		31. Did the sample ID, Date, and Time from label match what was logged?
X			32. Were stickers for special archiving instructions affixed to each box? See #27
\mathbf{A}			33. Were AFCEE metals stored refrigerated?
· 1			

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

	ed detection limit and analysis date included in report.	Please use Client Sample ID for report Call with questions at 303-736-0100			
--	--	--	--	--	--

LN93H
 Work Order No.
 Client Sample ID

 LN93H
 AZET0101S001SP
 37921 AZET0101S001SP Lab Request SRI 16250 Need Analytical Report Sampling Date 2009-11-10 14:29 2009-11-10 14:29 SOLID, 160.3 % Moisture (Knox) |BOE1| Project Manager: HED EX # 8048 4043 389 CUUSTODY 3646 4043 389 2009-11-23 Analysis Required SOLID, 1613B Dioxins (Knox) |BOE10|). – 2 1995: - 2

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

2	The And Muth	
	Date/Time 112/01 10:00AM	

Date/Fime: $\frac{11}{11} \frac{109}{100}$ (600

Relinquished **Received** for

Relinquished by ~~~ V Lille

TestAmerica

Laboratory

SAMPLE ANALYSIS REQUISITION

Report Package:

LA KILVE32 Expanded Deliverables

5815 Middlebrook Pike **TestAmerica Knoxville**

Knoxville, TN

Client Code: 99400

LocID

<u>Sample I.D.</u> D9K110632-1

D9K110632-1

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mple Receiving Associate: YUU YMITA			Was the sampler identified on the COC?	to the client and project name/# identified?	In the data/time of rounds collection actuals	Is the matrix of the samples noted?	Are tests/parameters listed for each sample?	Was COC relinquished? (Signed/Dated/Timed)		Are the shipping containers intact?		For 1613B water samples is pH<9?	For rad samples, was sample activity info. provided?	Were samples received within holding time?		Did you check for residual chlorine, if necessary?	Were samples received in appropriate containers?	Were VOA samples received without headspace?		Were all of the sample containers received intact?		Were all of the samples listed on the COC received?		containers?	Were custody seals present/intact on cooler and/or	Were samples received with correct chemical preservative (excluding Encore)?	VUS1: 10°C; MA: 2-6°C)	temp. of water to 6 °C; NC, 1668, 1613B: 0-4°C;	Is the cooler temperature within limits? (> freezing						(IDs, Dates, Times)	Do sample container labels match COC?	leview Items
				\checkmark		<	4	\leq	<		/			<u>_</u>			2			<u> </u>		ي ا		2				~		-				2		/	ñ
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Date:			RCT []	□ 15a		יצור	🗆 15a	E 14a	C 13b	🗆 13a	with si	If no, v	/ 🗆 Inco	0 10a	to mat	0 9a (🗆 8a I	07a -	1 d0 🛛	0 6a L	0 SD S	🗆 5a S	1 1 4c C	04b)	04a 1	🗆 3a S		02b (□ 2a 7	□ lg (DILC	l le 7					If No,
1112/09			incomplete information	Incomplete information		Incomplete information	Incomplete information	Not relinquished	Other:	Leaking	ulfuric acid?	was pH adjusted to pH 7 - 9	omplete information	Holding time expired	rix interference	Could not be determined due	mproper container	feadspace (VOA only)	Broken	eaking	Samples not received-on COC	Samples received-not on COC	Other:	Not intact	Not present	Sample preservative =		Cooler Temp =	Temp Blank =	Other:	COC not received	No label	Label torm	Marking smeared	Incomplete information	Do not match COC	, what was the problem?
QA026R21.doc, 090409																																					Comments/Actions Taken

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

TestAmerica Knoxville Dioxin GC/MS Data Review / Narrative ChecklistLOT # D9K 10632Method: 1613B - KNOX-ID-0004-R8Page 1 of 1Batch#9320248

Review Items A. Initial Calibration	N/A	Ves	No	Why is dota reportable?	2nd
1. Was the correct ICAL used for quantitation? (Check 1-2 compounds for					
batch by manually calculating concentration using the ICAL avg. RF.)		<u> </u>			
B. Continuing Calibration	N/A	Yes	No		2nd
analytical batch?					1
C. Client Sample AND OC Sample Results	N/A	Ves	Na		7nd 3
1. Were all special project requirements met?	1	17			1
2. Were the header information, prep factors, and dilution factors verified?	1	1	1. S. C.		
3. Is logbook date/time of analysis correct?		1			-/-
4. Sample analyses done within preparation and analytical holding time				D HT expired upon receipt.	
(HT)? If no, list samples:				D* Client requested analysis after HT expired.	1
5 Are internal standards within OC limits specified in Table 122	<u> </u>	<u> </u>		Re-extraction done after HT expired.	ļ
If no, list samples and reason (e.g., sur1):		ľ		\square^* [Sup] ion suppression due to matrix. \square^* [low] i on recovery S/N >10 and EDI <mi< td=""><td></td></mi<>	
Sample Reason Sample Reason			ĺ	Sam Not enough sample to re-extract.	
				□ [dil] Dilution showed acceptable %R.	
				D [mtx] Obvious matrix interference. Further	
				cleanup not possible.	
				L [*] [UIRK] At client's request, data was flagged as	
6. Were reported PCDD/Fs which did not meet the criteria below, properly				estimated and released without further investigation.	<u> </u>
calculated and reported as EMPCs?:					
RT of 2378 isomers within SOP Table 3 limits.					
• RT of non-2378 isomers within established first/last windows.					1
 Boin native ions maximized within ±2 seconds. Ion abundance miles within the control limits modified in Table 22 	-	,	14		1
No corresponding near at PCDPE mass					
7. Were all 2378-TCDF hits > ML confirmed by analysis on DB-2257					
8. Are positive results > ML within calibration range?				OCDD/F or non-2378 exceeded calibration range	
If no, list samples:		1		□ Sample extracted at lowest possible volume	/
9. Are all manual integrations clearly identified and approved?		1			/
10. Were before/after chromatograms reviewed to determine whether the		/			/
software and manual integrations were appropriate?					
12. Final range account bla? (Depute account DL and builded account bland					
correct. IS %R correct appropriate flags used dilution factor correct and					1
extraction/ analysis dates correct.)					1
13. Was a narrative prepared and all deviations noted?		~	2. Z. I		
D. Preparation/Matrix QC	N/A	Yes	No	Why is data reportable?	2nd
1. LCS(OPR) done per prep batch and all analytes within the limits			l	Reanalysis not possible-insufficient sample.	/
specified in Quantities reference data?				□ LCS %R high and affected analyte(s) were <ml< td=""><td>1</td></ml<>	1
2. Method blank done per nrep batch method/instrument blank analyzed				In associated samples.	
with each sequence and analytes present in the method blank $\leq ML$? If				\Box^* There is no analyte > RL in the samples	/
no, list blank ID:		1		associated with method blank.	
2 1/44/00				Reanalysis not possible-insufficient sample	
3. MS/MSD recoveries and RPDs within laboratory generated QC limits?			·	CLCS acceptable, indicating sample matrix effects.	
3 no, no no no				O LCS acceptable, high analyte concentration.	
E. Other	N/A	Yes	No		2nd/
1. Are all nonconformances docurrented appropriately and copy included	/		1		7
with deliverable? //	_		1	-A	
			11	$ (\mathcal{A}) _{0}$, $\nabla A _{0}$, A	10
Analyst: Date: U/21/03	A	alyst:	<u> </u>	100 W W V Date: 112	101
Comments:	Co	mments	:		11
		··-···			
			·	<u> </u>	
			····		
		·····			
				······································	

TestAmerica Knoxville Specialty Organic Prep Batch Review/Checklist Batch # 932 02 48

DKNOX-ID-0004, rev 8 (PCDD/F extraction) □KNOX-ID-0012, rev 2 (Air Train extraction)	2	C	J KNO (PCB	X-ID-0013, rev 8 extraction)	□KNOX- (LR-SIM P	ID-0016, rev6
Review Items	N/A	Yes	No	If No, why is data reportabl	e	law I hav
1. Does the batch contain no more than 20 field samples? (Excluding MB, LCS, LCSD, MS, & MSD)			,			
2. Were the samples extracted by the proper method?						- <u>·</u>
 Were the samples extracted within the required holding times? 		~				
 For waters by 1613B, if visible solids were present, were solids determined to be < 1%? 	V					
5. Were all project specific requirements met as noted on the Lot Checklists and Sample Worksheets?						
6. Were all required QC samples prepared & extracted with the batch at method required frequency?		17	,			
 Were MS Run# properly assigned and samples entered on QC tracking Sheet? 	1	V	· · · · ·		•••••	
8. Were samples requested properly and request form completed, signed, and dated?	1	~				17-1
9. Were the correct weights and volumes entered in Quantims for all samples?	1	~	1			
10. Were the internal standards properly spiked and the spikes verified? Were the spike solution ID and spike volumes entered correctly and verified?				_		
11. Were alternate standards properly spiked and the spikes verified? Were the spike solution ID and spike volumes entered correctly and verified?	V	•				
12. Were all cleanup steps properly documented by initials and date?		~				
13. Was the final volume checked and verified against the supplemental benchsheet and Quantims?		1				
14. Are the final extracts free of water, precipitates, multiple phases, and color?			~	LNIWA, LNIWC Dothy OFHEAN Cleanup many	ellow Hered	
15. Were all appropriate notes and observations recorded on the prep benchsheet and in Quantims?		-	<u> </u>	additional dillution.		
 16. Were all Quantims batch information completed including; Batch reviewed 	71.1					
Correct volumes entered Correct completion date entered Samples released		~				
17. Does the prep batch paperwork package contain all required documentation which has been properly and completely filled out, including;			·			
 Frep Benchsheet Supplemental Benchsheet Standard concentration forms or copies of logbook pages, for all IS, RS, SS, CS, Native and Alternate standards. Lot Checklists for all lots in the batch 		~				
order as recorded on tracking sheet						
copy included with deliverable?	\leq					$ \rightarrow $
Comments: Date: 1119109		2nd Lev Comment	el Revi	ewer:	Date: ////	9/09
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			-			

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THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

Boeing SSFL – ISRA

Lot D9K110632

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

TestAmerica Laboratories, Inc.

These Guild

Lisa B. Uriell Project Manager

November 25, 2009

Case Narrative

Enclosed is the report for one sample received at TestAmerica Laboratories, Inc. – Denver laboratory on November 11, 2009. The results included in this report relate only to the sample in this report and have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data has been found to be compliant with laboratory protocol, with the exception of any items noted below.

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

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

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

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Quality Control Summary for Lot D9K110632

Sample Receiving

The cooler temperature for the sample received on November 11, 2009, at the Denver laboratory was 1.5°C. All sample containers were received in acceptable condition.

The sample ID for sample AZET0101S001SP was changed to A2ET0101S001SP as instructed by the client on November 12, 2009. A change order request form and revised Chain of Custody were received via email on November 12, 2009. The original and revised COCs and the change order request form have been included.

The requested Dioxin/Furan analyses were performed at TestAmerica's Knoxville laboratory located at 8515 Middlebrook Pike, Knoxville, TN 37921.

Dioxins & Furans – SW846 Method 1613B

Total HxCDD is reported at the maximum possible concentration in sample AZET0101S001SP (D9K110632-001). This result has been flagged with "Q", and should be considered estimated.

OCDD is reported at the maximum possible concentration in the method blank associated with QC batch 9320248. This result has been flagged with "Q", and should be considered estimated.

Low levels of OCDD, 1,2,3,4,6,7,8-HpCDF and Total HpCDF were detected in the method blank associated with QC batch 9320248. However, because the concentrations in the method blank were not present at levels greater than one half the reporting limits, corrective action was deemed unnecessary.

<u>Dioxin – SW846 Method 1613B</u> (cont.)

Matrix Spike analysis for QC batch 9320248 was performed on sample AZET0101S001SP (D9K110632-001). All spike parameters were within QC control limits.

All QC criteria were met.

The following flags are used to qualify results for chlorinated dioxin and furan results:

J – The reported result is an estimate. The amount reported is below the Minimum Level (ML). The qualitative definition of the ML is "the lowest level at which the analytical system must give a reliable signal and an acceptable calibration point". The ML was introduced in EPA Methods 1624 and 1625 in 1980 and was promulgated in these methods in 1984 at 40 CFR Part 136, Appendix A. For the purposes of this report the ML is qualitatively defined as described above, and quantitatively defined as follows: Minimum Level: The concentration or mass of analyte in the sample that corresponds to the lowest calibration level in the initial calibration. It represents a concentration (in the sample extract) equivalent to that of the lowest calibration standard, after corrections for method-specified sample weights, volumes and cleanup procedures has been employed.

E – The reported result is an estimate. The amount reported is above the UCL described below. The E qualifier is applied on the basis of the Upper Calibration Level (UCL). The quantitative definition of the UCL is listed below:

Upper Calibration Level: The concentration or mass of analyte in the sample that corresponds to the highest calibration level in the initial calibration. It is equivalent to the concentration of the highest calibration standard, assuming that all method-specified sample weights, volumes, and cleanup procedures have been employed.

B – The analyte is present in the associated method blank at a reportable level. For this analysis, there is no method specified reporting level, other than the qualitative criterion that peaks must exhibit a signal-to-noise ratio of 2.5-to-1. Therefore, the presence of any amount of the analyte present in the blank will result a B qualifier on all associated samples.

If the blank has analytes present above the ML (described above) the need for corrective action beyond qualifying the associated data is evaluated. The determination is made whether the amount in the blank is less than 5% of the lowest amount in associated client samples or regulatory limit. If this is the case, sample processing may continue with the qualification of the data. If the amount in the blank is greater than 5% of the lowest amount in associated client samples or regulatory limit, corrective action must be taken.

The corrective actions may include extracting a second aliquot of sample if available, or notifying the client to assess the impact on the project objectives.

Note: Some laboratories do not report contamination in the blank unless it is above their lower calibration limit, or an established percentage of the level in the samples, or an established percentage of the regulatory limit. Likewise, some laboratories set a reporting limit at one half the lower calibration limit.

Q – Estimated maximum possible concentration. This qualifier is used when the result is generated from chromatographic data that does not meet all the qualitative criteria for a positive identification given in the method. The criteria include the following areas:

• Ion abundance ratios must be within specified limits (+/-15% of theoretical ion abundance ratio.)

Retention time criteria (relative to the method-specified isotope labeled retention time standard).

• Co-maximization criterion. The two quantitation ion peaks must reach their maxima within 2 seconds of each other.

• Polychlorinated dibenzofuran purity. No peak can be identified as a polychlorinated dibenzofuran if a polychlorinated diphenyl ether peak maximizes within +/- 2 seconds of the furan candidate.

<u>Dioxin – SW846 Method 1613B</u> (cont.)

S – Ion suppression evident. The trace indicating the signal from the lock mass of the calibration compound shows a deflection at the retention time of the analyte. This may indicate a temporary suppression of the instrument sensitivity, due to a matrix-borne interference.

C – Coeluting Isomer. The isomer is known to coelute with another member of its homologue group, or the peak shape is shouldered, indicating the likelihood of a coeluting isomer

X – Other. See explanation in narrative.

Laboratory studies supporting risk assessment and TMDL evaluations frequently use qualified data reported as low as the MDL, or the Estimated Detection Limit (EDL). Several of EPA's isotope dilution methods employ the EDL^{1,2,3}. The EDL is based on a direct measurement of the signal-to-noise ratio acquired during sample analysis. This s/n measurement is used to calculate the concentration in the sample corresponding to the minimum intensity of the smallest quantifiable peak. The EDL reflects the amount of the particular analyte which would be required to cause a positive result for the particular analysis. Because the s/n obtained covaries with recovery, instrument sensitivity and sample-specific cleanup efficacy, the EDL is a more valid measure of the sensitivity of the entire analytical process for the specific sample, than is an MDL run periodically on a reference matrix.

This method of estimating the detection limit differs from the MDL in that it does not carry the requirement that the sample be statistically distinguished as being from a contaminated population. As results approach the EDL, the risk of false positives and the analytical uncertainty increase significantly. However, a low false positive well below the ML or MDL is often more accurate than the assumption is that contamination is present at the DL or ML. For relatively clean samples, MDL studies may give an elevated estimate of the detection limit. Additionally, on contaminated samples, the MDL may give a falsely low estimate of the detection limit.

In sample data, peaks must have an intensity of 2.5 times the height of the background noise in order to be considered. Careful examination of the two equations above, and a bit of high school algebra reveals that for the concentration of the smallest peak detectable (per the EDL equation) to exactly equal the smallest peaks that are calculated, requires that the average height to area ratio obtained during the calibration must equal the area to height ratio for every peak obtained near 2.5 times the noise. When the area to height ratio on a peak in a sample is less than the average obtained during calibration, the calculated result will correspond to a peak that would have been less than 2.5 X the noise on the calibration. This is the result of normal variability. Because the source method for the EDL (SW-846 8290 and 8280A) does not provide for censoring of results by any other magnitude standard than being 2.5 times the noise, the laboratory does not censor at the calculated EDL. Hence, detections may be reported below the estimated detection limits.

No other anomalies were observed.

General Chemistry – Method ASTM D 2216-90

No anomalies were observed.

METHODS SUMMARY

D9K110632

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Dioxins/Furans, HRGC/HRMS	EPA-5 1613B	EPA-5 1613
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD

References:

EPA-5 "Method 1613: Tetra- through Octa- Chlorinated Dioxins and Furans by Isotope Dilution, HRGC/HRMS, Revision B", EPA, OCTOBER 1994

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

METHOD / ANALYST SUMMARY

D9K110632

ANALYTICAL METHOD	ANALYST	ANALYST
EPA-5 1613B	Patricia(Trish) M. Parsly	050655
MCAWW 160.3 MOD	Lauren L. Walker	400461

References:

- EPA-5 "Method 1613: Tetra- through Octa- Chlorinated Dioxins and Furans by Isotope Dilution, HRGC/HRMS, Revision B", EPA, OCTOBER 1994
- MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SAMPLE SUMMARY

D9K110632

<u>WO #</u>	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
LN93H	001	AZET0101S001SP	11/10/09	14:29
NOTE (S	3):		· · · · ·	

- The analytical results of the samples listed above are presented on the following pages.

- All calculations are performed before rounding to avoid round-off errors in calculated results.

- Results noted as "ND" were not detected at or above the stated limit.

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- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor,

paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

QC DATA ASSOCIATION SUMMARY

D9K110632

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	SO SO	EPA-5 1613B MCAWW 160.3 MOD		9320248 9317425	9320115



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: D9K110632

Prepared by

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

I. INTRODUCTION

Task Order Title:	Boeing SSFL RFI ISRA
Contract Task Order:	1261.500D.00
Sample Delivery Group:	D9K110632
Project Manager:	Dixie Hambrick
Matrix:	soil
QC Level:	V
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica

Table 1. Sample Identification

Sample Name	Lab Name	Sample	Sub-Lab Sample Name	Matrix	Collection	Method
AZET0101S001SP	D9K1106	632001	N/A	SOIL	11/10/2009 2:29:00 PM	1613B

II. Sample Management

No anomalies were observed regarding sample management. The samples in this SDG were received at the laboratory below the temperature limits of $4^{\circ}C \pm 2^{\circ}C$; however, the samples were not noted to be frozen or damaged. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were appropriately signed and dated by field and/or laboratory personnel. Custody seals were intact. If necessary, the client ID was added to the sample result summary by the reviewer.

Qualifie	- 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.
Ν	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

Data Qualifier Reference Table

T-II	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a class of compound but not of sufficient identification quality to represent a specific compound.	Not applicable
T- III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

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.
Ι	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
А	Not applicable.	ICP Serial Dilution %D were not within control limits.
М	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

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.
Ρ	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*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 indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. EPA METHOD 1613—Dioxin/Furans

Reviewed By: P. Meeks Date Reviewed: December 4, 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 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 sample was extracted and analyzed within one year of collection.
- Instrument Performance: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: OCDD (0.69 pg/g), 1,2,3,4,6,7,8-HpCDF (0.081 pg/g), and total HpCDF (0.081 pg/g) were detected in the method blank. OCDD detected in the site sample was qualified as nondetected, "U," at the EDL. The other two analytes were not detected in the site sample. The method blank had no other target compound detects above the EDL.
- Blank Spikes and Laboratory Control Samples: Recoveries were within the acceptance criteria listed in Table 6 of Method 1613.
- MS/MSD: 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 identified as the field blank associated with the samples in this SDG; however, the sample was not analyzed for dioxins. The samples in this SDG had no identified equipment rinsate.
 - Field Duplicates: There were no field duplicate samples identified for this SDG.
- Internal Standards Performance: Internal standard recoveries are not routinely evaluated at a Level V validation; however, the recoveries were reported on the sample result summaries. The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613.
- Compound Identification: Review is not applicable at a Level V validation. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613.

 Compound Quantification and Reported Detection Limits: Review is not applicable at a Level V validation. The laboratory calculated and reported compound-specific detection limits. Any total reported as an estimated maximum possible concentration (EMPC) was qualified as estimated, "J," as only a portion of the total was identified as an EMPC. Any detect below the laboratory lower calibration level was qualified as estimated, "J." Nondetects are valid to the estimated detection limit (EDL).

Validated Sample Result Forms: D9K110632

Analysis Method 1613B

Sample Name A	ZET0101S00	1SP	Matrix '	Fype: SOIL	Res	ult Type: Pr	imary Result
Lab Sample Name:	09K 110632001	Sample I	Date: 1	1/10/2009 2:29:00 P	М	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- Heptachlorodibenzofuran	67562394	0.099	5	0.099 pg/g	U	U	
1,2,3,4,6,7,8-Heptachlorodiben p-dioxin	zo- 35822469	0.16	5	0.16 pg/g	U	U	
1,2,3,4,7,8,9- Heptachlorodibenzofuran	55673897	0.15	5	0.15 pg/g	U	U	
1,2,3,4,7,8- Hexachlorodibenzofuran	70648269	0.072	5	0.072 pg/g	U	U	
1,2,3,4,7,8-Hexachlorodibenzo dioxin	-p- 39227286	0.085	5	0.085 pg/g	U	U	
1,2,3,6,7,8- Hexachlorodibenzofuran	57117449	0.064	5	0.064 pg/g	U	U	
1,2,3,6,7,8-Hexachlorodibenzo dioxin	-p- 57653857	0.12	5	0.12 pg/g	U	U	
1,2,3,7,8,9- Hexachlorodibenzofuran	72918219	0.088	5	0.088 pg/g	U	U	
1,2,3,7,8,9-Hexachlorodibenzo dioxin	-p- 19408743	0.092	5	0.092 pg/g	U	U	
1,2,3,7,8-Pentachlorodibenzofu	ıran 57117416	0.086	5	0.086 pg/g	U	U	
1,2,3,7,8-Pentachlorodibenzo-p dioxin	- 40321764	0.1	5	0.1 pg/g	U	U	
2,3,4,6,7,8- Hexachlorodibenzofuran	60851345	0.071	5	0.071 pg/g	U	U	
2,3,4,7,8-Pentachlorodibenzofu	uran 57117314	0.076	5	0.076 pg/g	U	U	
2,3,7,8-TCDD	1746016	0.27	1	0.27 pg/g	U	U	
2,3,7,8-Tetrachlorodibenzofura	n 51207319	0.17	1	0.17 pg/g	U	U	
Heptachlorodibenzofurans	38998753	0.12	5	0.12 pg/g	U	U	
Heptachlorodibenzo-p-dioxins	37871004	0.16	5	0.16 pg/g	U	U	
Hexachlorodibenzofurans	55684941	0.073	5	0.073 pg/g	U	U	
Hexachlorodibenzo-p-dioxins	34465468	0.1	5	0.097 pg/g	QJ	J	*Ⅲ
Octachlorodibenzofuran	39001020	0.13	10	0.13 pg/g	U	U	
Octachlorodibenzo-p-dioxin	3268879	10	10	10 pg/g	ВJ	U	B, result changed from 0.75 and EDL from 0.13
Pentachlorodibenzofurans	30402154	0.081	5	0.081 pg/g	U	U	
Pentachlorodibenzo-p-dioxins	36088229	0.1	5	0.1 pg/g	U	U	
Tetrachlorodibenzofurans	55722275	0.17	1	0.17 pg/g	U	U	
Tetrachlorodibenzo-p-dioxins	41903575	0.27	1	0.27 pg/g	U	U	



QA/QC PACKAGE: LEVEL IV PREPARED FOR: THE BOEING COMPANY SSFL LABORATORY NUMBER: ISG0117 PROJECT: ISRA HV WASTE CHARACTERIZATION 1891614.05452

CHAIN OF CUSTODY FORM

17461 Derian Avenue, Ste. 100 Irvine, CA 92614 tel 949.261.1022 fax 949.260.3297 www.testamericainc.com

Irvine			TestAmerica
Suite 100	Chair	1 of Custody Record	
Irvine, CA 92614			THE LEADER IN ENVIRONMENTAL TESTING
phone 949.261.1022 fax 949.260.3299	-	T5G0M7	TestAmerica Laboratories, Inc.
Client Contact	Project Manager: Tom Venable	Site Contact: Shelby Valenzuela Date: 4 - 1- 09	COC No:
The Boeing Company SSFL	Tel/Fax: 818-466-8779 /818-466-4873	Lab Contact: Joe Doak Carrier: Course Carrier	of COCs
5800 Woolsey Canyon Road	Analysis Turnaround Time		Job No.
Canoga Park, CA 91304	Catendar (C) or Work Days (W)		1891614 05452
Phone	TAT if different from Below		
FAX ISEA NV MASTE CHARACTER AMP	2 weeks		SDG No.
rtujett Name: kom room waaren om mooren om			
Sample Identification	Sample Sample Sample Matrix Cont. Date Time Type Matrix Cont.	CAM 17	Sample Specific Notes:
15MC 0020 5001	7-1-09 12:02 3.5. 15 SOIL 1		15RA-WS-2C
12NC 0019 5001	4-1-00 13196 1		
15MC 00255001	1 98:21 bon-t		
L law ooi 85 ooi	1 8h121 be-1-t		
15MC 00225001	1 20:81 40-1-2		¥0*
V 15MC 0021 5001 1 1	7-1-09 13:12		
15460017 Sool	4-1-04 15:23		25.21
1005 4200 20 51	7-1-09 13:33 1 1		
1 Jak		\$	8-1-8
			1
	7		
Preservation Used: (= Ice) 2= HCl; 3= H2SO4; 4=HNO3; 5=NaO	OH; 6= Other		7
Possible Hazard Identification	Poison B Unknown	Sample Disposal (A fee may be assessed if samples are re — Return To Client — Disposal By Lab	alned longer than 1 month) cchive For L Months
Special Instructions/QC Requirements & Comments: Run STLC	: (WET) / TCLP If TTLC results ≥ 10x STLC / 20x T	rcLP threshold	
, , ,			
Relinquished by	Company: Date/Time: 1	Regulation Manual Company	Date Time:
Relinginged by	Coupany, 1 Date/Time,	how we compared by	Date/Title: // [5.0]
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Relippuished by: (Company: Date/Tinte:	Received by Company:	Date/Time:
		•	

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QA/QC PACKAGE: LEVEL IV PREPARED FOR: THE BOEING COMPANY SSFL LABORATORY NUMBER: ISG0117 PROJECT: ISRA HV WASTE CHARACTERIZATION 1891614.05452

3

SAMPLED: 07/01/09

17461 Derian Avenue, Ste. 100 Irvine, CA 92614 tel 949.261.1022 fax 949.260.3297 www.testamericainc.com



THE LEADER IN ENVIRONMENTAL TESTING

CASE NARRATIVE

Client: Project: Lab:	The Boeir ISRA HV 1891614. ISG0117	ng Company-SSFL Waste Characterization 05452	Date Sampled: Date Received:	7/1/2009 7/1/2009				
SAMPLE F	RECEIPT:	Samples were received intact, on ice, and with chain of custody documentation. The sample temperature was measured at 2.7° C upon receipt at the laboratory.						
HOLDING TIMES:		All samples were analyzed within prescribed holding times and/or in accordance with the TestAmerica Sample Acceptance Policy unless otherwise noted in the report.						
PROBLEMS ENCOUNTERED:		No problems were encountered during sample analysis.						
QA/QC CRITERIA:		Copper and Zinc were detected in the Method Blank of batch 9G06062.						
		The MS and/or MSD recoveries for Antimony were below acceptance limits due to sample matrix interference for EPA 6010B QC batch 9G06062. See LCS.						
OBSERVA	TIONS:	Results that fall between the MDL and RL are 'J' flagged.						
		Antimony, Beryllium, Cadmium, Molybdebum, Selenium, Silver and Thallium reporting limits were raised due to sample matrix effects for EPA 6010B sample ISG0117-04.						
SUBCONT	RACTED:	SW846 7471A analysis was performed at TestAmerica, Inc. – Denver, CO.						

TestAmerica Irvine 2 Joseph Doak **Project Manager**

TA

Page 1

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<u>TestAmerica</u>

THE LEADER IN ENVIRONMENTAL TESTING

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LABORATORY REPORT

Prepared For: The Boeing Company-SSFL 5800 Woolsey Canyon Road Canoga Park, CA 91304-1148 Attention: Tom Venable

Project: ISRA HV Waste Characterization 1891614.05452

Sampled: 07/01/09 Received: 07/01/09 Issued: 07/28/09 11:43

NELAP #01108CA California ELAP#2706 CSDLAC #10256 AZ #AZ0671 NV #CA01531

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica. The Chain of Custody, 1 page, is included and

is an integral part of this report.

This entire report was reviewed and approved for release.

SAMPLE CROSS REFERENCE

SUBCONTRACTED: Refer to the last page for specific subcontract laboratory information included in this report.

ADDITIONAL

INFORMATION:

This is an amended report to include samples to be reported per the client's request. Samples included: ISG0117-04, -05, -06, -07

LABORATORY ID	CLIENT ID	MATRIX
ISG0117-04	HZBS0155S001	Soil
ISG0117-05	HZBS0157S001	Soil
ISG0117-06	HZBS0156S001	Soil
ISG0117-07	HZBS0154S001	Soil

Reviewed By:

Jough Dal

TestAmerica Irvine Joseph Doak Project Manager

ISG0117 <Page 1 of 9>



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: ISG0117

Prepared by

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

I. INTRODUCTION

Task Order Title:	Boeing SSFL RFI ISRA
Contract Task Order:	1261.500D.00
Sample Delivery Group:	ISG0117
Project Manager:	Dixie Hambrick
Matrix:	soil
QC Level:	V
No. of Samples:	4
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica

Table 1. Sample Identification

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
HZBS0154S001	ISG0117-07	N/A	Soil	7/1/2009 1:23:00 PM	7471A, 6010B
HZBS0155S001	ISG0117-04	N/A	Soil	7/1/2009 12:48:00 PM	7471A, 6010B
HZBS0156S001	ISG0117-06	N/A	Soil	7/1/2009 1:12:00 PM	7471A, 6010B
HZBS0157S001	ISG0117-05	N/A	Soil	7/1/2009 1:02:00 PM	7471A, 6010B

II. Sample Management

No anomalies were observed regarding sample management. The samples in this SDG were received at TestAmerica-Irvine within the temperature limits of $4^{\circ}C \pm 2^{\circ}C$ but received at TestAmerica-Denver below the control limit. As the samples were not noted to be frozen or damaged, no qualifications were required. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were appropriately signed and dated by field and/or laboratory personnel. Custody seals were intact. All sample IDs were changed as per an email from MWH personnel. If necessary, the client ID was added to the sample result summary by the reviewer.

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
Ν	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

Data Qualifier Reference Table

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
Т- III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

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.
Ι	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
А	Not applicable.	ICP Serial Dilution %D were not within control limits.
Μ	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

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.
Ρ	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*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 indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. EPA METHODS 6010B & 7470A/7471A—Metals and Mercury

Reviewed By: P. Meeks Date Reviewed: August 10, 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 Methods 6010B, 7470A/7471A, and the National Functional Guidelines for Inorganic Data Review (7/02).

- Holding Times: Analytical holding times, six months for ICP metals and 28 days for mercury, were met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks and CCBs had no applicable detects.
- Interference Check Samples: Review is not applicable at a Level V validation.
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratoryestablished QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on a HOLD sample from this SDG. Both antimony recoveries were 30%; therefore, nondetected antimony in the samples was rejected, "R." All remaining recoveries and all RPDs were within laboratory-established QC limits.
- Serial Dilution: No serial dilution analyses were performed.
- Internal Standards Performance: Review is not applicable at a Level V validation.
- Sample Result Verification: Review is not applicable at a Level V validation. As the samples in this SDG were validated at Level V, the QC information necessary to make an absolute determination of bias in the samples was not reviewed; therefore, when qualifications were applied, no bias was assigned. Due to matrix interference, HZBS0155S001 was analyzed at a 2× dilution. Any result reported between the MDL and the reporting limit was qualified as estimated, "J." Reported nondetects are valid to the MDL.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
 - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
 - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: ISG0117

Analysis Metho	od 6010B	-			-		
Sample Name Lab Sample Name:	HZBS0154S001 ISG0117-07	Sample	Matrix T 7/1	ype: Soil /2009 1:23:00 PM	Res	ult Type: Pr Validation	imary V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Antimony	7440360	0.95	11	0.95 mg/kg	U	R	\$, Q, Result, RL and MDL adjusted for % moisture. Original Sample ID= ISWC0017
Arsenic	7440382	4.2	2	0.88 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID= ISWC0017
Barium	7440393	51	1	0.9 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Beryllium	7440417	0.63	0.5	0.2 mg/kg			MD= IS WC0017 \$, Result, RL and MDL were adjusted for % moisture. Original Sample
Cadmium	7440439	0.2	0.5	0.2 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID= ISWC0017
Chromium	7440473	14	1	0.3 mg/k	g		\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID= ISWC0017
Cobalt	7440484	3.6	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID= ISWC0017
Copper	7440508	6.8	2	0.41 mg/kg	В		\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Lead	7439921	9.3	2	0.4 mg/kg			D= ISWC0017 \$, Result, RL and MDL were adjusted for % moisture. Original Sample
Molybdenum	7439987	0.83	2	0.2 mg/kg	J	J	ID= ISWC0017 \$, Result, RL and MDL were adjusted for % moisture. Original
Nickel	7440020	8.3	2	0.2 mg/kg			Sample ID= ISWC0017 \$, Result, RL and MDL were adjusted for % moisture.

Original Sample ID= ISWC0017

Analysis Method	6010B						
Selenium	7782492	1	2	1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Silver	7440224	0.9	1	0.9 mg/kg	U	U	 AD= ISWC0017 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID= ISWC0017
Thallium	7440280	0.9	11	0.9 mg/kg	U	U	 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID= ISWC0017
Vanadium	7440622	26	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID= ISWC0017
Zinc	7440666	42	5	0.81 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID= ISWC0017

Analysis Method 6010B

Sample Name	HZBS0155S001	Ν	Aatrix T	ype: Soil	Result Type: Primary		
Lab Sample Name:	ISG0117-04	Sample 7/1/2009 12:48:0		1/2009 12:48:00 PM	۲	V	
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Antimony	7440360	2	22	2 mg/kg	U,RL1	R	\$, Q, Result, RL and MDL adjusted for % moisture. Original Sample ID=ISWC0018S001
Arsenic	7440382	14	4	1.8 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0018S001
Barium	7440393	76	2	2.8 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0018S001
Beryllium	7440417	1.1	1.1	0.4 mg/kg	RL1,J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0018S001
Cadmium	7440439	0.4	1	0.4 mg/kg	U,RL1	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0018S001
Chromium	7440473	30	2	0.7 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0018S001
Cobalt	7440484	9	2	0.7 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0018S001
Copper	7440508	26	4	0.85 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0018S001
Lead	7439921	27	4	0.9 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0018S001
Molybdenum	7439987	1.6	4	0.4 mg/kg	RL1,J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Nickel	7440020	21	4	0.4 mg/kg			ID=ISWC0018S001 \$, Result, RL and MDL were adjusted for % moisture.

for % moisture. Original Sample ID=ISWC0018S001

Analysis Method	6010B						
Selenium	7782492	2	4	2 mg/kg	U,RL1	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0018S001
Silver	7440224	1.8	2	1.8 mg/kg	U,RL1	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0018S001
Thallium	7440280	1.8	22	1.8 mg/kg	U,RL1	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0018S001
Vanadium	7440622	50	2	0.7 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0018S001
Zinc	7440666	81	11	1.7 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0018S001

Analysis Method 6010B

Sample Name	HZBS0156S001	Ν	Aatrix T	ype: Soil	Res	ult Type: Pr	imary
Lab Sample Name:	ISG0117-06	Sample	7/	1/2009 1:12:00 PM	v	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Antimony	7440360	0.91	10	0.91 mg/kg	U	R	\$, Q, Result, RL and MDL adjusted for % moisture. Original sample ID=ISWC0021S001
Arsenic	7440382	4.6	2	0.84 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original sample ID=ISWC0021S001
Barium	7440393	51	1	0.8 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original sample ID=ISWC0021S001
Beryllium	7440417	0.57	0.5	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original sample ID=ISWC0021S001
Cadmium	7440439	0.2	0.5	0.2 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original sample ID=ISWC0021S001
Chromium	7440473	17	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original sample
Cobalt	7440484	4	1	0.3 mg/kg			 \$, Result, RL and MDL were adjusted for % moisture. Original sample D-ISWC00215001
Copper	7440508	5.5	2	0.39 mg/kg	В		 \$, Result, RL and MDL were adjusted for % moisture. Original sample D-ISWC00215001
Lead	7439921	5.1	2	0.4 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original sample ID=ISWC0021S001
Molybdenum	7439987	0.75	2	0.2 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original sample ID=ISWC0021S001
Nickel	7440020	8.2	2	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture.

for % moisture. Original sample ID=ISWC0021S001

Analysis Method	6010B						
Selenium	7782492	1	2	1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original sample ID=ISWC0021S001
Silver	7440224	0.8	1	0.8 mg/kg	U	U	 \$, Result, RL and MDL were adjusted for % moisture. Original sample ID=ISWC0021S001
Thallium	7440280	0.8	10	0.8 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original sample
Vanadium	7440622	27	1	0.3 mg/kg			 Second Strain Str
Zinc	7440666	31	5	0.78 mg/kg			 A. A. S. WC0021S001 \$, Result, RL and MDL were adjusted for % moisture. Original

sample ID=ISWC0021S001

Analysis Method 6010B

Sample Name	HZBS0157S001	N	Aatrix T	ype: Soil	Rest	ult Type: Pri	imary
Lab Sample Name:	ISG0117-05	Sample	7/	1/2009 1:02:00 PM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Antimony	7440360	0.99	11	0.99 mg/kg	U	R	\$, Q, Result, RL and MDL adjusted for % moisture. Original Sample ID=ISWC0022S001
Arsenic	7440382	4.7	2	0.91 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0022S001
Barium	7440393	62	1	0.9 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0022S001
Beryllium	7440417	0.7	0.6	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0022S001
Cadmium	7440439	0.2	0.6	0.2 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0022S001
Chromium	7440473	17	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID-ISWC0022S001
Cobalt	7440484	4.3	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0022S001
Copper	7440508	7	2	0.43 mg/kg	В		\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0022S001
Lead	7439921	5.7	2	0.5 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0022S001
Molybdenum	7439987	0.78	2	0.2 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0022S001
Nickel	7440020	9.9	2	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture.

for % moisture. Original Sample ID=ISWC0022S001

Analysis Method	6010B						
Selenium	7782492	1.1	2	1.1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Silver	7440224	0.9	1	0.9 mg/kg	U	U	 S web0223001 Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0022S001
Thallium	7440280	0.9	11	0.9 mg/kg	U	U	 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID-ISWC0022S001
Vanadium	7440622	29	1	0.3 mg/kg			 % Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0022S001
Zinc	7440666	39	6	0.84 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0022S001

Analysis Meth	od 7471A						
Sample Name	HZBS0154S001	I	Matrix T	ype: Soil	Res	ult Type: Pr	imary
Lab Sample Name:	ISG0117-07	Sample	7/	1/2009 1:23:00 PM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.014	0.036	0.006 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID= ISWC0017
Sample Name	HZBS0155S001	I	Matrix T	ype: Soil	Res	ult Type: Pr	imary
Lab Sample Name:	ISG0117-04	Sample	7/	1/2009 12:48:00 PM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.02	0.037	0.0061 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0018S001
Sample Name	HZBS0156S001	I	Matrix T	ype: Soil	Res	ult Type: Pr	imary
Lab Sample Name:	ISG0117-06	Sample	7/	1/2009 1:12:00 PM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.016	0.034	0.0057 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original sample ID=ISWC0021S0
Sample Name	HZBS0157S001	N	latrix Ty	pe: Soil	Re	sult Type:	Primary
Lab Sample Name:	ISG0117-05	Sample	7/	1/2009 1:02:00 PM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.019	0.037	0.0062 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0022S001



QA/QC PACKAGE: LEVEL IV PREPARED FOR: THE BOEING COMPANY SSFL LABORATORY NUMBER: ISG0118 PROJECT: ISRA HV WASTE CHARACTERIZATION 1891614.05452

CHAIN OF CUSTODY FORM

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QA/QC PACKAGE: LEVEL IV PREPARED FOR: THE BOEING COMPANY SSFL LABORATORY NUMBER: ISG0118 PROJECT: ISRA HV WASTE CHARACTERIZATION 1891614.05452

SAMPLED: 07/01/09

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THE LEADER IN ENVIRONMENTAL TESTING

CASE NARRATIVE

Client: Project: Lab:	The Boeir ISRA HV 1891614.0 ISG0118	ig Company-SSFL Date Sampled: 7/1/2009 Waste Characterization Date Received: 7/1/2009 05452				
Sample F	RECEIPT:	Samples were received intact, documentation. The sample te receipt at the laboratory.	on ice, and with cha mperature was mea	ain of custody asured at 2.7º C upon		
HOLDING	TIMES:	All samples were analyzed wit accordance with the TestAme otherwise noted in the report.	hin prescribed holdi rica Sample Accepta	ng times and/or in ance Policy unless		
PROBLEM ENCOUNT	IS TERED:	No problems were encountere	d during sample and	alysis.		
QA/QC CR	ITERIA:	Copper and Zinc were detected	d in the Method Bla	nk of batch 9G06062.		
		The MS and/or MSD recoverie limits due to sample matrix inte 9G06062. See LCS.	erference for EPA 6	e below acceptance 010B QC batch		
OBSERVA	TIONS:	Results that fall between the M	IDL and RL are 'J' fl	agged.		
SUBCONT	RACTED:	SW846 7471A analysis was p CO.	erformed at TestAm	erica, Inc. – Denver,		

TestAmerica Irvir Joseph Doak

Project Manager

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

<u>TestAmerica</u>

THE LEADER IN ENVIRONMENTAL TESTING

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LABORATORY REPORT

Prepared For: The Boeing Company-SSFL 5800 Woolsey Canyon Road Canoga Park, CA 91304-1148 Attention: Tom Venable

Project: ISRA HV Waste Characterization 1891614.05452

Sampled: 07/01/09 Received: 07/01/09 Issued: 07/28/09 12:41

NELAP #01108CA California ELAP#2706 CSDLAC #10256 AZ #AZ0671 NV #CA01531

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica. The Chain of Custody, 1 page, is included and

is an integral part of this report.

This entire report was reviewed and approved for release.

SAMPLE CROSS REFERENCE

SUBCONTRACTED: Re

Refer to the last page for specific subcontract laboratory information included in this report.

ADDITIONAL INFORMATION:

INFORMATION:

This is an ameneded report to include only samples to be reported per the client's request. Samples to be reported are: ISG0118-01, -02, -03, -05, -06, -07, -08.

LABORATORY ID	CLIENT ID	MATRIX
ISG0118-01	HZBS0158S001	Soil
ISG0118-02	HZBS0159S001	Soil
ISG0118-03	HZBS0160S001	Soil
ISG0118-05	HZBS0161S001	Soil
ISG0118-06	HZBS0162S001	Soil
ISG0118-07	HZBS0163S001	Soil
ISG0118-08	HZBS0164S001	Soil

Reviewed By:

Jour Dock

TestAmerica Irvine Joseph Doak Project Manager

ISG0118 <Page 1 of 11>



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: ISG0118

Prepared by

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

I. INTRODUCTION

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Table 1. Sample Identification

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
HZBS0158S001	ISG0118-01	N/A	Soil	7/1/2009 12:10:00 PM	6010B, 7471A
HZBS0159S001	ISG0118-02	N/A	Soil	7/1/2009 12:20:00 PM	6010B, 7471A
HZBS0160S001	ISG0118-03	N/A	Soil	7/1/2009 12:30:00 PM	6010B, 7471A
HZBS0161S001	ISG0118-05	N/A	Soil	7/1/2009 12:00:00 PM	6010B, 7471A
HZBS0162S001	ISG0118-06	N/A	Soil	7/1/2009 1:00:00 PM	6010B, 7471A
HZBS0163S001	ISG0118-07	N/A	Soil	7/1/2009 12:50:00 PM	6010B, 7471A
HZBS0164S001	ISG0118-08	N/A	Soil	7/1/2009 12:40:00 PM	6010B, 7471A

II. Sample Management

No anomalies were observed regarding sample management. The samples in this SDG were received at TestAmerica-Irvine within the temperature limits of $4^{\circ}C \pm 2^{\circ}C$ but received at TestAmerica-Denver below the control limit. As the samples were not noted to be frozen or damaged, no qualifications were required. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were appropriately signed and dated by field and/or laboratory personnel. Custody seals were intact. All sample IDs were changed as per an email from MWH personnel. If necessary, the client ID was added to the sample result summary by the reviewer.

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
Ν	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

Data Qualifier Reference Table

Revision 1

T-II	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a class of compound but not of sufficient identification quality to represent a specific compound.	Not applicable
T- III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

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.
Ι	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
Μ	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

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.
Ρ	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*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 indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. EPA METHODS 6010B & 7470A/7471A—Metals and Mercury

Reviewed By: P. Meeks Date Reviewed: August 10, 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 Methods 6010B, 7470A/7471A, and the National Functional Guidelines for Inorganic Data Review (7/02).

- Holding Times: Analytical holding times, six months for ICP metals and 28 days for mercury, were met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks and CCBs had no applicable detects.
- Interference Check Samples: Review is not applicable at a Level V validation.
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratoryestablished QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on HZBS0158S001 for mercury only. The MS recovery was below the control limit; therefore, mercury detected in the samples was qualified as estimated, "J." The remaining recovery and RPD were within laboratory-established QC limits. Method accuracy for the remaining analytes was evaluated based on LCS results
- Serial Dilution: No serial dilution analyses were performed.
- 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: This SDG had no identified field blank or equipment rinsate samples.
 - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: ISG0118

Analysis Metho	d 6010B						
Sample Name	HZBS0158S001 ISG0118-01	Matrix Type: Soil			Result Type: Primary		
Lab Sample Name:		Sample 7/1		1/2009 12:10:00 PM	Validation		V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Antimony	7440360	0.98	11	0.98 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Arsenic	7440382	3	2	0.91 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID-ISWC0025S001
Barium	7440393	98	1	0.9 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0025S001
Beryllium	7440417	0.55	0.6	0.2 mg/kg	J	1	\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Cadmium	7440439	0.2	0.6	0.2 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Chromium	7440473	13	1	0.3 mg/kg			 S w C0225001 Result, RL and MDL were adjusted for % moisture. Original Sample
Cobalt	7440484	5.5	1	0.3 mg/kg			MD=IS wC0025S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample
Copper	7440508	12	2	0.42 mg/kg			ID=ISWC0025S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample
Lead	7439921	12	2	0.4 mg/kg			ID=ISWC0025S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample
Molybdenum	7439987	0.93	2	0.2 mg/kg	J	J	MD=IS wC00255001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC00255001
Nickel	7440020	9.4	2	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0025S001

Page **1** of **16**

Analysis Method	6010B							
Selenium	7782492	1	2	1	mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Silver	7440224	0.9	1	0.9	mg/kg	U	U	ID=ISWC0025S001 \$, Result, RL and
								MDL were adjusted for % moisture. Original Sample ID=ISWC0025S001
Thallium	7440280	0.9	11	0.9	mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Vanadium	7440622	31	1	0.3	mg/kg			ID=ISWC0025S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample
Zinc	7440666	60	6	0.84	mg/kg			ID=ISWC0025S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0025S001

Analysis Method 6010B

Sample Name	HZBS0159S001	Ν	Matrix T	ype: Soil	Result Type: Primary		
Lab Sample Name:	ISG0118-02	Sample 7/1/2009 12:20:00 PM			Validation V		
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Antimony	7440360	1	11	1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0026S001
Arsenic	7440382	5	2	0.92 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0026S001
Barium	7440393	68	1	0.9 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0026S001
Beryllium	7440417	0.63	0.6	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0026S001
Cadmium	7440439	0.2	0.6	0.2 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0026S001
Chromium	7440473	13	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0026S001
Cobalt	7440484	4.9	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0026S001
Copper	7440508	8.9	2	0.43 mg/kg	В		\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0026S001
Lead	7439921	11	2	0.5 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0026S001
Molybdenum	7439987	0.81	2	0.2 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0026S001
Nickel	7440020	9.2	2	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0026S001
Analysis Method	6010B						
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Selenium	7782492	1	2	1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Silver	7440224	2.6	1	0.9 mg/kg			MD=15 wC0026S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=15WC0026S001
Thallium	7440280	0.9	11	0.9 mg/kg	U	U	 S, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0026S001
Vanadium	7440622	24	1	0.3 mg/kg			 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0026S001
Zinc	7440666	43	6	0.86 mg/kg			 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0026S001

Analysis Method 6010B

Sample Name	HZBS0160S001	Ν	Matrix T	ype: Soil	Result Type: Primary			
Lab Sample Name:	ISG0118-03	Sample	7/	1/2009 12:30:00 PM	V	alidation	V	
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes	
Antimony	7440360	0.98	11	0.98 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0027S001	
Arsenic	7440382	4	2	0.9 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0027S001	
Barium	7440393	69	1	0.9 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0027S001	
Beryllium	7440417	0.71	0.6	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0027S001	
Cadmium	7440439	0.2	0.6	0.2 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0027S001	
Chromium	7440473	14	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0027S001	
Cobalt	7440484	4.7	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0027S001	
Copper	7440508	9.3	2	0.42 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0027S001	
Lead	7439921	37	2	0.4 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0027S001	
Molybdenum	7439987	0.81	2	0.2 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0027S001	
Nickel	7440020	11	2	0.22 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0027S001	

Analysis Method	6010B						
Selenium	7782492	1	2	1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Silver	7440224	0.9	1	0.9 mg/kg	U	U	 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0027S001
Thallium	7440280	0.9	11	0.9 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0027S001
Vanadium	7440622	27	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0027S001
Zinc	7440666	43	6	0.84 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0027S001

Analysis Method 6010B

Sample Name	HZBS0161S001	Ν	Matrix T	ype: Soil	Result Type: Primary			
Lab Sample Name:	ISG0118-05	Sample	7/	1/2009 12:00:00 PM	V	alidation	V	
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes	
Antimony	7440360	0.93	11	0.93 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0029S001	
Arsenic	7440382	4.1	2	0.9 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0029S001	
Barium	7440393	48	1	0.8 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0029S001	
Beryllium	7440417	0.68	0.5	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0029S001	
Cadmium	7440439	0.2	0.5	0.2 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0029S001	
Chromium	7440473	13	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0029S001	
Cobalt	7440484	3.9	1	0.32 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0029S001	
Copper	7440508	4.5	2	0.4 mg/kg	В		\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0029S001	
Lead	7439921	4.5	2	0.42 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0029S001	
Molybdenum	7439987	0.61	2	0.2 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0029S001	
Nickel	7440020	6.2	2	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0029S001	

Analysis Method	6010B						
Selenium	7782492	1	2	1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Silver	7440224	0.8	1	0.8 mg/kg	U	U	ID=ISWC0029S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0029S001
Thallium	7440280	1.1	11	0.8 mg/kg	J	J	 S, Result, RL and MDL were adjusted for % moisture. Original Sample ID=SWC0020S001
Vanadium	7440622	22	1	0.3 mg/kg			 hD=15 wC00293001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0029S001
Zinc	7440666	36	5	0.8 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample

Original Sample ID=ISWC0029S001

Analysis Method 6010B

Sample Name	HZBS0162S001	Ν	Aatrix T	ype: Soil	Result Type: Primary			
Lab Sample Name:	ISG0118-06	Sample	7/1	1/2009 1:00:00 PM	V	alidation	V	
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes	
Antimony	7440360	1.1	12	1.1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample	
Arsenic	7440382	4.2	2.4	0.99 mg/kg			 MDL were adjusted for % moisture. Original Sample DD-ISWC0030S001 	
Barium	7440393	46	1	1 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0030S001	
Beryllium	7440417	0.53	0.6	0.2 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0030S001	
Cadmium	7440439	0.2	0.6	0.2 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0030S001	
Chromium	7440473	13	1	0.4 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0030S001	
Cobalt	7440484	3.2	1	0.4 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID-ISWC0030S001	
Copper	7440508	6.4	2	0.46 mg/kg	В		\$, Result, RL and MDL were adjusted for % moisture. Original Sample	
Lead	7439921	7.1	2	0.5 mg/kg			 Result, RL and MDL were adjusted for % moisture. Original Sample Disconnection 	
Molybdenum	7439987	0.81	2	0.2 mg/kg	J	J	AD=15 WC00305001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample	
Nickel	7440020	7.9	2	0.2 mg/kg			 Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0030S001 	

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Analysis Method	6010B						
Selenium	7782492	1	2	1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample UN UNICOCCOCCOMMENT Not NUCCOCCOMMENT Not NUCCOCCOCCOMMENT NOT NUCCOCCOMMENT NOT NUCCOCCOMMENT NOT NUCCOCCOMMENT NOT NUCCOCCOMMENT NOT NUCCOCCOMMENT NOT NUCCOCCOMMENT NOT NUCCOCCOMMENT NOT NUCCOCCOCCOCCOMMENT NOT NUCCOCCOCCOCCOCCOMMENT NOT NUCCOCCOCCOCCOCCOCCOCCOCCOCCOCCOCCOCCOCCO
Silver	7440224	1	1	1 mg/kg	U	U	 D=IS WC0030S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=IS WC0030S001
Thallium	7440280	1	12	1 mg/kg	J	1	 Result, RL and MDL were adjusted for % moisture. Original Sample ID-ISWC0030S001
Vanadium	7440622	22	1	0.4 mg/kg			 \$, Result, \$, Result, \$RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0030S001
Zinc	7440666	43	6	0.92 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original

Sample ID=ISWC0030S001

Analysis Method 6010B

Sample Name	HZBS0163S001	Ν	latrix T	ype: Soil	Result Type: Prin		imary
Lab Sample Name:	ISG0118-07	Sample	7/	1/2009 12:50:00 PM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Antimony	7440360	0.9	10	0.9 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0031 S001
Arsenic	7440382	3.9	2	0.83 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0031 S001
Barium	7440393	49	1	0.8 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0031S001
Beryllium	7440417	0.56	0.5	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0031S001
Cadmium	7440439	0.2	0.5	0.2 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0031S001
Chromium	7440473	14	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0031S001
Cobalt	7440484	4	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0031S001
Copper	7440508	5.6	2	0.39 mg/kg	В		\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0031S001
Lead	7439921	5.5	2	0.4 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0031S001
Molybdenum	7439987	0.6	2	0.2 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0031S001
Nickel	7440020	8.1	2	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0031S001

Analysis Method	6010B						
Selenium	7782492	1	2	1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0031S001
Silver	7440224	0.8	1	0.8 mg/kg	U	U	 S. Result, RL and MDL were adjusted for % moisture. Original Sample
Thallium	7440280	0.97	10	0.8 mg/kg	J	J	 S. Result, RL and MDL were adjusted for % moisture. Original Sample ID-ISWC00315001
Vanadium	7440622	23	1	0.3 mg/kg			 Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0031S001
Zinc	7440666	42	5	0.77 mg/kg			 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0031S001

Analysis Method 6010B

Sample Name	HZBS0164S001	Ν	latrix T	ype: Soil	Rest	ult Type: Pr	imary
Lab Sample Name:	ISG0118-08	Sample	7/3	1/2009 12:40:00 PM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Antimony	7440360	0.91	10	0.91 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Arsenic	7440382	3.7	2	0.84 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Barium	7440393	80	1	0.8 mg/kg			 A. Result, RL and MDL were adjusted for % moisture. Original Sample DE JSWC00225001
Beryllium	7440417	0.68	0.5	0.2 mg/kg			 M = IS WC00323001 S, Result, RL and MDL were adjusted for % moisture. Original Sample DE JSWC00226001
Cadmium	7440439	0.2	0.5	0.2 mg/kg	U	U	 MD=15 WC00325001 Result, RL and MDL were adjusted for % moisture. Original Sample DD=15WC002325001
Chromium	7440473	13	1	0.3 mg/kg			 A. Result, RL and MDL were adjusted for % moisture. Original Sample D-JSWC00225001
Cobalt	7440484	4	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Copper	7440508	7.3	2	0.39 mg/kg	В		 A. S. WC00325001 S. Result, RL and MDL were adjusted for % moisture. Original Sample ID-ISWC00325001
Lead	7439921	5.4	2	0.4 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0032S001
Molybdenum	7439987	0.74	2	0.2 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0032S001
Nickel	7440020	10	2	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture.

Analysis Method	6010B						
Selenium	7782492	1	2	1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID-ISWC0032S001
Silver	7440224	0.8	1	0.8 mg/kg	U	U	 R. Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0032S001
Thallium	7440280	0.8	10	0.8 mg/kg	U	U	 S, Result, RL and MDL were adjusted for % moisture. Original Sample ID-EWC00225001
Vanadium	7440622	23	1	0.3 mg/kg			 ND=15 wC00525001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC00325001
Zinc	7440666	38	5	0.77 mg/kg			 N=15 w C00525001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0032S001

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Sample Name	HZBS0158S001		Matrix T	ype: Soil	Rest	ult Type: Pr	imary
Lab Sample Name:	ISG0118-01	Sample	7/	1/2009 12:10:00 PM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.018	0.037	0.0061 mg/kg	J	J	\$, Q, Result, RL and MDL Adjusted for % moisture. Original Sample ID=ISWC0025S001
Sample Name	HZBS0159S001		Matrix T	ype: Soil	Rest	ult Type: Pr	imary
Lab Sample Name:	ISG0118-02	Sample	7/	1/2009 12:20:00 PM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.016	0.038	0.0063 mg/kg	J	J	\$, Q, Result, RL and MDL adjusted for % moisture. Original Sample ID=ISWC0026S001
Sample Name	HZBS0160S001		Matrix T	ype: Soil	Rest	ult Type: Pr	imary
Lab Sample Name:	ISG0118-03	Sample	7/	1/2009 12:30:00 PM	١	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.021	0.037	0.0061 mg/kg	J	J	\$, Q, Result, RL and MDL adjusted for % moisture. Original Sample ID=ISWC0027S001
Sample Name	HZBS0161S001		Matrix T	ype: Soil	Rest	ult Type: Pr	imary
Lab Sample Name:	ISG0118-05	Sample	7/	1/2009 12:00:00 PM	v	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.012	0.035	0.0058 mg/kg	J	J	\$, Q, Result, RL and MDL adjusted for % moisture. Original Sample ID=ISWC0029S001
Sample Name	HZBS0162S001		Matrix T	ype: Soil	Rest	ult Type: Pr	imary
Lab Sample Name:	ISG0118-06	Sample	7/	1/2009 1:00:00 PM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.011	0.04	0.0067 mg/kg	J	J	\$, Q, Result, RL and MDL adjusted for % moisture. Original Sample ID=ISWC0030S001

Analysis Method 7471A

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Analysis Method

7471A

Sample Name	HZBS0163S001	Ν	latrix T	ype: Soil	Resu	ilt Type: Pri	imary
Lab Sample Name:	ISG0118-07	Sample	7/1	/2009 12:50:00 PM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.012	0.034	0.0056 mg/kg	J	J	\$, Q, Result, RL and MDL adjusted for % moisture. Original Sample ID=ISWC0031S001
Sample Name	HZBS0164S001	Ν	Iatrix T	ype: Soil	Resu	ilt Type: Pri	imary
Lab Sample Name:	ISG0118-08	Sample	7/1	/2009 12:40:00 PM	v	alidation	V
Analyte	CAS No	Result	RL	MDL Result	Lah	Validation	Validation
		Value			Qualifier	vandation	Notes



QA/QC PACKAGE: LEVEL IV PREPARED FOR: THE BOEING COMPANY SSFL LABORATORY NUMBER: ISG0119 PROJECT: ISRA HV WASTE CHARACTERIZATION 1891614.05452

CHAIN OF CUSTODY FORM

17461 Derian Avenue, Ste. 100 Irvine, CA 92614 tel 949.261.1022 fax 949.260.3297 www.testamericainc.com

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Preservation Usedi (= ice) 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other Possible Hazard If Flammable Skin irritant Poison B Unknown Inchnown Special Instructions/OC Requirements & Comments: Run STLC (WET) / TCLP If TTLC results 2 10x STLC / 20x TC		/
Preservation Used: (= ice) 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other Possible Hazard Ident(Fration 0 Image: Distribution Image: Distructions/QC Requirements & Comments: Run STLC (WET) / TCLP If TTLC results 2 10x STLC / 20x TC		le-1-th and
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Possible Hazard Identification Non-Hazard		
Special Instructions/QC Requirements & Comments: Run STLC (WET) / TCLP If TTLC results 2 10x STLC / 20x TC	Sample Disposal (A fee may be assessed if samples are retained long Realized for Disposal By Lab Te Archive For	inger than 1 month) or Go Months
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QA/QC PACKAGE: LEVEL IV PREPARED FOR: THE BOEING COMPANY SSFL LABORATORY NUMBER: ISG0119 PROJECT: ISRA HV WASTE CHARACTERIZATION 1891614.05452

SAMPLED: 07/01/09

17461 Derian Avenue, Ste. 100 Irvine, CA 92614 tel 949.261.1022 fax 949.260.3297 www.testamericainc.com



THE LEADER IN ENVIRONMENTAL TESTING

CASE NARRATIVE

Client: Project: Lab:	The Boeir ISRA HV 1891614.0 ISG0119	ng Company-SSFL Waste Characterization 05452	Date Sampled: Date Received:	7/1/2009 7/1/2009				
SAMPLE F	RECEIPT:	Samples were received intact, custody documentation. The s upon receipt at the laboratory.	on ice, with custody ample temperature	y seals and chain of was measured at 2.7º C				
HOLDING	TIMES:	All samples were analyzed wit accordance with the TestAme otherwise noted in the report.	I samples were analyzed within prescribed holding times and/or in cordance with the TestAmerica Sample Acceptance Policy unless herwise noted in the report.					
PROBLEM ENCOUNT	IS TERED:	No problems were encountere	d during sample an	alysis.				
QA/QC CF	RITERIA:	Selenium and Zinc were detect	ted in the Method B	lank of batch 9G06075.				
		The MS and/or MSD recoverie limits due to sample matrix inte 9G06075. See LCS.	MS and/or MSD recoveries for Antimony were below acceptance ts due to sample matrix interference for EPA 6010B QC batch 06075. See LCS.					
OBSERVA	TIONS:	Results that fall between the M	/IDL and RL are 'J' f	lagged.				
SUBCONT	RACTED:	SW846 7471A analysis was p CO.	46 7471A analysis was performed at TestAmerica, Inc Denver,					

TestAmerica Invine Joseph Doak

Project Manager

Page 1

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THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica

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

LABORATORY REPORT

Prepared For: The Boeing Company-SSFL 5800 Woolsey Canyon Road Canoga Park, CA 91304-1148 Attention: Tom Venable Project: ISRA HV Waste Characterization 1891614.05452

Sampled: 07/01/09 Received: 07/01/09 Issued: 07/28/09 12:49

NELAP #01108CA California ELAP#2706 CSDLAC #10256 AZ #AZ0671 NV #CA01531

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica. The Chain of Custody, 1 page, is included and

is an integral part of this report.

This entire report was reviewed and approved for release.

SAMPLE CROSS REFERENCE

SUBCONTRACTED: Refer to the last page for specific subcontract laboratory information included in this report.

ADDITIONAL

INFORMATION:

This is an amended report to only include samples to be reported per the client's request. Samples to be included are ISG0119-07, -08.

LABORATORY ID ISG0119-07 ISG0119-08

CLIENT ID HZBS0152S001 HZBS0153S001 MATRIX Soil Soil

Reviewed By:

Jour Dal

TestAmerica Irvine Joseph Doak Project Manager



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: ISG0119

Prepared by

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

I. INTRODUCTION

Task Order Title:	Boeing SSFL RFI ISRA
Contract Task Order:	1261.500D.00
Sample Delivery Group:	ISG0119
Project Manager:	Dixie Hambrick
Matrix:	soil
QC Level:	V
No. of Samples:	2
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica

Table 1. Sample Identification

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
HZBS0152S001	ISG0119-07	N/A	Soil	7/1/2009 10:48:00 AM	6010B, 7471A
HZBS0153S001	ISG0119-08	N/A	Soil	7/1/2009 11:01:00 AM	6010B, 7471A

II. Sample Management

No anomalies were observed regarding sample management. The samples in this SDG were received at TestAmerica-Irvine within the temperature limits of $4^{\circ}C \pm 2^{\circ}C$ but received at TestAmerica-Denver below the control limit. As the samples were not noted to be frozen or damaged, no qualifications were required. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were appropriately signed and dated by field and/or laboratory personnel. Custody seals were intact. All sample IDs were changed as per an email from MWH personnel. If necessary, the client ID was added to the sample result summary by the reviewer.

Qualifie	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
Ν	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

Data Qualifier Reference Table

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
Т- III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified

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.
Ι	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
А	Not applicable.	ICP Serial Dilution %D were not within control limits.
Μ	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

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.
Ρ	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*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 indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. EPA METHODS 6010B & 7470A/7471A—Metals and Mercury

Reviewed By: P. Meeks Date Reviewed: August 10, 2009

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

- Holding Times: Analytical holding times, six months for ICP metals and 28 days for mercury, were met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks and CCBs had no applicable detects.
- Interference Check Samples: Review is not applicable at a Level V validation.
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratoryestablished QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on a sample from this SDG. Method accuracy was evaluated based on LCS results.
- Serial Dilution: No serial dilution analyses were performed.
- 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: This SDG had no identified field blank or equipment rinsate samples.
- Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: ISG0119 Analysis Method 6010B

Analysis Metho	oa 0010B						
Sample Name	HZBS0152S001	I	Matrix Ty	pe: Soil	Res	ult Type: Pr	imary
Lab Sample Name:	ISG0119-07	Sample	7/1/	2009 10:48:00 AM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Antimony	7440360	0.91	10	0.91 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original sample ID- ISWC0007
Arsenic	7440382	5.9	2	0.84 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original sample ID= ISWC0007
Barium	7440393	66	1	0.8 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original sample ID= ISWC0007
Beryllium	7440417	0.7	0.5	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original sample ID= ISWC0007
Cadmium	7440439	0.2	0.5	0.2 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original sample ID= ISWC0007
Chromium	7440473	18	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original sample
Cobalt	7440484	4.7	1	0.3 mg/kg			 SWC0007 Result, RL and MDL were adjusted for % moisture. Original sample
Copper	7440508	7.8	2	0.39 mg/kg			ID= ISWC0007 \$, Result, RL and MDL were adjusted for % moisture. Original sample
Lead	7439921	4.6	2	0.4 mg/kg			ID= ISWC0007 \$, Result, RL and MDL were adjusted for % moisture. Original sample
Molybdenum	7439987	0.9	2	0.2 mg/kg	J	J	ID= ISWC0007 \$, Result, RL and MDL were adjusted for % moisture. Original sample
Nickel	7440020	12	2	0.2 mg/kg			ID= ISWC0007 \$, Result, RL and MDL were adjusted for % moisture. Original sample

Page 1 of 5

ID= ISWC0007

Analysis Method	6010B						
Selenium	7782492	1	2	1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original sample ID= ISWC0007
Silver	7440224	0.8	1	0.8 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original sample ID= ISWC0007
Thallium	7440280	0.8	10	0.8 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original sample
Vanadium	7440622	27	1	0.3 mg/kg			 L) = IS WC0007 \$, Result, RL and MDL were adjusted for % moisture. Original sample D) = ISWC0007
Zinc	7440666	49	5	0.78 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original

sample ID= ISWC0007

Analysis Method 6010B

Sample Name	HZBS0153S001	Ν	Aatrix T	ype: Soil	Res	ult Type: Pr	Primary		
Lab Sample Name:	ISG0119-08	Sample	7/3	1/2009 11:01:00 AM	V	alidation	V		
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes		
Antimony	7440360	0.91	10	0.91 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0008S001		
Arsenic	7440382	7.1	2	0.83 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0008S001		
Barium	7440393	76	1	0.8 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample		
Beryllium	7440417	2	0.5	0.2 mg/kg			 S w Colossion Result, RL and MDL were adjusted for % moisture. Original Sample 		
Cadmium	7440439	0.4	0.5	0.2 mg/kg	J	J	ID=ISWC0008S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0008S001		
Chromium	7440473	20	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample		
Cobalt	7440484	5	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0008S001		
Copper	7440508	9.8	2	0.39 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0008S001		
Lead	7439921	9	2	0.4 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0008S001		
Molybdenum	7439987	0.95	2	0.2 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0008S001		
Nickel	7440020	13	2	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0008S001		

Analysis Method	6010B						
Selenium	7782492	1	2	1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Silver	7440224	0.8	1	0.8 mg/kg	U	U	 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0008S001
Thallium	7440280	0.8	10	0.8 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0008S001
Vanadium	7440622	32	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0008S001
Zinc	7440666	59	5	0.77 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0008S001

Sample Name Lab Sample Name:	HZBS0152S001 ISG0119-07] Sample	Matrix T	' ype: Soil 1/2009 10:48:00 AM	Res	ult Type: Pr. Validation	imary V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.0087	0.034	0.0057 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original sample ID= ISWC0007
Sample Name	HZBS0153S001]	Matrix T	ype: Soil	Res	ult Type: Pr	imary
Lab Sample Name:	ISG0119-08	Sample	7/	1/2009 11:01:00 AM	, v	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.02	0.034	0.0057 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0008S001

Analysis Method 7471A



QA/QC PACKAGE: LEVEL IV PREPARED FOR: THE BOEING COMPANY SSFL LABORATORY NUMBER: ISG0121 PROJECT: ISRA HV WASTE CHARACTERIZATION 1891614.05452

CHAIN OF CUSTODY FORM

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Construction Addition from the field of the	e Boeing Company SSFL	Tel/Fax: 818-466-8779 /818-466-4873 Lab Conta	act: Joe Doak Carrier: Control	•f cocs
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QA/QC PACKAGE: LEVEL IV PREPARED FOR: THE BOEING COMPANY SSFL LABORATORY NUMBER: ISG0121 PROJECT: ISRA HV WASTE CHARACTERIZATION 1891614.05452

SAMPLED: 07/01/09

17461 Derian Avenue, Ste. 100 Irvine, CA 92614 tel 949.261.1022 fax 949.260.3297 www.testamericainc.com

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

CASE NARRATIVE

Client:	The Boein	ig Company-SSFL	Date Sampled:	7/1/2009
Project:	ISRA HV Waste Characterization 1891614.05452		Date Received:	7/1/2009
Lab:	ISG0121			· ·
SAMPLE F	ECEIPT:	Samples were received intact, documentation. The sample te receipt at the laboratory.	on ice, and with cha mperature was mea	ain of custody Isured at 2.7º C upon
HOLDING	DLDING TIMES: All samples were analyzed within prescribed holding times and/or i accordance with the TestAmerica Sample Acceptance Policy unles otherwise noted in the report.			ng times and/or in ance Policy unless
PROBLEMS ENCOUNTERED: No problems were encountered during sample analysis.				alysis.
QA/QC CRITERIA: The MS and/or MSD recoveries for Antimony were below accep limits due to sample matrix interference for EPA 6010B QC bate 9G06076. See LCS.			e below acceptance 010B QC batch	
OBSERVA	TIONS:	IONS: Results that fall between the MDL and RL are 'J' flagged.		
SUBCONTRACTED: SW846 7471A analysis was performed at TestAmerica, Inc. – De CA.			erica, Inc. – Denver,	

TestAmerica loving Joseph Doak **Project Manager**

TA

Page 1

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

<u>TestAmerica</u>

THE LEADER IN ENVIRONMENTAL TESTING

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

LABORATORY REPORT

Prepared For: The Boeing Company-SSFL 5800 Woolsey Canyon Road Canoga Park, CA 91304-1148 Attention: Tom Venable

Project: ISRA HV Waste Characterization 1891614.05452

Sampled: 07/01/09 Received: 07/01/09 Issued: 07/28/09 12:57

NELAP #01108CA California ELAP#2706 CSDLAC #10256 AZ #AZ0671 NV #CA01531

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica. The Chain of Custody, 1 page, is included and

is an integral part of this report.

This entire report was reviewed and approved for release.

SAMPLE CROSS REFERENCE

SUBCONTRACTED: Refer to the last page for specific subcontract laboratory information included in this report.

ADDITIONAL

INFORMATION:

This is an amended report which includes all samples for this work order.

LABORATORY ID	CLIENT ID	MATRIX
ISG0121-01	HZBS0165S001	Soil
ISG0121-02	HZBS0166S001	Soil
ISG0121-03	HZBS0167S001	Soil
ISG0121-04	HZBS0171S001	Soil
ISG0121-05	HZBS0168S001	Soil
ISG0121-06	HZBS0169S001	Soil
ISG0121-07	HZBS0170S001	Soil
ISG0121-08	HZBS0172S001	Soil
	•	

Reviewed By:

Joseph Doch

TestAmerica Irvine Joseph Doak Project Manager

ISG0121 <Page 1 of 11>


DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: ISG0121

Prepared by

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

I. INTRODUCTION

Task Order Title:	Boeing SSFL RFI ISRA
Contract Task Order:	1261.500D.00
Sample Delivery Group:	ISG0121
Project Manager:	Dixie Hambrick
Matrix:	soil
QC Level:	V
No. of Samples:	8
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica

Table 1. Sample Identification

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
HZBS0165S001	ISG0121-01	N/A	Soil	7/1/2009 8:53:00 AM	6010B, 7471A
HZBS0166S001	ISG0121-02	N/A	Soil	7/1/2009 9:04:00 AM	6010B, 7471A
HZBS0167S001	ISG0121-03	N/A	Soil	7/1/2009 9:22:00 AM	6010B, 7471A
HZBS0169S001	ISG0121-05	N/A	Soil	7/1/2009 9:53:00 AM	6010B, 7471A
HZBS0170S001	ISG0121-06	N/A	Soil	7/1/2009 10:01:00 AM	6010B, 7471A
HZBS0171S001	ISG0121-07	N/A	Soil	7/1/2009 10:16:00 AM	6010B, 7471A
HZBS0168S001	ISG0121-04	N/A	Soil	7/1/2009 9:35:00 AM	6010B, 7471A
HZBS0172S001	ISG0121-08	N/A	Soil	7/1/2009 10:28:00 AM	6010B, 7471A

II. Sample Management

No anomalies were observed regarding sample management. The samples in this SDG were received at TestAmerica-Irvine within the temperature limits of $4^{\circ}C \pm 2^{\circ}C$ but received at TestAmerica-Denver below the control limit. As the samples were not noted to be frozen or damaged, no qualifications were required. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were appropriately signed and dated by field and/or laboratory personnel. Custody seals were intact. All sample IDs were changed as per an email from MWH personnel. If necessary, the client ID was added to the sample result summary by the reviewer.

Qualifie	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
Ν	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

Data Qualifier Reference Table

T-II	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a class of compound but not of sufficient identification quality to represent a specific compound.	Not applicable
T- III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified

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.
Ι	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
А	Not applicable.	ICP Serial Dilution %D were not within control limits.
Μ	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

*

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.
Ρ	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
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 indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. EPA METHODS 6010B & 7470A/7471A—Metals and Mercury

Reviewed By: P. Meeks Date Reviewed: August 10, 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 Methods 6010B, 7470A/7471A, and the National Functional Guidelines for Inorganic Data Review (7/02).

- Holding Times: Analytical holding times, six months for ICP metals and 28 days for mercury, were met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Method blanks and CCBs had no applicable detects.
- Interference Check Samples: Review is not applicable at a Level V validation.
- Blank Spikes and Laboratory Control Samples: Recoveries were within laboratoryestablished QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on HZBS0165S001. The antimony MS recovery was below 30% and the MSD recovery was below the control limit but above 30%. As the average recovery was marginally above 30%, nondetected antimony in the samples was qualified as estimated, "UJ." All remaining recoveries and all RPDs were within laboratory-established QC limits.
- Serial Dilution: No serial dilution analyses were performed.
- 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: This SDG had no identified field blank or equipment rinsate samples.
 - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: ISG0121

Analysis Metho	od 6010 B							
Sample Name HZBS0165S001		I	Matrix T	ype: Soil	Result Type: Primary			
Lab Sample Name:	ISG0121-01	Sample	7/	1/2009 8:53:00 AM	۲	alidation	V	
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes	
Antimony	7440360	0.99	11	0.99 mg/kg	U,M2	UJ	\$, Q, Result, RL and MDL adjusted for % moisture. Original Sample ID=ISWC0033S001	
Arsenic	7440382	4.0	2	0.91 mg/kg			MDL were adjusted for % moisture. Original Sample ID=ISWC0033S001	
Barium	7440393	83	1	0.9 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0033S001	
Beryllium	7440417	0.72	0.6	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample	
Cadmium	7440439	0.2	0.6	0.2 mg/kg	U	U	 B. Result, RL and MDL were adjusted for % moisture. Original Sample 	
Chromium	7440473	26	1	0.3 mg/kg			ID=ISWC0033S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample	
Cobalt	7440484	8	1	0.3 mg/kg			ID=ISWC0033S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample	
Copper	7440508	15	2	0.43 mg/kg			ID=ISWC0033S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample	
Lead	7439921	7.8	2	0.4 mg/kg			 MD=ISWC0033S001 Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0033S001 	
Molybdenum	7439987	0.93	2	0.2 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0033S001	
Nickel	7440020	16	2	0.2 mg/kg			\$, Result, RL and MDL were adjusted	

for % moisture. Original Sample ID=ISWC0033S001

Page **1** of **18**

Selenium	7782492	1	2	1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0033S001
Silver	7440224	0.9	1	0.9 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0033S001
Thallium	7440280	0.9	11	0.9 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample DPJSWC0033S001
Vanadium	7440622	45	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0033S001
Zinc	7440666	64	6	0.84 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0033S001

Sample Name	ample NameHZBS0166S001Matrix Type:Soil		Result Type: Primary				
Lab Sample Name:	e Name: ISG0121-02 Sample 7/1/2009 9:04:00 AM		1/2009 9:04:00 AM	Validation V			
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Antimony	7440360	0.94	11	0.94 mg/kg	U	UJ	\$, Q, Result, RL and MDL adjusted for % moisture. Original Sample ID=ISWC0034S001
Arsenic	7440382	5.6	2	0.87 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0034S001
Barium	7440393	85	1	0.9 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0034S001
Beryllium	7440417	0.73	0.5	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID-ISWC0034S001
Cadmium	7440439	0.2	0.5	0.2 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Chromium	7440473	25	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Cobalt	7440484	8	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Copper	7440508	15	2	0.41 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Lead	7439921	7.9	2	0.4 mg/kg			 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0034S001
Molybdenum	7439987	1.1	2.1	0.2 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0034S001
Nickel	7440020	16	2	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0034S001

Analysis Method	6010B						
Selenium	7782492	1	2	1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Silver	7440224	0.9	1	0.9 mg/kg	U	U	 % Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0034S001
Thallium	7440280	1.2	11	0.9 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0034S001
Vanadium	7440622	43	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0034S001
Zinc	7440666	64	5	0.8 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original

Original Sample ID=ISWC0 034S001

Sample Name	HZBS0167S001	Matrix Type: Soil			Result Type: Primary			
Lab Sample Name:	ISG0121-03	Sample 7/1/2009 9:22:00 AM			•	V		
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes	
Antimony	7440360	0.98	11	0.98 mg/kg	U	UJ	\$, Q, Result, RL and MDL adjusted for % moisture. Original Sample ID-ISWC0035S001	
Arsenic	7440382	4.8	2	0.9 mg/kg			 \$, Result, RL and MDL were adjusted for % moisture. Original Sample UD=ISWC0035S001 	
Barium	7440393	85	1	0.9 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID-ISWC00355001	
Beryllium	7440417	0.73	0.6	0.2 mg/kg			 \$, Result, RL and MDL were adjusted for % moisture. Original Sample D-TSWC0035S001 	
Cadmium	7440439	0.2	0.6	0.2 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0035S001	
Chromium	7440473	26	1	0.3 mg/kg	ŗ		\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0035S001	
Cobalt	7440484	8.5	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0035S001	
Copper	7440508	15	2	0.42 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0035S001	
Lead	7439921	7.5	2	0.4 mg/kg			\$, Result, RL and MDL were adjusted for moisture. Original Sample ID=ISWC0035S001	
Molybdenum	7439987	0.9	2	0.2 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0035S001	
Nickel	7440020	17	2	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0035S001	

%

Selenium	7782492	1	2	1	mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID-ISWC0025S001
Silver	7440224	0.9	1	0.9	mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0035S001
Thallium	7440280	0.9	11	0.9	mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID-IEWC00255001
Vanadium	7440622	46	1	0.3	mg/kg			 ND=13 web0535001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=1SWC0035S001
Zinc	7440666	67	6	0.84	mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original

Sample ID=ISWC0035S001

Sample Name	HZBS0168S001	Ν	Matrix T	ype: Soil	Res	ult Type: Pr	imary
Lab Sample Name:	ISG0121-04	Sample	7/	1/2009 9:35:00 AM	v	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Antimony	7440360	0.93	11	0.93 mg/kg	U	UJ	\$, Q, Result, RL and MDL adjusted for % moisture. Original Sample ID=ISWC0036S001
Arsenic	7440382	4.5	2	0.86 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0036S001
Barium	7440393	80	1	0.8 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original
Beryllium	7440417	0.69	0.5	0.2 mg/kg			ID=ISWC0036S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample
Cadmium	7440439	0.2	0.5	0.2 mg/kg	U	U	ID=ISWC0036S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0036S001
Chromium	7440473	25	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Cobalt	7440484	8	1	0.3 mg/kg			ID=ISWC0036S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample
Copper	7440508	14	2	0.4 mg/kg			ID=ISWC0036S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample
Lead	7439921	6.9	2	0.4 mg/kg			ID=ISWC0036S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0036S001

Molybdenum	7439987	0.79	2	0.2 mg/kg	J	ſ	\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Nickel	7440020	16	2	0.2 mg/kg			Sample ID=ISWC0036S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0036S001
Selenium	7782492	1	2	1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0036S001
Silver	7440224	0.8	1	0.8 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0036S001
Thallium	7440280	0.8	11	0.8 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0036S001
Vanadium	7440622	41	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0036S001
Zinc	7440666	63	5	0.79 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0036S001

HZBS0169S001 Sample Name Matrix Type: Soil Result Type: Primary Validation Lab Sample Name: ISG0121-05 Sample 7/1/2009 9:53:00 AM v Analyte CAS No Result RL MDL Result Lab Validation Validation Value Qualifier Notes 7440360 0.96 U UJ \$, Q, Result, RL Antimony 11 0.96 mg/kg and MDL adjusted for % moisture. Original Sample ID=ISWC0037S001 7440382 4.6 2 0.89 mg/kg \$, Result, Arsenic RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0037S001 \$, Result, 7440393 87 0.9 mg/kg Barium 1 RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0037S001 Beryllium 7440417 0.8 0.5 \$, Result, 0.2 mg/kg RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0037S001 Cadmium 7440439 0.2 0.5 0.2 mg/kg U U \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0037S001 Chromium 7440473 28 1 0.3 \$, Result, mg/kg RL and MDL were adjusted for % moisture. **Original Sample** ID=ISWC0037S001 Cobalt 7440484 8.6 1 0.3 mg/kg \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0037S001 7440508 15 2 Copper 0.42 mg/kg \$, Result, RL and MDL were adjusted

Analysis Method 6010B

for % moisture. Original Sample ID=ISWC0037S001

Lead	7439921	8.9	2	0.4 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Molybdenum	7439987	0.81	2	0.2 mg/kg	J	J	 ID=IS WC00375001 Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC00275001
Nickel	7440020	17	2	0.2 mg/kg			 A. S. WC00375001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0037S001
Selenium	7782492	1 2	1	mg/kg	U U	\$	 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0037S001
Silver	7440224	0.9	1	0.9 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0037S001
Thallium	7440280	0.9	11	0.9 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID-ISWC00275001
Vanadium	7440622	49	1	0.3 mg/kg			 A. S. Result, R. R. and MDL were adjusted for % moisture. Original Sample ID=ISWC0037S001
Zinc	7440666	71	5	0.82 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0037S001

HZBS0170S001 Sample Name Matrix Type: Soil Result Type: Primary ISG0121-06 Validation Lab Sample Name: Sample 7/1/2009 10:01:00 AM v Analyte CAS No Result RL **MDL Result** Lab Validation Validation Value Qualifier Notes 7440360 0.96 \$, Q, Result, RL 11 0.96 mg/kg U UJ Antimony and MDL adjusted for % moisture. **Original Sample** ID=ISWC0038S001 Arsenic 7440382 3.8 2 0.88 mg/kg \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0038S001 7440393 \$. Result. Barium 41 1 0.9 mg/kg RL and MDL were adjusted for % moisture. **Original Sample** ID=ISWC0038S001 Beryllium 7440417 0.63 0.5 \$, Result, RL and 0.2 mg/kg MDL were adjusted for % moisture. **Original Sample** ID=ISWC0038S001 Cadmium 7440439 0.2 0.5 U \$, Result, 0.2 mg/kg U RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0038S001 7440473 Chromium 15 1 0.3 \$, Result, mg/kg RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0038S001 7440484 4 Cobalt 1 \$, Result, RL and 0.3 mg/kg MDL were adjusted for % moisture. **Original Sample** ID=ISWC0038S001 Copper 7440508 5 2 0.41 mg/kg \$, Result, RL and MDL were adjusted for % moisture. **Original Sample** ID=ISWC0038S001 Lead 7439921 3.9 2 0.4 mg/kg \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0038S001 Molybdenum 7439987 0.7 2 0.2 mg/kg J J \$, Result, RL and MDL were adjusted

Analysis Method

6010B

for % moisture. Original Sample ID=ISWC0038S001

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Nickel	7440020	9	2	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0038S001
Selenium	7782492	1	2	1 mg/kg	g U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0038S001
Silver	7440224	0.9	1	0.9 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0038S001
Thallium	7440280	0.9	11	0.9 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0038S001
Vanadium	7440622	21	1	0.3 mg/kg			s, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0038S001
Zinc	7440666	34	5	0.82 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0038S001

Sample Name	HZBS0171S001	N	Matrix T	ype: Soil	Rest	ult Type: Pr	imary
Lab Sample Name:	ISG0121-07	Sample	7/1	1/2009 10:16:00 AM	· · ·	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Antimony	7440360	0.92	11	0.92 mg/kg	U	UJ	\$, Q, Result, RL and MDL adjusted for % moisture. Original Sample ID=ISWC0039S001
Arsenic	7440382	7	2	0.85 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0039S001
Barium	7440393	59	1	0.8 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0039S001
Beryllium	7440417	0.7	0.5	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0039S001
Cadmium	7440439	0.2	0.5	0.2 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0039S001
Chromium	7440473	19	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0039S001
Cobalt	7440484	5.9	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0039S001
Copper	7440508	14	2	0.4 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0039S001
Lead	7439921	12	2	0.4 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0039S001

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Molybdenum	7439987	0.86	2	0.2 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0039S001
Nickel	7440020	13	2	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0039S001
Selenium	7782492	1	2	1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID-ISWC0039S001
Silver	7440224	0.8	1	0.8 mg/kg	U	U	 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID-ISWC0039S001
Thallium	7440280	0.8	11	0.8 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0039S001
Vanadium	7440622	30	1	0.3 mg/kg			 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0039S001
Zinc	7440666	60	5	0.79 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0039S001

Sample Name	HZBS0172S001]	Matrix T	ype: Soil	Res	ult Type: Pr	imary
Lab Sample Name:	ISG0121-08	Sample	7/1	/2009 10:28:00 AM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Antimony	7440360	0.95	11	0.95 mg/kg	U	UJ	\$, Q, Result, RL and MDL adjusted for % moisture. Original Sample ID-TSWC0040S001
Arsenic	7440382	6.4	2	0.88 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0040S001
Barium	7440393	48	1	0.9 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Beryllium	7440417	0.81	0.5	0.2 mg/kg			 Swc00405001 Result, RL and MDL were adjusted for % moisture. Original Sample
Cadmium	7440439	0.2	0.5	0.2 mg/kg	U	U	ID=ISWC0040S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0040S001
Chromium	7440473	18	1	0.3 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Cobalt	7440484	6.8	1	0.3 mg/kg			ID=ISWC0040S001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample
Copper	7440508	8.9	2	0.41 mg/kg			SResult, RL and MDL were adjusted for % moisture. Original Sample
Lead	7439921	7.3	2	0.4 mg/kg			 MD=IS WC00405001 Result, RL and MDL were adjusted for % moisture. Original Sample DD=ISWC00405001
Molybdenum	7439987	0.68	2	0.2 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0040S001
Nickel	7440020	10	2	0.2 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0040S001

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Analysis Method	6010B						
Selenium	7782492	1	2	1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0040S001
Silver	7440224	0.9	1	0.9 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0040S001
Thallium	7440280	0.9	11	0.9 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture. Original Sample
Vanadium	7440622	29	1	0.3 mg/kg			ID=IS WC00405001 \$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0040S001
Zinc	7440666	42	5	0.81 mg/kg			\$, Result, RL and MDL were adjusted for % moisture. Original Sample

Sample ID=ISWC0040S001

Sample Name Lab Sample Name:	HZBS0165S001 ISG0121-01	Sample	Matrix T	' ype: Soil 1/2009 8:53:00 AM	Rest V	ilt Type: Pri Validation	imary V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.0074	0.037	0.0062 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0033S001
Sample Name	HZBS0166S001		Matrix T	ype: Soil	Resu	ult Type: Pri	imary
Lab Sample Name:	ISG0121-02	Sample	7/	1/2009 9:04:00 AM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.01	0.035	0.0059 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0034S001
Sample Name	HZBS0167S001		Matrix T	ype: Soil	Resu	ult Type: Pri	imary
Lab Sample Name:	ISG0121-03	Sample	7/	1/2009 9:22:00 AM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.009	0.037	0.0061 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0035S001

Analysis Method 7471A

Sample Name	HZBS0168S001	1	Matrix T	ype: Soil	Res	ult Type: Pr	imary
Lab Sample Name:	ISG0121-04	Sample	7/1	1/2009 9:35:00 AM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.008	0.035	0.0058 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0036S001
Sample Name	HZBS0169S001		Matrix T	ype: Soil	Res	ult Type: Pr	imary
Lab Sample Name:	ISG0121-05	Sample	7/1	1/2009 9:53:00 AM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.0086	0.036	0.006 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0037S001
Sample Name	HZBS0170S001		Matrix T	ype: Soil	Res	ult Type: Pr	imary
Lab Sample Name:	ISG0121-06	Sample	7/1	1/2009 10:01:00 AM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.0069	0.036	0.006 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0038S001
Sample Name	HZBS0171S001	1	Matrix T	ype: Soil	Res	ult Type: Pr	imary
Lab Sample Name:	ISG0121-07	Sample	7/1	1/2009 10:16:00 AM	, v	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.022	0.035	0.0058 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0039S001
Sample Name	HZBS0172S001	1	Matrix T	ype: Soil	Rest	ult Type: Pr	imary
Lab Sample Name:	ISG0121-08	Sample	7/1	1/2009 10:28:00 AM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.027	0.036	0.006 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0040S001

Analysis Method 7471A

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Suite 100		Chain of Custody Record		THE LEADER IN ENVIRONMENTAL TESTING
phone 949.261.1022 fax 949.260.3299		Η	560122	TestAmerica Laboratories, Inc.
Client Contact	Project Manager: Tom Venable	Site Contact: Shelby Valenzuela Date	: 7/1/0A	COC No:
The Boeing Company SSFL	Tel/Fax: 818-466-8779 /818-466-4873	Lab Contact: Joe Doak Carr	ier. Buner	of COCs
5800 Woolsey Canyon Road	Analysis Turnaround Time		-	Job No.
Canoga Park, CA 91304	Calendar (C) or Work Days (W)			1891114.05452
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a ossece statata a tueney tuanon Non-Hazard Flammable Skin Irrijani	Poisson B Chaknown		issed in samples are retained sai By Lab Archive	e For Annths
Special Instructions/QC Requirements & Comments: Run STLC ((WET) / TCLP if TTLC results > 10x ST	LC/20x TCLP thresholds		
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i. İt



DATA VALIDATION REPORT

Boeing SSFL RFI ISRA

SAMPLE DELIVERY GROUP: ISG0122

Prepared by

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

I. INTRODUCTION

Boeing SSFL RFI ISRA
1261.500D.00
ISG0122
Dixie Hambrick
soil
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TestAmerica

Table 1. Sample Identification

Sample Name	Lab Sample Name	Sub-Lab Sample Name	Matrix	Collection	Method
CNBS0135S001	ISG0122-03	D9G070272-03	Soil	7/1/2009 11:34	6010B, 7471A
CNBS0136S001	ISG0122-04	D9G070272-04	Soil	7/1/2009 11:43	6010B, 7471A

II. Sample Management

No anomalies were observed regarding sample management. The samples in this SDG were received at TestAmerica-Irvine within the temperature limits of $4^{\circ}C \pm 2^{\circ}C$ but received at TestAmerica-Denver below the control limit. As the samples were not noted to be frozen or damaged, no qualifications were required. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were appropriately signed and dated by field and/or laboratory personnel. Custody seals were intact. The sample IDs were changed as per an email from MWH personnel. If necessary, the client ID was added to the sample result summary by the reviewer.

Qualifie	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 and 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.
Ν	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

Data Qualifier Reference Table

T-II	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a class of compound but not of sufficient identification quality to represent a specific compound.	Not applicable
T- III	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents an unknown compound.	Not applicable
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified

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.
Ι	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
А	Not applicable.	ICP Serial Dilution %D were not within control limits.
Μ	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

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.
Р	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*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 indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.
III. Method Analyses

A. EPA METHODS 6010B & 7470A/7471A—Metals and Mercury

Reviewed By: P. Meeks Date Reviewed: October 12, 2009

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

- Holding Times: Analytical holding times, six months for ICP metals and 28 days for mercury, were met.
- Tuning: Review is not applicable at a Level V validation.
- Calibration: Review is not applicable at a Level V validation.
- Blanks: Thallium was detected in a bracketing CCB at 8.8 µg/L; therefore, thallium detected in both samples was qualified as nondetected, ""U," at the reporting limits. Method blanks and CCBs had no other applicable 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: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on the sample in this SDG. Method accuracy was evaluated based on LCS results.
- Serial Dilution: No serial dilution analyses were performed.
- 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. As the results were reported by the laboratory in wet weight, the reviewer corrected the results, reporting limits, and method detection limits to reflect the dry weight results. 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: This SDG had no identified field blank or equipment rinsate samples.
 - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: ISG0122

Analysis Metho	d 6010B							
Sample Name	CNBS0135S001	I	Matrix T	ype: Soil	l	Resu	ilt Type: Pr	imary
Lab Sample Name:	ISG0122-03	Sample	7/1	/2009 11:3	4:00 AM	V	alidation	V
Analyte	CAS No	Result Value	RL	MDL F	Result	Lab Qualifier	Validation	Validation Notes
Antimony	7440360	0.91	10	0.91	mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture
Arsenic	7440382	6	2.1	0.83	mg/kg			\$, Result, RL and MDL were adjusted for % moisture
Barium	7440393	55	1	0.82	mg/kg			\$, Result, RL and MDL were adjusted for % moisture
Beryllium	7440417	0.5	0.51	0.21	mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture
Cadmium	7440439	0.21	0.51	0.21	mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture
Chromium	7440473	18	1	0.31	mg/kg			\$, Result, RL and MDL were adjusted for % moisture
Cobalt	7440484	49	1	0.31	mg/kg			\$, Result, RL and MDL were adjusted for % moisture
Copper	7440508	10	2.1	0.39	mg/kg			\$, Result, RL and MDL were adjusted for % moisture
Lead	7439921	3.7	2.1	0.41	mg/kg			\$, Result, RL and MDL were adjusted for % moisture
Molybdenum	7439987	0.75	2.1	0.21	mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture
Nickel	7440020	13	2.1	0.21	mg/kg			\$, Result, RL and MDL were adjusted for % moisture
Selenium	7782492	1	2.1	1	mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture
Silver	7440224	0.82	1	0.82	mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture
Thallium	7440280	0.98	10	0.98	mg/kg	J	U	B, \$, Result, RL and MDL were adjusted for % moisture
Vanadium	7440622	28	1	0.31	mg/kg			\$, Result, RL and MDL were adjusted for % moisture
Zinc	7440666	45	5.1	0.77	mg/kg			\$, Result, RL and MDL were adjusted for % moisture

Analysis Method 6010B

Sample Name	CNBS0136S001 ISG0122-04		Matrix T	ype: Soil	Result Type: P		rimary	
Lab Sample Name:		Sample	7/1	/2009 11:43:00 AM	Validation		V	
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes	
Antimony	7440360	0.91	10	0.91 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture	
Arsenic	7440382	5.1	2.1	0.83 mg/kg			\$, Result, RL and MDL were adjusted for % moisture	
Barium	7440393	51	1	0.83 mg/kg			\$, Result, RL and MDL were adjusted for % moisture	
Beryllium	7440417	0.53	0.52	0.21 mg/kg			\$, Result, RL and MDL were adjusted for % moisture	
Cadmium	7440439	0.21	0.52	0.21 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture	
Chromium	7440473	17	1	0.31 mg/kg			\$, Result, RL and MDL were adjusted for % moisture	
Cobalt	7440484	5.2	1	0.31 mg/kg			\$, Result, RL and MDL were adjusted for % moisture	
Copper	7440508	8.1	2.1	0.39 mg/kg			\$, Result, RL and MDL were adjusted for % moisture	
Lead	7439921	4	2.1	0.41 mg/kg			\$, Result, RL and MDL were adjusted for % moisture	
Molybdenum	7439987	0.62	2.1	0.21 mg/kg	J	J	\$, Result, RL and MDL were adjusted for % moisture	
Nickel	7440020	12	2.1	0.21 mg/kg			\$, Result, RL and MDL were adjusted for % moisture	
Selenium	7782492	1	2.1	1 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture	
Silver	7440224	0.83	1	0.83 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture	
Thallium	7440280	1.1	10	1.1 mg/kg	J	U	B, \$, Result, RL and MDL were adjusted for % moisture	
Vanadium	7440622	28	1	0.31 mg/kg			\$, Result, RL and MDL were adjusted for % moisture	
Zinc	7440666	40	5.2	0.78 mg/kg			\$, Result, RL and MDL were adjusted for % moisture	

Analysis Method 7471A

Sample Name	mple Name CNBS0135S001 Matrix Type: Soil		ype: Soil	Result Type: Primary			
Lab Sample Name:	ISG0122-03	Sample	7/	1/2009 11:34:00 AM		Validation	V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.0057	0.034	0.0057 mg/kg	U	U	\$, Result, RL and MDL were adjusted for % moisture
Sample Name	CNBS0136S001	Matrix Type: Soil		Result Type: Primary			
Lab Sample Name:	ISG0122-04	Sample	7/1/2009 11:43:00 AM		Validation		V
Analyte	CAS No	Result Value	RL	MDL Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.012	0.034	0.0057 mg/kg	J	J	\$, Result, RL and MDL were adjusted