#6 2.9
IRI
2/25/09

07B250253

CHAIN OF CUSTODY RECORD

COC #: MWHAL20090224_01

Page: 1 of 1

Customer Information		Project Information		Project Information			
Site:	SSFL	Client Name:	Boeing	Collector:	A. Leavitt	Boeing PM:	
Company:	MWH	Sampling Event:	ISRA Sampling, Feb 2009	Contact #:			
Report to:	Sarah Von Raesfeld	Project Number:	1891614.050104	Requested Analyses			Instructions/TAT
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl				
	Suite 600	PM Phone #:	(925) 627-4627				
	Walnut Creek	Field Contact:	Brian Martasin				
	CA	Field Contact #:	(323) 304-4969				
	94596	Lab Name:	TestAmerica-Denver				
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Lisa Antonczak				
	sean.leffler@mwhglobal.com	Lab Address:	4955 Yarrow				
			Arvada, CO 80002				
		Lab Phone:	(303) 736-0103				

Sample Name	Matrix	Date	Time	No. of Containers	D2216 Moisture Soil	Dioxin by 1613B - Soil	Metals 6020 Soil Lead	Metals 6020 Soil Zinc	Comments
HZBS0090S001SP	Soil	2/24/2009	10:09	2	10	10	10	10	

Legend:
Numerical values for analyses equate to turn around time in days

H - Hold
EH - Extract/Extrude & Hold

Note: Values in the cells bellow are Turn Around Times.

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
	2/24/09					Aaron Rindell	2/25
Company: MWH	Time: 1605	Company:	Time:	Company:	Time:	Company: TA	Time: 0900

Comments:

Geotracker EDF ☐

Data Validation Package ☑ Level IV

TestAmerica Denver

Sample Receiving Checklist

Lot #: D9B250253 Date/Time Received: 2/25/09 0900

Company Name & Sampling Site: MWH Boeing ISRA

PM to Complete This Section: *Yes* *No* *Yes* *No*
Residual chlorine check required: ☐ ☑ Quarantined : ☐ ☑

Quote #: 80017-D

Special Instructions:

Sub Dioxin to Knoxville

Time Zone:
• EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER

Unpacking Checks:

Cooler #(s): _____ _____ _____ _____ _____ _____ _____ _____

Temperatures (°C): 2.9° _____ _____ _____ _____ _____ _____ _____

N/A	*Yes*	*No*		*Initials*
☐	☑	☐	1. Cooler seals intact? (N/A if hand delivered) If no, document on CUR.	
	☑	☐	2. Coolers scanned for radiation. Is the reading ≤ to background levels? Yes: ✓ 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	
	☐	☑	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.	
	☐	☑	17. Are analyses with short holding times requested?	
	☐	☑	18. Was a quick Turn Around (TAT) requested?	

TestAmerica Denver

Sample Receiving Checklist

Lot # D9B250253

Login Checks:

Initials JB

N/A	Yes	No		
	☑	☐	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 contact PM before proceeding.
	☑	☐	21. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?	
☐	☑	☐	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? 1	
☑	☐	☐	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?	

45 cold / 5 months

Labeling and Storage Checks:

Initials AG

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

2.9
E21
2/25/09

D9B250253

BOEING

CHAIN OF CUSTODY RECORD

COC #: MWHAL20090224_01

Page: 1 of 1

Customer Information		Project Information		Project Information			
Site:	SSFL	Client Name:	Boeing	Collector:	A. Leavitt	Boeing PM:	
Company:	MWH	Sampling Event:	ISRA Sampling, Feb 2009	Contact #:			
Report to:	Sarah Von Raesfeld	Project Number:	1891614.050104	Requested Analyses			Instructions/TAT
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl				Legend: Numerical values for analyses equate to turn around time in days
	Suite 600	PM Phone #:	(925) 627-4627				H - Hold EH - Extract/Extrude & Hold
	Walnut Creek	Field Contact:	Brian Martasin				
	CA	Field Contact #:	(323) 304-4969				
	94596	Lab Name:	TestAmerica-Denver				
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Lisa Antonczak				
	sean.leffler@mwhglobal.com	Lab Address:	4955 Yarrow				Note: Values in the cells bellow are Turn Around Times.
			Arvada, CO 80002				
		Lab Phone:	(303) 736-0103				

Sample Name	Matrix	Date	Time	No. of Containers	D2216 Moisture Soil	Dioxin by 1613B - Soil	Metals 6020 Soil Lead	Metals 6020 Soil Zinc	Comments
HZBS0090S001SP	Soil	2/24/2009	10:09	2	10	10	10	10	

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
	2/24/09		2/25/09				2/25/09
Company: MWH	Time: 1605	Company: ~~GEL~~	Time: ~~0840~~ CAJ 2/25/09	Company:	Time:	Company: TA	Time: 0900

Comments: Sample not received at GEL.

Geotracker EDF ☐

Data Validation Package ☑ Level IV

TestAmerica

SAMPLE ANALYSIS REQUISITION

Laboratory	**TestAmerica Knoxville** 5815 Middlebrook Pike Knoxville, TN 37921	Lab Request SR110080	**Report Package:** **Expanded Deliverables** Need Analytical Report 2009-03-09
	Client Code: 99400		Project Manager:

Sample I.D.	LocID	Work Order No.	Client Sample ID	Sampling Date	Analysis Required
09B250253-1		K7PPA	HZBS0090S01SP	2009-02-24 10:09	SOLID, 1613B Dioxins (Knox) [BOE10]

REC. AT 1°C
CUSTODY SEAL INTACT
1 COOLER RH 2/26/09
FED EX # 966277769187

Please use Client Sample ID for report

Call with questions at 303-736-0100

Shipping Method:

Need detection limit and analysis date included in report.

Please send a signed copy of this form with the report at completion of analysis.

Relinquished by: _____ Date/Time: 2/25/09 16:06

Relinquished by: _____ Date/Time: _____

Received for lab by: Ryan Henry Date/Time: 2/26/09 0945

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

Table of Contents

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Client: TA DENVER **Project:** _____ **Lot Number:** D9B250253

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ 1a Do not match COC ☐ 1b Incomplete information ☐ 1c Marking smeared ☐ 1d Label torn ☐ 1e No label ☐ 1f COC not received ☐ 1g Other:	
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C; NC, 1668, 1613B: 0-4°C; VOST: 10°C; MA: 2-6 °C)	✓			☐ 2a Temp Blank = _____ ☐ 2b Cooler Temp = _____	
3. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ 3a Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?	✓			☐ 4a Not present ☐ 4b Not intact ☐ 4c Other:	
5. Were all of the samples listed on the COC received?	✓			☐ 5a Samples received-not on COC ☐ 5b Samples not received-on COC	
6. Were all of the sample containers received intact?	✓			☐ 6a Leaking ☐ 6b Broken	
7. Were VOA samples received without headspace?			✓	☐ 7a Headspace (VOA only)	
8. Were samples received in appropriate containers?	✓			☐ 8a Improper container	
9. Did you check for residual chlorine, if necessary?			✓	☐ 9a Could not be determined due to matrix interference	
10. Were samples received within holding time?	✓			☐ 10a Holding time expired	
11. For rad samples, was sample activity info. provided?			✓	☐ Incomplete information	
12. For SOG water samples (1613B, 1668A, 8290, LR PAHs), do samples have visible solids present?			✓	If yes & appears to be >1%, was SOG notified? _____	
13. Are the shipping containers intact?	✓			☐ 13a Leaking ☐ 13b Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ 14a Not relinquished	
15. Are tests/parameters listed for each sample?	✓			☐ 15a Incomplete information	
16. Is the matrix of the samples noted?	✓			☐ 15a Incomplete information	
17. Is the date/time of sample collection noted?	✓			☐ 15a Incomplete information	
18. Is the client and project name/# identified?	✓			☐ 15a Incomplete information	
19. Was the sampler identified on the COC?		✓			

Quote #: _____ PM Instructions: _____

Sample Receiving Associate: Ryan Henry Date: 2/26/09

QA026R19.doc, 080707

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Lot # D9B250253

Close Report

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

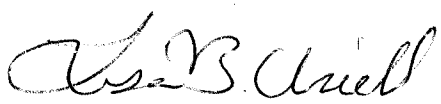
ANALYTICAL REPORT

Boeing SSFL – ISRA

Lot D9B250253

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

TestAmerica Laboratories, Inc.



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.

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 email and 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.

D9B250253

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 METHOD	ANALYST	ANALYST ID
ASTM D 2216-90	Reva M. Golden	010906
EPA-5 1613B	Melissa A. Davidson	010265
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

D9B250253

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
K7PPA	001	HZBS0090S001SP	02/24/09	10:09

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

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 Sample Name***	***Sub-Lab Sample Name***	***Matrix***	***Collection***	***Method***
HZBS0090S001SP	D9B250253001	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°C ±2°C. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were appropriately signed and dated by field and/or laboratory personnel. Custody seals were intact. If necessary, the client ID was added to the sample result summary by the reviewer.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

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

Qualification Code Reference Table

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

Qualification Code Reference Table Cont.

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

III. Method Analyses

A. EPA METHOD 1613—Dioxin/Furans

Reviewed By: 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^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* (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 laboratory-established QC limits.

- Laboratory Duplicates: No laboratory duplicate analyses were performed on the sample in this SDG.

- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on the sample in this SDG. Method accuracy was evaluated based on LCS results.

- Serial Dilution: No serial dilution analyses were performed on the sample in this SDG.

- Internal Standards Performance: Review is not applicable at a Level V validation.

- Sample Result Verification: Review is not applicable at a Level V validation. As the 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 HZBS0090S001SP **Matrix Type:** SOIL **Result Type:** Primary Result

Lab Sample Name: D9B250253001 **Sample Date:** 2/24/2009 10:09:00 AM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562394	0.96	2.8	0.13	ng/kg	B J	**J**	
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	35822469	5.4	2.8	0.24	ng/kg	B		
1,2,3,4,7,8,9-Heptachlorodibenzofuran	55673897	0.21	2.8	0.21	ng/kg	U	**U**	
1,2,3,4,7,8-Hexachlorodibenzofuran	70648269	0.16	2.8	0.085	ng/kg	B J	**J**	
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	39227286	0.14	2.8	0.14	ng/kg	U	**U**	
1,2,3,6,7,8-Hexachlorodibenzofuran	57117449	0.14	2.8	0.08	ng/kg	Q J	**J**	***III**
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	57653857	0.33	2.8	0.16	ng/kg	Q J	**J**	***III**
1,2,3,7,8,9-Hexachlorodibenzofuran	72918219	0.12	2.8	0.12	ng/kg	U	**U**	
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	19408743	0.24	2.8	0.14	ng/kg	Q B J	**J**	***III**
1,2,3,7,8-Pentachlorodibenzofuran	57117416	0.13	2.8	0.13	ng/kg	U	**U**	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	40321764	0.18	2.8	0.18	ng/kg	U	**U**	
2,3,4,6,7,8-Hexachlorodibenzofuran	60851345	0.092	2.8	0.092	ng/kg	U	**U**	
2,3,4,7,8-Pentachlorodibenzofuran	57117314	0.11	2.8	0.11	ng/kg	U	**U**	
2,3,7,8-TCDD	1746016	0.36	0.55	0.36	ng/kg	U	**U**	
2,3,7,8-Tetrachlorodibenzofuran	51207319	0.24	0.55	0.24	ng/kg	U	**U**	
Heptachlorodibenzofurans	38998753	2	2.8	0.16	ng/kg	Q J B	**J**	***III**
Heptachlorodibenzo-p-dioxins	37871004	14	2.8	0.24	ng/kg	B		
Hexachlorodibenzofurans	55684941	1.3	2.8	0.092	ng/kg	J B Q	**J**	***III**
Hexachlorodibenzo-p-dioxins	34465468	1.7	2.8	0.15	ng/kg	Q J B	**J**	***III**
Octachlorodibenzofuran	39001020	2.1	5.5	0.2	ng/kg	B J	**J**	
Octachlorodibenzo-p-dioxin	3268879	72	5.5	0.23	ng/kg	B		
Pentachlorodibenzofurans	30402154	0.8	2.8	0.12	ng/kg	J Q	**J**	***III**
Pentachlorodibenzo-p-dioxins	36088229	0.18	2.8	0.18	ng/kg	U	**U**	
Tetrachlorodibenzofurans	55722275	0.24	0.55	0.24	ng/kg	U	**U**	
Tetrachlorodibenzo-p-dioxins	41903575	0.36	0.55	0.36	ng/kg	U	**U**	

Analysis Method 6020

Sample Name	HZBS0090S001SP	**Matrix Type:**	SOIL	**Result Type:**	Primary Result
Lab Sample Name:	D9B250253001	**Sample Date:**	2/24/2009 10:09:00 AM	**Validation Level:**	V

Analyte	CAS No	Result Value	RL	MDL	Result Units	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	B		

2.9 2/26/09
AO
IR1

D9B260297

BOEING

CHAIN OF CUSTODY RECORD

COC #: MWHAL20090225_01

Page: 1 of 1

Customer Information		Project Information		Project Information			
Site:	SSFL	Client Name:	Boeing	Collector:	A. Leavitt	Boeing PM:	
Company:	MWH	Sampling Event:	ISRA Sampling, Feb 2009	Contact #:			
Report to:	Sarah Von Raesfeld	Project Number:	1891614.050104				
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl				
	Suite 600	PM Phone #:	(925) 627-4627				
	Walnut Creek	Field Contact:	Brian Martasin				
	CA	Field Contact #:	(323) 304-4969				
	94596	Lab Name:	TestAmerica-Denver				
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Lisa Uriell				
	sean.leffler@mwhglobal.com	Lab Address:	4955 Yarrow				
			Arvada, CO 80002				
		Lab Phone:	(303) 736-0103				

Sample Name	Matrix	Date	Time	No. of Containers	D2216 Moisture Soil	Metals 6020 Soil Arsenic	Metals 6020 Soil Cadmium	Metals 6020 Soil Copper	Metals 6020 Soil Lead	Metals 6020 Soil Zinc								Comments
					Requested Analyses													Instructions/TAT
HZBS0071S001SP	Soil	2/25/2009	13:06	1	10		10		10	10								
HZBS0085S001SP	Soil	2/25/2009	12:00	1	10	10	10	10	10									

Legend:
Numerical values for analyses equate to turn around time in days

H - Hold
EH - Extract/Extrude & Hold

Note: Values in the cells bellow are Turn Around Times.

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
	2/25/09					Lisa Mullen	2/26/09
Company: MWH	Time: 1630	Company:	Time:	Company:	Time:	Company: TA Den	Time: 0915

Comments:

Geotracker EDF

Data Validation Package ✔ Level IV

TestAmerica Denver

Sample Receiving Checklist

Lot #: D9B3260297 Date/Time Received: 2/24/09 0915

Company Name & Sampling Site: Boeing MWH ISRA

PM to Complete This Section:	Yes	No		Yes	No
Residual chlorine check required:	☐	☒	Quarantined :	☐	☒

Quote #: 80017-D

Special Instructions:

Time Zone:
• EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER

Unpacking Checks:

Cooler #(s): 1

Temperatures (°C): 2.9

N/A	Yes	No		Initials
☐	☑	☐	1. Cooler seals intact? (N/A if hand delivered) If no, document on CUR.	
	☑	☐	2. Coolers scanned for radiation. Is the reading ≤ to background levels? Yes: ✓ 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	
	☐	☑	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.	
	☐	☑	17. Are analyses with short holding times requested?	
	☐	☑	18. Was a quick Turn Around (TAT) requested?	

TestAmerica Denver

Sample Receiving Checklist

Lot # D9B260297

Login Checks:

N/A	Yes	No		Initials
	☒	☐	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 contact PM before proceeding.	
	☒	☐	21. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?	
☐	☒	☐	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? all	
☒	☐	☐	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? 45d/5m	

Labeling and Storage Checks:

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

Lot # D9B250253

Close Report

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

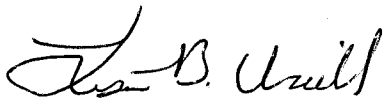
ANALYTICAL REPORT

Boeing SSFL – ISRA

Lot D9B260297

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

TestAmerica Laboratories, Inc.



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.

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 METHOD	ANALYST	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

WO #	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	SW846 6020		9058236	9058147
	SO	ASTM D 2216-90		9061148	9061093
002	SO	SW846 6020		9058236	9058147
	SO	ASTM D 2216-90		9061148	9061093

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°C ±2°C. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were appropriately signed and dated by field and/or laboratory personnel. Custody seals were intact. If necessary, the client ID was added to the sample result summary by the reviewer.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

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

Qualification Code Reference Table

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

Qualification Code Reference Table Cont.

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

III. Method Analyses

A. EPA METHOD 6020—Metals

Reviewed By: P. Meeks
Date Reviewed: 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 laboratory-established 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 HZBS0071S001SP **Matrix Type:** SOIL **Result Type:** Primary Result

Lab Sample Name: D9B260297001 **Sample Date:** 2/25/2009 1:06:00 PM **Validation 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	B	J	

Sample Name HZBS0085S001SP **Matrix Type:** SOIL **Result Type:** Primary Result

Lab Sample Name: D9B260297002 **Sample Date:** 2/25/2009 12:00:00 PM **Validation 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	B	J	
Lead	7439921	42	0.44	0.02	mg/kg			

4,13
AO
IR1
6/2/9

BOEING

CHAIN OF CUSTODY RECORD

COC #: MWHBM20090601_01

09F020257

Page: 1 of 1

Customer Information		Project Information		Project Information			
Site:	SSFL	Client Name:	Boeing	Collector:	B. Martasin	Boeing PM:	
Company:	MWH	Sampling Event:	ISRA Sampling, June 2009	Contact #:			
Report to:	Sarah Von Raesfeld	Project Number:	1891614.054521	Requested Analyses			Instructions/TAT
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl				Legend: Numerical values for analyses equate to turn around time in days
	Suite 600	PM Phone #:	(925) 627-4627				
	Walnut Creek	Field Contact:	Brian Martasin				H - Hold EH - Extract/Extrude & Hold
	CA	Field Contact #:	(323) 304-4969				
	94596	Lab Name:	TestAmerica-Denver				Note: Values in the cells bellow are Turn Around Times.
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Lisa Uriell				
	sean.leffler@mwhglobal.com	Lab Address:	4955 Yarrow				
			Arvada, CO 80002				
		Lab Phone:	(303) 736-0103				

Sample Name	Matrix	Date	Time	No. of Containers	D2216 Moisture Soil	Dioxin by 1613B - Soil	Metals 6020 Soil Copper	Metals 6020 Soil Lead	Comments
HZBS0124S001SP	Soil	6/1/2009	10:58	1	10	10	10	10	

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
	6-1-09						6/2/09
Company: MWH	Time: 1610	Company:	Time:	Company:	Time:	Company: TA Denver	Time: 0845

Comments:

Geotracker EDF ☐

Data Validation Package ☑ Level IV

TestAmerica Denver

Sample Receiving Checklist

Lot #: D9F020251 Date/Time Received: 6/2/09 0845

Company Name & Sampling Site: Boeing MCAH - ISRA

PM to Complete This Section: *Yes* *No* *Yes* *No*
Residual chlorine check required: ☐ ☒ Quarantined: ☐ ☒

Quote #: 80017-D

Special Instructions:

* Sub Dioxins to TA-Knoxville

Time Zone:
• EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER

Unpacking Checks:

Cooler #(s): 1

Temperatures (°C): 4.3

Initials: [signature]

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 ≤ to background levels? Yes: ✓ 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

☐ ☑ 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.

☐ ☑ 17. Are analyses with short holding times requested?

☐ ☑ 18. Was a quick Turn Around (TAT) requested?

TestAmerica Denver

Sample Receiving Checklist

Lot # D9F020257

Login Checks:

Initials LM

N/A	*Yes*	*No*		
	☒	☐	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 contact PM before proceeding.
	☒	☐	21. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?	
☐	☒	☐	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? 1	
☒	☐	☐	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?	

45 days / 5 months.

Labeling and Storage Checks:

Initials CF

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

TestAmerica

Laboratory **TestAmerica Knoxville**
5815 Middlebrook Pike
Knoxville, TN 37921

SAMPLE ANALYSIS REQUISITION

Lab Request SR112404

Report Package: **Expanded Deliverables**

Need Analytical Report 2009-06-12

Client Code: 99400

Project Manager:

Sample I.D.	LocID	Work Order No.	Client Sample ID	Sampling Date	Analysis Required
D9F020257-1		LD63G	HZBS0124S001SP	2009-06-01 10:58	SOLID, 1613B Dioxins (Knox) |BOE10|

REC. AT 1°C
CUSTODY SEAL INTACT
1 COOLER RH 6/3/09
FED EX # 966277804469

Please use Client Sample ID for report

Call with questions at 303-736-0100

Shipping Method:

Need detection limit and analysis date included in report.

Please send a signed copy of this form with the report at completion of analysis.

Relinquished by: _____ Date/Time: 6-2-09 16:00

Relinquished by: _____ Date/Time: _____

Received for lab by: Ryan Henry Date/Time: 6/3/09 1030

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Client: _____ **Project:** _____ **Lot Number:** D9F020257

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐1a Do not match COC ☐1b Incomplete information ☐1c Marking smeared ☐1d Label torn ☐1e No label ☐1f COC not received ☐1g Other:	
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C; NC, 1668, 1613B: 0-4°C; VOST: 10°C; MA: 2-6 °C)	✓			☐2a Temp Blank = _____ ☐2b Cooler Temp = _____	
3. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐3a Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?	✓			☐4a Not present ☐4b Not intact ☐4c Other:	
5. Were all of the samples listed on the COC received?	✓			☐5a Samples received-not on COC ☐5b Samples not received-on COC	
6. Were all of the sample containers received intact?	✓			☐6a Leaking ☐6b Broken	
7. Were VOA samples received without headspace?			✓	☐7a Headspace (VOA only)	
8. Were samples received in appropriate containers?	✓			☐8a Improper container	
9. Did you check for residual chlorine, if necessary?			✓	☐9a Could not be determined due to matrix interference	
10. Were samples received within holding time?	✓			☐10a Holding time expired	
11. For rad samples, was sample activity info. provided?			✓	☐Incomplete information	
12. For SOG water samples (1613B, 1668A, 8290, LR PAHs), do samples have visible solids present?			✓	If yes & appears to be >1%, was SOG notified? _____	
13. Are the shipping containers intact?	✓			☐13a Leaking ☐13b Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐14a Not relinquished	
15. Are tests/parameters listed for each sample?	✓			☐15a Incomplete information	
16. Is the matrix of the samples noted?	✓			☐15a Incomplete information	
17. Is the date/time of sample collection noted?	✓			☐15a Incomplete information	
18. Is the client and project name/# identified?	✓			☐15a Incomplete information	
19. Was the sampler identified on the COC?		✓			

Quote #: _____ PM Instructions: _____

Sample Receiving Associate: Lynn Henry Date: 6/3/09

QA026R19.doc, 080707

Lot # D9B250253

Close Report

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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.

Lisa B. Uriell
Project Manager

June 30, 2009

D9F020257

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.

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:

D9F020257

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.

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 ID
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

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
LD63G	001	HZBS0124S001SP	06/01/09	10:58

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

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 Sample Name	Sub-Lab Sample Name	Matrix	Collection		Method
HZBS0124S001SP	D9F020257001	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°C ±2°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.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

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

Qualification Code Reference Table

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

Qualification Code Reference Table Cont.

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

III. Method Analyses

A. EPA METHOD 1613—Dioxin/Furans

Reviewed By: P. Meeks
Date Reviewed: 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 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 5× 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 laboratory-established QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on the sample in this SDG. Method accuracy was evaluated based on LCS results.
- Serial Dilution: No serial dilution analyses were performed on the sample in this SDG.
- Internal Standards Performance: Review is not applicable at a Level V validation.
- Sample Result Verification: Review is not applicable at a Level V validation. As the 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 HZBS0124S001SP **Matrix Type:** Soil **Result Type:** Primary

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
1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562394	5	5	5	pg/g	Q J	UJ	*III, result changed from 0.69 and MDL
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	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-p-dioxin	39227286	0.072	5	0.072	pg/g	U	U	
1,2,3,6,7,8-Hexachlorodibenzofuran	57117449	5	5	5	pg/g	Q J	UJ	*III, result changed from 0.091 and
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	57653857	5	5	5	pg/g	Q J	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-p-dioxin	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-p-dioxin	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-Tetrachlorodibenzofuran	51207319	1	1	1	pg/g	Q J	UJ	*III, result changed from 0.15 and MDL
Heptachlorodibenzofurans	38998753	1.6	5	0.088	pg/g	J Q	J	*III
Heptachlorodibenzo-p-dioxins	37871004	7.6	5	0.12	pg/g	J	J	
Hexachlorodibenzofurans	55684941	1.6	5	0.051	pg/g	B J Q	J	*III

Analysis Method	*1613B*							
Hexachlorodibenzo-p-dioxins	34465468	1.5	5	0.076	pg/g	Q J	J	*III
Octachlorodibenzofuran	39001020	1.4	10	0.1	pg/g	B J	J	
Octachlorodibenzo-p-dioxin	3268879	23	10	0.19	pg/g	B		
Pentachlorodibenzofurans	30402154	2.2	5	0.075	pg/g	J Q	J	*III
Pentachlorodibenzo-p-dioxins	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-dioxins	41903575	0.19	1	0.19	pg/g	U	U	

Analysis Method *6020*

Sample Name HZBS0124S001SP **Matrix Type:** Soil **Result Type:** Primary

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			

3.1
AG
DRI
9/11/09

BOEING

CHAIN OF CUSTODY RECORD

D9I110277

COC #: MWHAG20090910_01

Page: 1 of 1

Customer Information		Project Information	
Site:	SSFL	Client Name:	Boeing
Company:	MWH	Sampling Event:	ISRA Sampling, August 2009
Report to:	Sarah Von Raesfeld	Project Number:	1891614.05462
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl
	Suite 600	PM Phone #:	(925) 627-4627
	Walnut Creek	Field Contact:	Benjamin Stewart
	CA	Field Contact #:	(818) 266-1378
	94596	Lab Name:	TestAmerica-Denver
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Lisa Uriell
	sean.leffler@mwhglobal.com	Lab Address:	4955 Yarrow
			Arvada, CO 80002
		Lab Phone:	(303) 736-0103

Project Information			
Collector:	A. Goldenberg	Boeing PM:	
Contact #:			

Sample Name	Matrix	Date	Time	No. of Containers	D2216 Moisture Soil	Metals 6020 Soil Lead	Comments
HZET0200S001SP	Soil	9/10/2009	9:40	1	10	10	
HZET0209S001SP	Soil	9/10/2009	13:30	1	10	10	

Requested Analyses

Instructions/TAT

Legend:
Numerical values for analyses equate to turn around time in days

H - Hold
EH - Extract/Extrude & Hold

Note: Values in the cells bellow are Turn Around Times.

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
Allison M. Rich	9-10-09	Aaron Birdsell	9/11/09				
Company: MWH	Time:	Company: TA	Time: 0900	Company:	Time:	Company:	Time:

Comments:

Geotracker EDF ☐

Data Validation Package ☑ Level IV

TestAmerica

Table of Contents

TestAmerica Denver

Sample Receiving Checklist

Lot #: D9I110277 Date/Time Received: 9/11/09 0900

Company Name & Sampling Site: Boeing - MWH ISRA

PM to Complete This Section:	*Yes*	*No*		*Yes*	*No*
Residual chlorine check required:	☐	☒	Quarantined :	☐	☒

Quote #: 80017-D

Special Instructions:

Time Zone:
• EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER

Unpacking Checks:

Cooler #(s): _____ _____ _____ _____ _____ _____ _____ _____

Temperatures (°C): 3.7° _____ _____ _____ _____ _____ _____ _____

N/A	*Yes*	*No*		*Initials*
☐	☑	☐	1. Cooler seals intact? (N/A if hand delivered) If no, document on CUR.	MB
	☑	☐	2. Coolers scanned for radiation. Is the reading ≤ to background levels? Yes: ✓ 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	
	☐	☑	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.	
	☐	☑	17. Are analyses with short holding times requested?	
	☐	☑	18. Was a quick Turn Around (TAT) requested?	

TestAmerica Denver

Sample Receiving Checklist

Lot # D9I110277

Login Checks:

Initials MB

N/A	Yes	No		
	☑	☐	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 contact PM before proceeding.
	☑	☐	21. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?	
☐	☑	☐	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? 1	
☑	☐	☐	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?	

45 cold / 5 months

Labeling and Storage Checks:

Initials CMK

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

Lot # D9B250253

Close Report

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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.

Lisa B. Uriell
Project Manager

September 24, 2009

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D9I110277

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.

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 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

D9I110277

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
LKNGC	001	HZET0200S001SP	09/10/09	09:40
LKNGP	002	HZET0209S001SP	09/10/09	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	SW846 6020		9257403	9257219
	SO	ASTM D 2216-90		9257166	9257086
002	SO	SW846 6020		9257403	9257219
	SO	ASTM D 2216-90		9257166	9257086

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 Sample Name*	*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°C ±2°C. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were appropriately signed and dated by field and/or laboratory personnel. Custody seals were intact. If necessary, the client ID was added to the sample result summary by the reviewer.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

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

Qualification Code Reference Table

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

Qualification Code Reference Table Cont.

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

III. Method Analyses

A. EPA 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 laboratory-established 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 Name HZET0200S001SP **Matrix Type:** SOIL **Result Type:** Primary Result

Lab Sample Name: D9I110277001 **Sample Date:** 9/10/2009 9:40:00 AM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	5.4	0.41	0.018	mg/kg			

Sample Name HZET0209S001SP **Matrix Type:** SOIL **Result Type:** Primary Result

Lab Sample Name: D9I110277002 **Sample Date:** 9/10/2009 1:30:00 PM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	7.7	0.41	0.018	mg/kg			

2nd 9/15/09
SAB
DRI

BOEING

CHAIN OF CUSTODY RECORD

COC #: MWHAG20090914_01

09I150142

Page: 1 of 1

Customer Information		Project Information		Project Information			
Site:	SSFL	Client Name:	Boeing	Collector:	A. Goldeubers	Boeing PM:	
Company:	MWH	Sampling Event:	ISRA Sampling, August 2009	Contact #:			
Report to:	Sarah Von Raesfeld	Project Number:	1891614.05462	Requested Analyses			Instructions/TAT
Address:	2121 N. California Blvd	Project Manager:	Benjamin Stewart				Legend: Numerical values for analyses equate to turn around time in days H - Hold EH - Extract/Extrude & Hold Note: Values in the cells bellow are Turn Around Times.
	Suite 600	PM Phone #:	(818) 266-1378				
	Walnut Creek	Field Contact:	Benjamin Stewart				
	CA	Field Contact #:	(818) 266-1378				
	94596	Lab Name:	TestAmerica-Denver				
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Lisa Uriell				
	sean.leffler@mwhglobal.com	Lab Address:	4955 Yarrow				
			Arvada, CO 80002				
		Lab Phone:	(303) 736-0103				

Sample Name	Matrix	Date	Time	No. of Containers	D2216 Moisture Soil	Metals 6020 Soil Lead												Comments
HZET0219S001SP	Soil	9/14/2009	13:40	1	5	5												

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
Allen M. Rutledge	9-14-09					Lisa Mueller	9/15/09
Company: MWH	Time: 17:00	Company:	Time:	Company:	Time:	Company: TA Denver.	Time: 0845

Comments: 5 Day TAT

Geotracker EDF ☐

Data Validation Package ☑ Level IV

TestAmerica Denver

Sample Receiving Checklist

Lot #: D9I150142 Date/Time Received: 9/15/09 0845

Company Name & Sampling Site: Boeing - MWH - ISRA

PM to Complete This Section: *Yes*	*No*		*Yes*	*No*
Residual chlorine check required: ☐	☒	Quarantined :	☐	☑

Quote #: 80017 - D

Special Instructions:

* Analytical = 9/21
* Report = 9/22

Time Zone:
• EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER

Unpacking Checks:

Cooler #(s): _____ _____ _____ _____ _____ _____ _____ _____

Temperatures (°C): 2.1 _____ _____ _____ _____ _____ _____ _____

N/A	*Yes*	*No*		*Initials*
☐	☑	☐	1. Cooler seals intact? (N/A if hand delivered) If no, document on CUR.	JM
	☑	☐	2. Coolers scanned for radiation. Is the reading ≤ to background levels? Yes: ✓ 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	
	☐	☑	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.	
	☐	☑	17. Are analyses with short holding times requested?	
	☑	☐	18. Was a quick Turn Around (TAT) requested?	

TestAmerica Denver

Sample Receiving Checklist

Lot # D9I150142

Login Checks: *Initials* fm

N/A	Yes	No		
	☑	☐	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 contact PM before proceeding.
	☑	☐	21. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?	
☐	☑	☐	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? 1	
☑	☐	☐	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?	

45 days / 5 months

Labeling and Storage Checks: *Initials* MB

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

Lot # D9I150142

Close Report

TestAmerica
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.

Lisa B. Uriell
Project Manager

September 21, 2009

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.

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.

General Chemistry – Method ASTM D 2216-90

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

D9I150142

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
LKR3A	001	HZET0219S001SP	09/14/09	13:40

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

D9I150142

Sample Preparation and Analysis Control Numbers

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

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

Task Order Title:	Boeing SSFL RFI ISRA
Contract Task Order:	1261.500D.00
Sample Delivery Group:	D9I150142
Project Manager:	Dixie Hambrick
Matrix:	water/soil
QC Level:	V
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Laboratory:	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°C ±2°C. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were appropriately signed and dated by field and/or laboratory personnel. Custody seals were intact. If necessary, the client ID was added to the sample result summary by the reviewer.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

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

Qualification Code Reference Table

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

Qualification Code Reference Table Cont.

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

III. Method Analyses

A. EPA METHOD 6020—Lead

Reviewed By: P. Meeks
Date Reviewed: October 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 laboratory-established QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on the sample in this SDG. 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 HZET0219S001SP **Matrix Type:** SOIL **Result Type:** Primary Result

Lab Sample Name: D9I150142001 **Sample Date:** 9/14/2009 1:40:00 PM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Lead	7439921	4.1	0.4	0.018	mg/kg			

Lot # D9B250253

Close Report

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

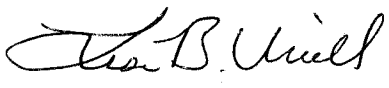
ANALYTICAL REPORT

Boeing SSFL – ISRA

Lot D9I260153

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

TestAmerica Laboratories, Inc.



Lisa B. Uriell
Project Manager

October 2, 2009

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.

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

D9I260153

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

D9I260153

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

D9I260153

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
LLJ81	001	HZET0710S001SP	09/25/09	07:15

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

D9I260153

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 Sample Name*	*Sub-Lab Sample Name*	*Matrix*	*Collection*	*Method*
HZET0710S001SP	D9I260153001	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°C ±2°C. According to the case narrative for this SDG, the sample was received intact, on ice, and properly preserved, if applicable. The COC was appropriately signed and dated by field and/or laboratory personnel. Custody seals were intact. If necessary, the client ID was added to the sample result summary by the reviewer.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

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

Qualification Code Reference Table

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

Qualification Code Reference Table Cont.

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

III. Method Analyses

A. EPA METHOD 6020—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 laboratory-established QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on the sample in this SDG. 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 HZET0710S001SP **Matrix Type:** SOIL **Result Type:** Primary Result

Lab Sample Name: D9I260153001 **Sample Date:** 9/25/2009 7:15:00 AM **Validation Level:** 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**

2.3 IRL fm 9/26/09

CHAIN OF CUSTODY RECORD

COC #: MWHMB20090925_01

Page: 1 of 1

D9I260153

Customer Information		Project Information		Project Information			
Site:	SSFL	Client Name:	Boeing	Collector:	M. Baumgardner	Boeing PM:	
Company:	MWH	Sampling Event:	ISRA Sampling, August 2009	Contact #:			
Report to:	Sarah Von Raesfeld	Project Number:	1891614.05462				
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl				
	Suite 600	PM Phone #:	(925) 627-4627				
	Walnut Creek	Field Contact:	Benjamin Stewart				
	CA	Field Contact #:	(818) 266-1378				
	94596	Lab Name:	TestAmerica-Denver				
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Lisa Uriell				
	sean.leffler@mwhglobal.com	Lab Address:	4955 Yarrow				
			Arvada, CO 80002				
		Lab Phone:	(303) 736-0103				

Sample Name	Matrix	Date	Time	No. of Containers	D2216 Moisture Soil	Dioxin by 1613B - Soil	Metals 6020 Soil Copper	Requested Analyses	Instructions/TAT	Comments
HZET0710S001SP	Soil	9/25/2009	7:15	1	5	5	5			

Legend:
Numerical values for analyses equate to turn around time in days

H - Hold
EH - Extract/Extrude & Hold

Note: Values in the cells bellow are Turn Around Times.

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
Allen M. Ross	9-25-09					Lisa Mullen	9/26/09
Company: MWH	Time: 14:54	Company:	Time:	Company:	Time:	Company: TA Denver	Time: 0830

Comments:

Geotracker EDF ☐

Data Validation Package ☑

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: ☐ ☒ Quarantined : ☐ ☒

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): 2.3 _____ _____ _____ _____ _____ _____ _____

N/A	*Yes*	*No*		*Initials*
☐	☒	☐	1. Cooler seals intact? (N/A if hand delivered) If no, document on CUR.	JM
	☒	☐	2. Coolers scanned for radiation. Is the reading ≤ to background levels? Yes: ✓ 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	
	☐	☒	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.	
	☐	☒	17. Are analyses with short holding times requested?	
	☐	☒	18. Was a quick Turn Around (TAT) requested?	

TestAmerica Denver

Sample Receiving Checklist

Lot # D9I240153

Login Checks: *Initials* LM

N/A	Yes	No		
	☒	☐	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 contact PM before proceeding.
	☒	☐	21. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?	
☐	☒	☐	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? 1	
☐	☒	☐	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?	

45 days / 5 months

Labeling and Storage Checks: *Initials* AC

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

2.3 IRI fm 9/26/09

BOEING

CHAIN OF CUSTODY RECORD

COC #: MWHMB20090925_01

Page: 1 of 1

1891260156

Customer Information		Project Information		Project Information			
Site:	SSFL	Client Name:	Boeing	Collector:	M. Baumgardner	Boeing PM:	
Company:	MWH	Sampling Event:	ISRA Sampling, August 2009	Contact #:			
Report to:	Sarah Von Raesfeld	Project Number:	1891614.05462	Requested Analyses			Instructions/TAT
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-Denver				
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Lisa Uriell				
	sean.leffler@mwhglobal.com	Lab Address:	4955 Yarrow				
			Arvada, CO 80002				
		Lab Phone:	(303) 736-0103				

Sample Name	Matrix	Date	Time	No. of Containers	D2216 Moisture Soil	Dioxin by 1613B - Soil	Metals 6020 Soil Copper	Comments
HZET0710S001SP	Soil	9/25/2009	7:15	1	5	5	5	

Legend:
Numerical values for analyses equate to turn around time in days

H - Hold
EH - Extract/Extrude & Hold

Note: Values in the cells bellow are Turn Around Times.

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
Allen M. Pratt	9-25-09					Lisa Mullen	9/26/09
Company: MWH	Time: 14:54	Company:	Time:	Company:	Time:	Company: TA Denver	Time: 0830

Comments:

Geotracker EDF ☐

Data Validation Package ☑

TestAmerica Denver

Sample Receiving Checklist

Lot #: D9I240154 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:	☐	☒	Quarantined :	☐	☒

Quote #: 80017-D

Special Instructions: * Log Dioxins in this Lot

Time Zone:
• EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER

Unpacking Checks:

Cooler #(s): _____ _____ _____ _____ _____ _____ _____ _____

Temperatures (°C): 2.3 _____ _____ _____ _____ _____ _____ _____

N/A	*Yes*	*No*		*Initials*
☐	☒	☐	1. Cooler seals intact? (N/A if hand delivered) If no, document on CUR.	
	☒	☐	2. Coolers scanned for radiation. Is the reading ≤ to background levels? Yes: ✓ 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	
	☐	☒	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.	
	☐	☐	17. Are analyses with short holding times requested?	
	☐	☐	18. Was a quick Turn Around (TAT) requested?	

TestAmerica Denver

Sample Receiving Checklist

Lot # D9I260156

Login Checks:

N/A	Yes	No		Initials
	☒	☐	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 contact PM before proceeding.	
	☒	☐	21. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?	
☐	☒	☐	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? 1	
☒	☐	☐	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?	

Labeling and Storage Checks:

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

TestAmerica

Laboratory **TestAmerica Knoxville**
5815 Middlebrook Pike
Knoxville, TN 37921

SAMPLE ANALYSIS REQUISITION

Lab Request SR115074

Report Package: **Expanded Deliverables**

Need Analytical Report 2009-10-09

Client Code: 99400

Project Manager:

Sample I.D.	LocID	Work Order No.	Client Sample ID	Sampling Date	Analysis Required
D9I260156-1		LLJ9F	HZET0710S001SP	2009-09-25 7:15	SOLID, 1613B Dioxins (Knox) |BOE10|

1 COOLER RECD @ 1°C
FED EX # 9662 7784 1750
CUSTODY SEAL INTACT
TG 9/29/09

Please use Client Sample ID for report

Call with questions at 303-736-0100

Shipping Method:

Need detection limit and analysis date included in report.

Please send a signed copy of this form with the report at completion of analysis.

Relinquished by: _____ Date/Time: 9-25-09 16:00

Relinquished by: _____ Date/Time: _____

Received for lab by: _____ Date/Time: 9/29/09 10:20AM

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: D9I260156

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	√			☐ **1a** Do not match COC ☐ **1b** Incomplete information ☐ **1c** Marking smeared ☐ **1d** Label torn ☐ **1e** No label ☐ **1f** COC not received ☐ **1g** Other:	
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C; NC, 1668, 1613B: 0-4°C; VOST: 10°C; MA: 2-6 °C)	√			☐ **2a** Temp Blank = _____ ☐ **2b** Cooler Temp = _____	
3. Were samples received with correct chemical preservative (excluding Encore)?			√	☐ **3a** Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?	√			☐ **4a** Not present ☐ **4b** Not intact ☐ **4c** Other:	
5. Were all of the samples listed on the COC received?	√			☐ **5a** Samples received-not on COC ☐ **5b** Samples not received-on COC	
6. Were all of the sample containers received intact?	√			☐ **6a** Leaking ☐ **6b** Broken	
7. Were VOA samples received without headspace?			√	☐ **7a** Headspace (VOA only)	
8. Were samples received in appropriate containers?	√			☐ **8a** Improper container	
9. Did you check for residual chlorine, if necessary?			√	☐ **9a** Could not be determined due to matrix interference	
10. Were samples received within holding time?	√			☐ **10a** Holding time expired	
11. For rad samples, was sample activity info. provided?			√	☐ Incomplete information	
12. For 1613B water samples is pH<9?			√	If no, was pH adjusted to pH 7 - 9 with sulfuric acid? _____	
13. Are the shipping containers intact?	√			☐ **13a** Leaking ☐ **13b** Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	√			☐ **14a** Not relinquished	
15. Are tests/parameters listed for each sample?	√			☐ **15a** Incomplete information	
16. Is the matrix of the samples noted?	√			☐ **15a** Incomplete information	
17. Is the date/time of sample collection noted?	√			☐ **15a** Incomplete information	
18. Is the client and project name/# identified?	√			☐ **15a** Incomplete information	
19. Was the sampler identified on the COC?		√			

Quote #: _____ PM Instructions: _____

Sample Receiving Associate: A Galbraith Date: 9/29/09

QA026R21.doc, 090409

Lot # D9B250253

Close Report

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

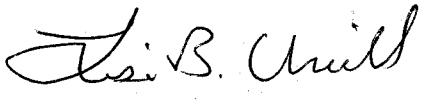
ANALYTICAL REPORT

Boeing SSFL – ISRA

Lot D9I260156

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

TestAmerica Laboratories, Inc.



Lisa B. Uriell
Project Manager

October 7, 2009

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.

Quality Control Summary for Lot D9I260156

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.

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 ID
EPA-5 1613B	Melissa A. Davidson	010265
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

D9I260156

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
LLJ9F	001	HZET0710S001SP	09/25/09	07:15

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

D9I260156

Sample Preparation and Analysis Control Numbers

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

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	D9I260156001	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°C ±2°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.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

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

Qualification Code Reference Table

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

Qualification Code Reference Table Cont.

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

III. Method Analyses

A. EPA METHOD 1613—Dioxin/Furans

Reviewed By: P. Meeks
Date Reviewed: October 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 HZET0710S001SP **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: D9I260156001 **Sample** 9/25/2009 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	Q J	UJ	*III, result changed from 0.25 and EDL from 0.11
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	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-p-dioxin	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-p-dioxin	57653857	5.5	5.5	5.5	pg/g	Q J	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-p-dioxin	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-p-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-Tetrachlorodibenzofuran	51207319	0.28	1.1	0.28	pg/g	U	U	
Heptachlorodibenzofurans	38998753	0.75	5.5	0.14	pg/g	Q J	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	J Q	J	*III
Octachlorodibenzofuran	39001020	11	11	11	pg/g	Q J	UJ	*III, result changed from 1 and EDL from 0.26
Octachlorodibenzo-p-dioxin	3268879	27	11	0.34	pg/g			

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

1.S LC
11/11/09 IR1

BOEING

CHAIN OF CUSTODY RECORD

COC #: MWHAG20091110_01

Page: 1 of 1

Customer Information		Project Information		Project Information			
Site:	SSFL	Client Name:	Boeing	Collector:	A. Goldenberg	Boeing PM:	
Company:	MWH	Sampling Event:	ISRA Sampling, August 2009	Contact #:			
Report to:	Sarah Von Raesfeld	Project Number:	1891614.05462	Requested Analyses			Instructions/TAT
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl				Legend: Numerical values for analyses equate to turn around time in days
	Suite 600	PM Phone #:	(925) 627-4627				H - Hold EH - Extract/Extrude & Hold
	Walnut Creek	Field Contact:	Shelby Valenzuela				
	CA	Field Contact #:	(626) 255-0503				
	94596	Lab Name:	TestAmerica-Denver				Note: Values in the cells bellow are Turn Around Times.
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Lisa Uriell				
	sean.leffler@mwhglobal.com	Lab Address:	4955 Yarrow				
			Arvada, CO 80002				
		Lab Phone:	(303) 736-0103				

Sample Name	Matrix	Date	Time	No. of Containers	D2216 Moisture Soil	Dioxin by 1613B - Soil	Comments
AZET0101S001SP	Soil	11/10/2009	14:29	1	10	10	A2LF-1

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
	11-10-09					Lisa Miller	11/11/09
Company: MWH	Time: 1544	Company:	Time:	Company:	Time:	Company: TA Denver	Time: 0930

Comments:

Geotracker EDF ☐

Data Validation Package ☑ Level IV

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

To: Lisa Uriell **Phone:** 303-736-0103

Laboratory Test America – Denver **E-mail:** **lisa.uriell@testamericainc.com**

From: Sean Leffler

Requestor signature:

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

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

COC No.	Client Sample ID(s)	Date Collected	Originally Requested Analyses	Change (s) and Method (s) Now Requested
MWHAG20091110_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: _____

Thank you

1.5 LC
11/11/09 IR1

CHAIN OF CUSTODY RECORD

COC #: MWHAG20091110_01

Page: 1 of 1

Customer Information		Project Information		Project Information			
Site:	SSFL	Client Name:	Boeing	Collector:	A. Goldenberg	Boeing PM:	
Company:	MWH	Sampling Event:	ISRA Sampling, August 2009	Contact #:			
Report to:	Sarah Von Raesfeld	Project Number:	1891614.05462	Requested Analyses			Instructions/TAT
Address:	2121 N. California Blvd	Project Manager:	Alex Fischl				
	Suite 600	PM Phone #:	(925) 627-4627				
	Walnut Creek	Field Contact:	Shelby Valenzuela				
	CA	Field Contact #:	(626) 255-0503				
	94596	Lab Name:	TestAmerica-Denver				
Email:	sarah.vonraesfeld@mwhglobal.c	Lab Contact:	Lisa Uriell				
	sean.leffler@mwhglobal.com	Lab Address:	4955 Yarrow				
			Arvada, CO 80002				
		Lab Phone:	(303) 736-0103				

	Sample Name	Matrix	Date	Time	No. of Containers	D2216 Moisture Soil	Dioxin by 1613B - Soil	Comments
0	~~AZET0101S001SP~~ A2ETD101S001SP (1)	Soil	11/10/2009	14:29	1	10	10	A2LF-1

Legend:
Numerical values for analyses equate to turn around time in days

H - Hold
EH - Extract/Extrude & Hold

Note: Values in the cells bellow are Turn Around Times.

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
	11-2009					Lisa Mullen	11/11/09
Company: MWH	Time: 1544	Company:	Time:	Company:	Time:	Company: TA Denver	Time: 0930

Comments:

Geotracker EDF ☐

Data Validation Package ☑ Level IV

(1) SSL 11/12/09

TestAmerica Denver

Sample Receiving Checklist

Lot #: D9K110632 Date/Time Received: 11/11/09 0930

Company Name & Sampling Site: Boeing - MCAH ISRA

PM to Complete This Section:	*Yes*	*No*		*Yes*	*No*		*Yes*	*No*
Residual chlorine check required:	☐	☒	Quarantined :	☐	☒	MIS prep :	☐	☒

Quote #: 80017-D

Special Instructions: * Sub all to Knox

Time Zone:
• EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER

Unpacking Checks:

Cooler #(s): _____ _____ _____ _____ _____ _____ _____ _____

Temperatures (°C): 1.5 _____ _____ _____ _____ _____ _____ _____

N/A	*Yes*	*No*		*Initials*
☐	☒	☐	1. Cooler seals intact? (N/A if hand delivered) If no, document on CUR.	LM.
	☒	☐	2. Coolers scanned for radiation. Is the reading ≤ to background levels? Yes: ✓ 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	
	☐	☒	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.	
	☐	☒	17. Are analyses with short holding times requested?	
	☐	☒	18. Was a quick Turn Around (TAT) requested?	

TestAmerica Denver

Sample Receiving Checklist

Lot # D9K1106032

Login Checks: *Initials* LM.

N/A	Yes	No		
	☒	☐	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 contact PM before proceeding.
	☒	☐	21. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?	
☐	☒	☐	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? 1	
☒	☐	☐	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?	

Labeling and Storage Checks: *Initials* LC

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

Laboratory **TestAmerica Knoxville**
5815 Middlebrook Pike

Knoxville, TN 37921

TestAmerica
SAMPLE ANALYSIS REQUISITION

Lab Request SR116250

D9K110632

Report Package: **Expanded Deliverables**

Need Analytical Report 2009-11-23

Client Code: 99400

Project Manager:

Sample I.D.	LocID	Work Order No.	Client Sample ID	Sampling Date	Analysis Required
D9K110632-1		LN93H	AZET0101S001SP	2009-11-10 14:29	SOLID, 1613B Dioxins (Knox) |BOE10|
D9K110632-1		LN93H	AZET0101S001SP	2009-11-10 14:29	SOLID, 160.3 % Moisture (Knox) |BOE1|

1 COOLER REC'D @ 1°C
FED EX # 8648 4043 3891
CUSTODY SEAL INTACT
TS 11/12/09

Please use Client Sample ID for report

Call with questions at 303-736-0100

Shipping Method:

Need detection limit and analysis date included in report.

Please send a signed copy of this form with the report at completion of analysis.

Relinquished by: Tina Miller Date/Time: 11/11/09 1600

Relinquished by: _____ Date/Time: _____

Received for lab by: Teri Smith Date/Time: 11/12/09 10:00AM

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: 09K110632

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	√			☐ 1a Do not match COC ☐ 1b Incomplete information ☐ 1c Marking smeared ☐ 1d Label torn ☐ 1e No label ☐ 1f COC not received ☐ 1g Other:	
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C; NC, 1668, 1613B: 0-4°C; VOST: 10°C; MA: 2-6 °C)	√			☐ 2a Temp Blank = _____ ☐ 2b Cooler Temp = _____	
3. Were samples received with correct chemical preservative (excluding Encore)?			√	☐ 3a Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?	√			☐ 4a Not present ☐ 4b Not intact ☐ 4c Other:	
5. Were all of the samples listed on the COC received?	√			☐ 5a Samples received-not on COC ☐ 5b Samples not received-on COC	
6. Were all of the sample containers received intact?	√			☐ 6a Leaking ☐ 6b Broken	
7. Were VOA samples received without headspace?	√		√	☐ 7a Headspace (VOA only)	
8. Were samples received in appropriate containers?	√			☐ 8a Improper container	
9. Did you check for residual chlorine, if necessary?			√	☐ 9a Could not be determined due to matrix interference	
10. Were samples received within holding time?	√			☐ 10a Holding time expired	
11. For rad samples, was sample activity info. provided?			√	☐ Incomplete information	
12. For 1613B water samples is pH<9?			√	If no, was pH adjusted to pH 7 - 9 with sulfuric acid? _____	
13. Are the shipping containers intact?	√			☐ 13a Leaking ☐ 13b Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	√			☐ 14a Not relinquished	
15. Are tests/parameters listed for each sample?	√			☐ 15a Incomplete information	
16. Is the matrix of the samples noted?	√			☐ 15a Incomplete information	
17. Is the date/time of sample collection noted?	√			☐ 15a Incomplete information	
18. Is the client and project name/# identified?	√			☐ 15a Incomplete information	
19. Was the sampler identified on the COC?		√			

Quote #: _____ PM Instructions: _____

Sample Receiving Associate: Julie Smith D Date: 11/12/09

TestAmerica Knoxville Dioxin GC/MS Data Review / Narrative Checklist

LOT # D9K110632

Method: 1613B - KNOX-ID-0004-R8 Page 1 of 1 Batch# 9320248

Review Items A. Initial Calibration	N/A	Yes	No	Why is data reportable?	2nd Level
1. Was the correct ICAL used for quantitation? (Check 1-2 compounds for batch by manually calculating concentration using the ICAL avg. RF.)		✓			✓
B. Continuing Calibration	**N/A**	**Yes**	**No**		**2nd**
1. Has a Continuing Calibration Checklist been completed for each analytical batch?		✓			✓
C. Client Sample AND QC Sample Results	**N/A**	**Yes**	**No**		**2nd**
1. Were all special project requirements met?		✓			✓
2. Were the header information, prep factors, and dilution factors verified?		✓			✓
3. Is logbook date/time of analysis correct?		✓			✓
4. Sample analyses done within preparation and analytical holding time (HT)? *If no, list samples:* _____		✓		☐ HT expired upon receipt. ☐* Client requested analysis after HT expired. ☐ Re-extraction done after HT expired.	✓
5. Are internal standards within QC limits specified in Table 13? *If no, list samples and reason (e.g., sur1):* Sample / Reason / Sample / Reason _____		✓		☐* **[sup]** Ion suppression due to matrix. ☐* **[low]** Low recovery. S/N >10 and EDL<ML. ☐ **[sam]** Not enough sample to re-extract. ☐ **[dil]** Dilution showed acceptable %R. ☐ **[mtx]** Obvious matrix interference. Further cleanup not possible. ☐* **[unk]** At client's request, data was flagged as estimated and released without further investigation.	✓
6. Were reported PCDD/Fs which did not meet the criteria below, properly calculated and reported as EMPCs?: • RT of 2378 isomers within SOP Table 3 limits. • RT of non-2378 isomers within established first/last windows. • Both native ions maximized within ±2 seconds. • Ion abundance ratios within the control limits specified in Table 22. • No corresponding peak at PCDPE mass.		✓			✓
7. Were all 2378-TCDF hits ≥ ML confirmed by analysis on DB-225?	✓				✓
8. Are positive results > ML within calibration range? *If no, list samples:* _____		✓		☐ OCDD/F or non-2378 exceeded calibration range ☐ Sample extracted at lowest possible volume	✓
9. Are all manual integrations clearly identified and approved?		✓			✓
10. Were before/after chromatograms reviewed to determine whether the software and manual integrations were appropriate?.		✓			✓
11. Were manual integrations performed properly?		✓			✓
12. Final report acceptable? (Results correct, DLs calculated correctly, units correct, IS %R correct, appropriate flags used, dilution factor correct, and extraction/ analysis dates correct.)		✓			✓
13. Was a narrative prepared and all deviations noted?		✓			✓
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 specified in QuantIMS reference data?		✓		☐* Reanalysis not possible-insufficient sample. ☐ LCS %R high and affected analyte(s) were <ML in associated samples.	✓
2. Method blank done per prep batch, method/instrument blank analyzed with each sequence and analytes present in the method blank ≤ ML? *If no, list blank ID:* _____		✓		☐ Sample results are > 20x higher than blank. ☐* There is no analyte > RL in the samples associated with method blank. ☐* Reanalysis not possible-insufficient sample	✓
3. MS/MSD recoveries and RPDs within laboratory generated QC limits? *If no, list MS/MSD* _____		✓		☐ LCS acceptable, indicating sample matrix effects. ☐ LCS acceptable, high analyte concentration. ☐ LCS acceptable, lack of sample homogeneity.	✓
E. Other	**N/A**	**Yes**	**No**		**2nd**
1. Are all nonconformances documented appropriately and copy included with deliverable?	✓				✓

Analyst:	Date: 11/25/09	Analyst:	Date: 11/25/09
Comments:		Comments:	

* Such action must be taken in consultation with client.

TestAmerica Knoxville Specialty Organic Prep Batch Review/Checklist Batch # 932 0248

☒ KNOX-ID-0004, rev 8 (PCDD/F extraction) ☐ KNOX-ID-0012, rev 2 (Air Train extraction) ☐ KNOX-ID-0013, rev 8 (PCB extraction) ☐ KNOX-ID-0016, rev6 (LR-SIM PAH extraction)

Review Items	N/A	Yes	No	If No, why is data reportable	2nd Level
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?		✓			✓
3. Were the samples extracted within the required holding times?		✓			✓
4. For waters by 1613B, if visible solids were present, were solids determined to be ≤ 1%?	✓				✓
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?		✓			✓
7. Were MS Run# properly assigned and samples entered on QC tracking Sheet?		✓			✓
8. Were samples requested properly and request form completed, signed, and dated?		✓			✓
9. Were the correct weights and volumes entered in Quantims for all samples?		✓			✓
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?	✓				✓
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?		✓			✓
14. Are the final extracts free of water, precipitates, multiple phases, and color?			✓	LNIWA, LNIWC Dothyellow after all cleanup manipulations additional dilution.	✓
15. Were all appropriate notes and observations recorded on the prep benchsheet and in Quantims?		✓			✓
16. Were all Quantims batch information completed including; • Batch reviewed • 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; • Prep 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 • Sample worksheets for all samples in the batch in proper order as recorded on tracking sheet		✓			✓
18. Are all nonconformances documented appropriately and copy included with deliverable?	✓				✓

Analyst : CBA Date: 11/19/09

Comments:

2nd Level Reviewer: [signature] Date: 11/19/09

Comments:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

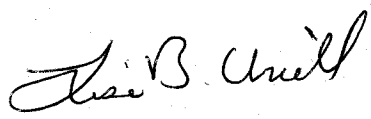
ANALYTICAL REPORT

Boeing SSFL – ISRA

Lot D9K110632

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

TestAmerica Laboratories, Inc.



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.

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.

Dioxin – SW846 Method 1613B (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.

Dioxin – SW846 Method 1613B (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 ID
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

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
LN93H	001	AZET0101S001SP	11/10/09	14:29

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

D9K110632

Sample Preparation and Analysis Control Numbers

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

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 Sample Name*	*Sub-Lab Sample Name*	*Matrix*	*Collection*	*Method*
AZET0101S001SP	D9K110632001	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°C ±2°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.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

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

Qualification Code Reference Table

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

Qualification Code Reference Table Cont.

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

III. Method Analyses

A. EPA METHOD 1613—Dioxin/Furans

Reviewed By: P. Meeks
Date Reviewed: December 4, 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: 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 AZET0101S001SP **Matrix Type:** SOIL **Result Type:** Primary Result

Lab Sample Name: D9K110632001 **Sample Date:** 11/10/2009 2:29:00 PM **Validation Level:** V

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562394	0.099	5	0.099	pg/g	U	U	
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	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-p-dioxin	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-p-dioxin	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-p-dioxin	19408743	0.092	5	0.092	pg/g	U	U	
1,2,3,7,8-Pentachlorodibenzofuran	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-Pentachlorodibenzofuran	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-Tetrachlorodibenzofuran	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	Q J	J	*III
Octachlorodibenzofuran	39001020	0.13	10	0.13	pg/g	U	U	
Octachlorodibenzo-p-dioxin	3268879	10	10	10	pg/g	B J	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	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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
17461 Derian Ave
Suite 100
Irvine, CA 92614
phone 949.261.1022 fax 949.260.3299

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

E500117

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Tom Venable	Site Contact: Shelby Valenzuela	Date: 7-1-09	COC No:
The Boeing Company SSFL	Tel/Fax: 818-466-8779 /818-466-4873	Lab Contact: Joe Doak	Carrier: COURIER	1 of 1 COCs
5800 Woolsey Canyon Road	Analysis Turnaround Time			Job No. 1891614.05452
Canoga Park, CA 91304	Calendar (C) or Work Days (W) C			
Phone	TAT if different from Below			SDG No.
FAX ISRA HV WASTE CHARACTERIZATION	[X] 2 weeks			
Project Name: ~~ISRA Soil Waste Characterization~~	[ ] 1 week			
Site: Happy Valley	[ ] 2 days			
P O # 7KSSISRA	[ ] 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	CAM 17 Metals	Sample Specific Notes:
ISWC00205001	7-1-09	12:02	S.S. SLEEVE	SOIL	1		X	ISRA-HVS-2C
ISWC00195001	7-1-09	12:36			1		X	
ISWC00235001	7-1-09	12:38			1		X	
ISWC00185001	7-1-09	12:48			1		X	
ISWC00225001	7-1-09	13:02			1		X	
ISWC00215001	7-1-09	13:12			1		X	
ISWC00175001	7-1-09	13:23			1		X	
ISWC00245001	7-1-09	13:33			1		X	

0.0 7/2/09 7:50

AR 7-1-09 AR 7-1-09 AR

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
[ ] Non-Hazard [ ] Flammable [ ] Skin Irritant Poison B [ ] Unknown [ ]

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
[ ] Return To Client [ ] Disposal By Lab [x] Archive For 6 Months

Special Instructions/QC Requirements & Comments: Run STLC (WET) / TCLP if TTLC results ≥ 10x STLC / 20x TCLP thresholds

207

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	MWH	1505 7/1/09		TestAmerica	7-1-09 / 15:05
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	TestAmerica	7-1-09 / 18:30		TAL	7/1/09 0830
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

QA/QC PACKAGE: LEVEL IV
PREPARED FOR: THE BOEING COMPANY SSFL
LABORATORY NUMBER: ISG0117
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 Boeing Company-SSFL	**Date Sampled:**	7/1/2009
Project:	ISRA HV Waste Characterization 1891614.05452	**Date Received:**	7/1/2009
Lab:	ISG0117		

SAMPLE RECEIPT: Samples were received intact, on ice, and with chain of custody documentation. The sample temperature was measured at 2.7º 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.

OBSERVATIONS: 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.

SUBCONTRACTED: SW846 7471A analysis was performed at TestAmerica, Inc. – Denver, CO.

TestAmerica Irvine

Joseph Doak
Project Manager
TA

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TestAmerica
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

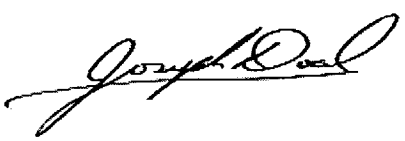
SAMPLE CROSS REFERENCE

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:



TestAmerica Irvine

Joseph Doak
Project Manager

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°C ±2°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.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

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

Qualification Code Reference Table

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

Qualification Code Reference Table Cont.

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

III. Method Analyses

A. EPA 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 laboratory-established 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 Method 6010B

Sample Name HZBS0154S001 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0117-07 **Sample** 7/1/2009 1:23:00 PM **Validation** 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 ID= ISWC0017
Beryllium	7440417	0.63	0.5	0.2	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID= ISWC0017
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/kg			$, 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	B		$, Result, RL and MDL were adjusted for % moisture. Original Sample ID= ISWC0017
Lead	7439921	9.3	2	0.4	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID= ISWC0017
Molybdenum	7439987	0.83	2	0.2	mg/kg	J	J	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID= ISWC0017
Nickel	7440020	8.3	2	0.2	mg/kg			$, 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 ID= ISWC0017
Silver	7440224	0.9	1	0.9	mg/kg	U	U	$, 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 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0117-04 **Sample** 7/1/2009 12:48:00 PM **Validation** 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 ID=ISWC0018S001
Nickel	7440020	21	4	0.4	mg/kg			$, Result, RL and MDL were adjusted 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 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0117-06 **Sample** 7/1/2009 1:12:00 PM **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	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 ID=ISWC0021S001
Cobalt	7440484	4	1	0.3	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original sample ID=ISWC0021S001
Copper	7440508	5.5	2	0.39	mg/kg	B		$, Result, RL and MDL were adjusted for % moisture. Original sample ID=ISWC0021S001
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. 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 ID=ISWC0021S001
Vanadium	7440622	27	1	0.3	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original sample ID=ISWC0021S001
Zinc	7440666	31	5	0.78	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original sample ID=ISWC0021S001

Analysis Method 6010B

Sample Name HZBS0157S001 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0117-05 **Sample** 7/1/2009 1:02:00 PM **Validation** 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	B		$, 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. 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 ID=ISWC0022S001
Silver	7440224	0.9	1	0.9	mg/kg	U	U	$, 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 Method 7471A

Sample Name HZBS0154S001 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0117-07 **Sample** 7/1/2009 1:23:00 PM **Validation** 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 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0117-04 **Sample** 7/1/2009 12:48:00 PM **Validation** 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 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0117-06 **Sample** 7/1/2009 1:12:00 PM **Validation** 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 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0117-05 **Sample** 7/1/2009 1:02:00 PM **Validation** 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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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

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

ISRA-HVS-2A

Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614
phone 949.261.1022 fax 949.260.3299

Chain of Custody Record

IS60118

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Tom Venable	Site Contact: Shelby Valenzuela	Date: 7/1/09	COC No:
The Boeing Company SSFL	Tel/Fax: 818-466-8779 /818-466-4873	Lab Contact: Joe Doak	Carrier: courier	____ of ____ COCs
5800 Woolsey Canyon Road	Analysis Turnaround Time			Job No. 1S91624.05452
Canoga Park, CA 91304	Calendar (C) or Work Days (W) C			
Phone	TAT if different from Below ____			SDG No.
FAX ISRA HV Waste Characterization	[X] 2 weeks			
Project Name: ~~ISRA Soil Waste Characterization~~	[ ] 1 week			
Site: Happy Valley	[ ] 2 days			
P O # 7KSSISRA	[ ] 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample (Y/N)	CAM 17 Metals	Sample Specific Notes:
ISWC0025 S001 (0-0.5')	7/1/09	1210	S	soil	1		X	ISRA-HVS-2A
ISWC0026 S001 (0.2-0.7')	7/1/09	1220	S	soil	1		X	
ISWC0027 S001 (0.2-0.7)	7/1/09	1230	S	soil	1		X	
ISWC0028 S001 (0.4-0.9')	7/1/09	1235	S	soil	1		X	
ISWC0029 S001 (1.3-1.8')	7/1/09	1260	S	soil	1		X	
ISWC0030 S001 (0.6-1.1')	7/1/09	1300	S	soil	1		X	
ISWC0031 S001 (0.5-1.0')	7/1/09	1250	S	soil	1		X	
ISWC0032 S001 (0.7-1.2')	7/1/09	1240	S	soil	1		X	
				Archive	S			
			SD 7/1/09					

0.0 7/2/09 9:45

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification
[ ] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown [ ]

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
[ ] Return To Client [ ] Disposal By Lab [X] Archive For 6 Months

Special Instructions/QC Requirements & Comments: Run STLC (WET) / TCLP if TTLC results ≥ 10x STLC / 20x TCLP thresholds

2.7C

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	MWH	1505 7/1/09		Test America	7-1-09 / 15:05
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	Test America	7-1-09 / 18:30		TAL	7/1/09 1832
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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

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 Boeing Company-SSFL	**Date Sampled:**	7/1/2009
Project:	ISRA HV Waste Characterization 1891614.05452	**Date Received:**	7/1/2009
Lab:	ISG0118		

SAMPLE RECEIPT: Samples were received intact, on ice, and with chain of custody documentation. The sample temperature was measured at 2.7º 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.

OBSERVATIONS: Results that fall between the MDL and RL are 'J' flagged.

SUBCONTRACTED: SW846 7471A analysis was performed at TestAmerica, Inc. – Denver, CO.

TestAmerica Irvine

Joseph Doak
Project Manager
TA

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

TestAmerica
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

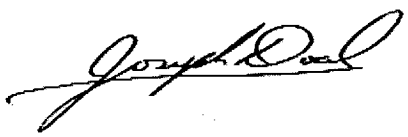
SAMPLE CROSS REFERENCE

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

ADDITIONAL 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:



TestAmerica Irvine

Joseph Doak
Project Manager

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

Task Order Title:	Boeing SSFL RFI ISRA
Contract Task Order:	1261.500D.00
Sample Delivery Group:	ISG0118
Project Manager:	Dixie Hambrick
Matrix:	soil
QC Level:	V
No. of Samples:	7
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica

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°C ±2°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.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

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

Qualification Code Reference Table

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

Qualification Code Reference Table Cont.

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

III. Method Analyses

A. EPA 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 laboratory-established 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 Method 6010B

Sample Name HZBS0158S001 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0118-01 **Sample** 7/1/2009 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 ID=ISWC0025S001
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	J	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0025S001
Cadmium	7440439	0.2	0.6	0.2	mg/kg	U	U	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0025S001
Chromium	7440473	13	1	0.3	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0025S001
Cobalt	7440484	5.5	1	0.3	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0025S001
Copper	7440508	12	2	0.42	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0025S001
Lead	7439921	12	2	0.4	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0025S001
Molybdenum	7439987	0.93	2	0.2	mg/kg	J	J	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0025S001
Nickel	7440020	9.4	2	0.2	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0025S001

Analysis Method *6010B*

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=ISWC0025S001
Thallium	7440280	0.9	11	0.9	mg/kg	U	U	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0025S001
Vanadium	7440622	31	1	0.3	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0025S001
Zinc	7440666	60	6	0.84	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0025S001

Analysis Method 6010B

Sample Name HZBS0159S001 **Matrix Type:** 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	B		$, 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*

Selenium	7782492	1	2	1	mg/kg	U	U	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0026S001
Silver	7440224	2.6	1	0.9	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0026S001
Thallium	7440280	0.9	11	0.9	mg/kg	U	U	$, 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 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0118-03 **Sample** 7/1/2009 12:30:00 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 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 ID=ISWC0027S001
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 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0118-05 **Sample** 7/1/2009 12:00:00 PM **Validation** 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	B		$, 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 ID=ISWC0029S001
Silver	7440224	0.8	1	0.8	mg/kg	U	U	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0029S001
Thallium	7440280	1.1	11	0.8	mg/kg	J	J	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0029S001
Vanadium	7440622	22	1	0.3	mg/kg			$, 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 ID=ISWC0029S001

Analysis Method 6010B

Sample Name HZBS0162S001 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0118-06 **Sample** 7/1/2009 1:00:00 PM **Validation** 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 ID=ISWC0030S001
Arsenic	7440382	4.2	2.4	0.99	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=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	B		$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0030S001
Lead	7439921	7.1	2	0.5	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0030S001
Molybdenum	7439987	0.81	2	0.2	mg/kg	J	J	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0030S001
Nickel	7440020	7.9	2	0.2	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0030S001

Analysis Method *6010B*

Selenium	7782492	1	2	1	mg/kg	U	U	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0030S001
Silver	7440224	1	1	1	mg/kg	U	U	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0030S001
Thallium	7440280	1	12	1	mg/kg	J	J	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0030S001
Vanadium	7440622	22	1	0.4	mg/kg			$, 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 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0118-07 **Sample** 7/1/2009 12:50:00 PM **Validation** 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=ISWC0031S001
Arsenic	7440382	3.9	2	0.83 mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0031S001
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	B		$, 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	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0031S001
Thallium	7440280	0.97	10	0.8	mg/kg	J	J	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0031S001
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 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0118-08 **Sample** 7/1/2009 12:40:00 PM **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. Original Sample ID=ISWC0032S001
Arsenic	7440382	3.7	2	0.84	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0032S001
Barium	7440393	80	1	0.8	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0032S001
Beryllium	7440417	0.68	0.5	0.2	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0032S001
Cadmium	7440439	0.2	0.5	0.2	mg/kg	U	U	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0032S001
Chromium	7440473	13	1	0.3	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0032S001
Cobalt	7440484	4	1	0.3	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0032S001
Copper	7440508	7.3	2	0.39	mg/kg	B		$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0032S001
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. Original Sample ID=ISWC0032S001

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	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0032S001
Thallium	7440280	0.8	10	0.8	mg/kg	U	U	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0032S001
Vanadium	7440622	23	1	0.3	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0032S001
Zinc	7440666	38	5	0.77	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0032S001

Analysis Method 7471A

Sample Name HZBS0158S001 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0118-01 **Sample** 7/1/2009 12:10:00 PM **Validation** 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 Type:** 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
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 Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0118-03 **Sample** 7/1/2009 12:30:00 PM **Validation** 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 Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0118-05 **Sample** 7/1/2009 12:00:00 PM **Validation** 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 Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0118-06 **Sample** 7/1/2009 1:00:00 PM **Validation** 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*

Sample Name HZBS0163S001 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0118-07 **Sample** 7/1/2009 12:50:00 PM **Validation** 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 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0118-08 **Sample** 7/1/2009 12:40:00 PM **Validation** V

Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Mercury	7439976	0.014	0.034	0.0057	mg/kg	J	J	$, Q, Result, RL and MDL adjusted for % moisture. Original Sample ID=ISWC0032S001

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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**

Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614
phone 949.261.1022 fax 949.260.3299

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TSC0119

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Tom Venable	Site Contact: Shelby Valenzuela	Date: 7-1-09	COC No:
The Boeing Company SSFL	Tel/Fax: 818-466-8779 /818-466-4873	Lab Contact: Joe Doak	Carrier: COURIER	1 of 1 COCs
5800 Woolsey Canyon Road	Analysis Turnaround Time			Job No. 1891614.05452
Canoga Park, CA 91304	Calendar (C) or Work Days (W) C			
Phone	TAT if different from Below			SDG No.
FAX ISRA HV WASTE CHARACTERIZATION	X 2 weeks			
Project Name: ~~ISRA Soil Waste Characterization~~	1 week			
Site: Happy Valley	2 days			
P O # 7KSSISRA	1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	CAM 17 Metals	Sample Specific Notes:
ISWC00045001	7-1-09	08:53	S.S. SLEEVE	SOIL	1	X	ISRA-HVS-1
ISWC00035001	7-1-09	09:16			1	X	
ISWC00025001	7-1-09	09:37			1	X	
ISWC00015001	7-1-09	09:55			1	X	
ISWC00055001	7-1-09	10:04			1	X	
ISWC00065001	7-1-09	10:29			1	X	
ISWC00075001	7-1-09	10:48			1	X	
ISWC00085001	7-1-09	11:01			1	X	

Brass

0.0 7/2/09 7.3

7-1-09 AR

7-1-09 AR

7-1-09 AR

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☑ Archive For 60 Months

Special Instructions/QC Requirements & Comments: Run STLC (WET) / TCLP if TTLC results ≥ 10x STLC / 20x TCLP thresholds

2.7C

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	MWH	1505 7/1/09			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	Test America	7-1-09/18:30			7/2/09 0830
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

030

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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**

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

CASE NARRATIVE

Client:	The Boeing Company-SSFL	**Date Sampled:**	7/1/2009
Project:	ISRA HV Waste Characterization 1891614.05452	**Date Received:**	7/1/2009
Lab:	ISG0119		

SAMPLE RECEIPT: Samples were received intact, on ice, with custody seals and chain of custody documentation. The sample temperature was measured at 2.7º 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: Selenium and Zinc were detected in the Method Blank of batch 9G06075.

The MS and/or MSD recoveries for Antimony were below acceptance limits due to sample matrix interference for EPA 6010B QC batch 9G06075. See LCS.

OBSERVATIONS: Results that fall between the MDL and RL are 'J' flagged.

SUBCONTRACTED: SW846 7471A analysis was performed at TestAmerica, Inc. - Denver, CO.

TestAmerica Irvine

Joseph Doak
Project Manager

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TestAmerica
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 12:49

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

This entire report was reviewed and approved for release.

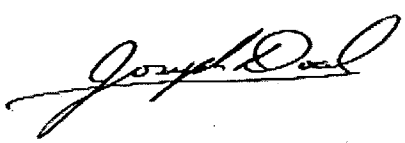
SAMPLE CROSS REFERENCE

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	CLIENT ID	MATRIX
ISG0119-07	HZBS0152S001	Soil
ISG0119-08	HZBS0153S001	Soil

Reviewed By:



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°C ±2°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.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

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

Qualification Code Reference Table

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

Qualification Code Reference Table Cont.

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

III. Method Analyses

A. EPA 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 laboratory-established 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

Sample Name HZBS0152S001 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0119-07 **Sample** 7/1/2009 10:48:00 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. 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 ID= ISWC0007
Cobalt	7440484	4.7	1	0.3	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original sample ID= ISWC0007
Copper	7440508	7.8	2	0.39	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original sample ID= ISWC0007
Lead	7439921	4.6	2	0.4	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original sample ID= ISWC0007
Molybdenum	7439987	0.9	2	0.2	mg/kg	J	J	$, Result, RL and MDL were adjusted for % moisture. Original sample ID= ISWC0007
Nickel	7440020	12	2	0.2	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original sample 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 ID= ISWC0007
Vanadium	7440622	27	1	0.3	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original sample ID= 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 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0119-08 **Sample** 7/1/2009 11:01:00 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. 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 ID=ISWC0008S001
Beryllium	7440417	2	0.5	0.2	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0008S001
Cadmium	7440439	0.4	0.5	0.2	mg/kg	J	J	$, 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 ID=ISWC0008S001
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 ID=ISWC0008S001
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

Analysis Method 7471A

Sample Name HZBS0152S001 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0119-07 **Sample** 7/1/2009 10:48:00 AM **Validation** 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 Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0119-08 **Sample** 7/1/2009 11:01:00 AM **Validation** 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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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

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

Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614
phone 949.261.1022 fax 949.260.3299

Chain of Custody Record

ISG0121

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Tom Venable	Site Contact: Shelby Valenzuela	Date: 7/1/09	COC No:
The Boeing Company SSFL	Tel/Fax: 818-466-8779 /818-466-4873	Lab Contact: Joe Doak	Carrier: Courier	____ of ____ COCs
5800 Woolsey Canyon Road	Analysis Turnaround Time			Job No. 1891614.05452
Canoga Park, CA 91304	Calendar (C) or Work Days (W) C			
Phone	TAT if different from Below ____			SDG No.
FAX ISRA -LIV Waste Characterization	[X] 2 weeks			
Project Name: ~~ISRA Soil Waste Characterization~~ SV	[ ] 1 week			
Site: Happy Valley	[ ] 2 days			
P O # 7KSSISRA	[ ] 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	CAM 17 Metals	Sample Specific Notes:
ISWC0033 S001	7/1/01	0853	ss.sline	soil	1		X	HVS-2b
ISWC0034 S001	"	0904			1		X	"
ISWC0035 S001	"	0922			1		X	"
ISWC0036 S001	"	0935			1		X	"
ISWC0037 S001	"	0953			1		X	"
ISWC0038 S001	"	1001			1		X	"
ISWC0039 S001	"	1016			1		X	"
ISWC0040 S001	"	1028	↓	↓	1		X	"

SV 7/1/09

0.0 7/2/09 6.0

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification
[ ] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
[ ] Return To Client [ ] Disposal By Lab [X] Archive For 6 Months

Special Instructions/QC Requirements & Comments: Run STLC (WET) / TCLP if TTLC results ≥ 10x STLC / 20x TCLP thresholds

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Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	MWH	7/1/09 1505		Test America	7-1-09 / 15:05
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	Test America	7-1-09 / 18:30		ZAI	7/1/09 1830
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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 Boeing Company-SSFL	**Date Sampled:**	7/1/2009
Project:	ISRA HV Waste Characterization 1891614.05452	**Date Received:**	7/1/2009
Lab:	ISG0121		

SAMPLE RECEIPT: Samples were received intact, on ice, and with chain of custody documentation. The sample temperature was measured at 2.7º 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: The MS and/or MSD recoveries for Antimony were below acceptance limits due to sample matrix interference for EPA 6010B QC batch 9G06076. See LCS.

OBSERVATIONS: Results that fall between the MDL and RL are 'J' flagged.

SUBCONTRACTED: SW846 7471A analysis was performed at TestAmerica, Inc. – Denver, CA.

TestAmerica Irvine

Joseph Doak
Project Manager
TA

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TestAmerica
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 12:57

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.

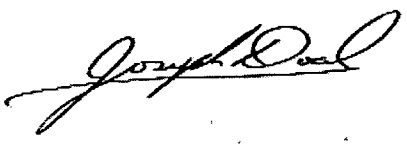
SAMPLE CROSS REFERENCE

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:



TestAmerica Irvine

Joseph Doak
Project Manager

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°C ±2°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.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

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

Qualification Code Reference Table

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

Qualification Code Reference Table Cont.

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

III. Method Analyses

A. EPA 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 laboratory-established 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 Method 6010B

Sample Name HZBS0165S001 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0121-01 **Sample** 7/1/2009 8:53:00 AM **Validation** 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	4.8	2	0.91	mg/kg			$, Result, RL and 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 ID=ISWC0033S001
Cadmium	7440439	0.2	0.6	0.2	mg/kg	U	U	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0033S001
Chromium	7440473	26	1	0.3	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0033S001
Cobalt	7440484	8	1	0.3	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0033S001
Copper	7440508	15	2	0.43	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0033S001
Lead	7439921	7.8	2	0.4	mg/kg			$, 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

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 ID=ISWC0033S001
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

Analysis Method 6010B

Sample Name HZBS0166S001 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0121-02 **Sample** 7/1/2009 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 ID=ISWC0034S001
Chromium	7440473	25	1	0.3	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0034S001
Cobalt	7440484	8	1	0.3	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0034S001
Copper	7440508	15	2	0.41	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0034S001
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 ID=ISWC0034S001
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 Sample ID=ISWC0 034S001

Analysis Method 6010B

Sample Name HZBS0167S001 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0121-03 **Sample** 7/1/2009 9:22:00 AM **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	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 ID=ISWC0035S001
Barium	7440393	85	1	0.9	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0035S001
Beryllium	7440417	0.73	0.6	0.2	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0035S001
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			$, 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=ISWC0035S001
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=ISWC0035S001
Vanadium	7440622	46	1	0.3	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0035S001
Zinc	7440666	67	6	0.84	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0035S001

Analysis Method 6010B

Sample Name HZBS0168S001 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0121-04 **Sample** 7/1/2009 9:35:00 AM **Validation** 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 Sample ID=ISWC0036S001
Beryllium	7440417	0.69	0.5	0.2	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0036S001
Cadmium	7440439	0.2	0.5	0.2	mg/kg	U	U	$, 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 ID=ISWC0036S001
Cobalt	7440484	8	1	0.3	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0036S001
Copper	7440508	14	2	0.4	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0036S001
Lead	7439921	6.9	2	0.4	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0036S001

Molybdenum	7439987	0.79	2	0.2	mg/kg	J	J	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0036S001
Nickel	7440020	16	2	0.2	mg/kg			$, 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

Analysis Method 6010B

Sample Name HZBS0169S001 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0121-05 **Sample** 7/1/2009 9:53:00 AM **Validation** V

Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Antimony	7440360	0.96	11	0.96 mg/kg		U	UJ	$, Q, Result, RL and MDL adjusted for % moisture. Original Sample ID=ISWC0037S001
Arsenic	7440382	4.6	2	0.89 mg/kg				$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0037S001
Barium	7440393	87	1	0.9 mg/kg				$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0037S001
Beryllium	7440417	0.8	0.5	0.2 mg/kg				$, Result, 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 mg/kg				$, Result, 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
Copper	7440508	15	2	0.42 mg/kg				$, Result, RL and MDL were adjusted 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 ID=ISWC0037S001
Molybdenum	7439987	0.81	2	0.2	mg/kg	J	J	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0037S001
Nickel	7440020	17	2	0.2	mg/kg			$, 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=ISWC0037S001
Vanadium	7440622	49	1	0.3	mg/kg			$, Result, RL 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

Analysis Method 6010B

Sample Name HZBS0170S001 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0121-06 **Sample** 7/1/2009 10:01:00 AM **Validation** V

Analyte	CAS No	Result Value	RL	MDL	Result	Lab Qualifier	Validation	Validation Notes
Antimony	7440360	0.96	11	0.96	mg/kg	U	UJ	$, Q, Result, RL 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
Barium	7440393	41	1	0.9	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0038S001
Beryllium	7440417	0.63	0.5	0.2	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0038S001
Cadmium	7440439	0.2	0.5	0.2	mg/kg	U	U	$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0038S001
Chromium	7440473	15	1	0.3	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0038S001
Cobalt	7440484	4	1	0.3	mg/kg			$, Result, RL and 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 for % moisture. Original Sample ID=ISWC0038S001

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	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			$, 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

Analysis Method 6010B

Sample Name HZBS0171S001 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0121-07 **Sample** 7/1/2009 10:16:00 AM **Validation** 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

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

Analysis Method 6010B

Sample Name HZBS0172S001 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0121-08 **Sample** 7/1/2009 10:28:00 AM **Validation** 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=ISWC0040S001
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 ID=ISWC0040S001
Beryllium	7440417	0.81	0.5	0.2	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0040S001
Cadmium	7440439	0.2	0.5	0.2	mg/kg	U	U	$, 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 ID=ISWC0040S001
Cobalt	7440484	6.8	1	0.3	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0040S001
Copper	7440508	8.9	2	0.41	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0040S001
Lead	7439921	7.3	2	0.4	mg/kg			$, Result, RL and MDL were adjusted for % moisture. Original Sample ID=ISWC0040S001
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

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 ID=ISWC0040S001
Vanadium	7440622	29	1	0.3	mg/kg			$, 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 ID=ISWC0040S001

Analysis Method 7471A

Sample Name HZBS0165S001 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0121-01 **Sample** 7/1/2009 8:53:00 AM **Validation** 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 Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0121-02 **Sample** 7/1/2009 9:04:00 AM **Validation** 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 Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0121-03 **Sample** 7/1/2009 9:22:00 AM **Validation** 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 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0121-04 **Sample** 7/1/2009 9:35:00 AM **Validation** 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 Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0121-05 **Sample** 7/1/2009 9:53:00 AM **Validation** 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 Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0121-06 **Sample** 7/1/2009 10:01:00 AM **Validation** 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 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0121-07 **Sample** 7/1/2009 10:16:00 AM **Validation** 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 **Matrix Type:** Soil **Result Type:** Primary

Lab Sample Name: ISG0121-08 **Sample** 7/1/2009 10:28:00 AM **Validation** 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

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Suite 100
Irvine, CA 92614
phone 949.261.1022 fax 949.260.3299

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ISG0122

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Tom Venable	Site Contact: Shelby Valenzuela	Date: 7/1/09	COC No:
The Boeing Company SSFL	Tel/Fax: 818-466-8779 /818-466-4873	Lab Contact: Joe Doak	Carrier: Courier	____ of ____ COCs
5800 Woolsey Canyon Road	Analysis Turnaround Time			Job No. 1891614.05452
Canoga Park, CA 91304	Calendar (C) or Work Days (W) C			
Phone	TAT if different from Below			SDG No.
FAX ISRA HV Waste Characterization	[X] 2 weeks			
Project Name: ~~ISRA Soil Waste Characterization~~	[ ] 1 week			
Site: ~~Happy Valley~~ Canyon	[ ] 2 days			
P O # 7KSSISRA	[ ] 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	CAM 17 Metals	Sample Specific Notes:
ISCW0042 S001	7/1/09	1111	S.S. Sleeve	soil	1		X	CYN-1
ISCW0041 S001	"	1123			1		X	"
ISCW0043 S001	"	1134			1		X	"
ISCW0044 S001	"	1143			1		X	"

7/1/09

0.0
7/2/09
6:30

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification
[ ] Non-Hazard [ ] Flammable [ ] Skin Irritant ~~Poison B~~ [ ] ~~Unknown~~ [ ]

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
[ ] Return To Client [ ] Disposal By Lab [X] Archive For 6 Months

Special Instructions/QC Requirements & Comments: Run STLC (WET) / TCLP if TTLC results ≥ 10x STLC / 20x TCLP thresholds

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Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	MWH	7/1/09 1505		TestAmerica	7-1-09 / 15:05
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	TestAmerica	7-1-09 / 18:30		TAL	7/1/09 1830
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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

Task Order Title:	Boeing SSFL RFI ISRA
Contract Task Order:	1261.500D.00
Sample Delivery Group:	ISG0122
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*
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°C ±2°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.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins 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.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
T-I	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. The tentative identification represents a compound with a CAS number and fit greater than 80%.	Not applicable

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

Qualification Code Reference Table

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

Qualification Code Reference Table Cont.

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

III. Method Analyses

A. EPA 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 laboratory-established 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 Method 6010B

Sample Name CNBS0135S001 **Matrix Type:** 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
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 **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
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 CNBS0135S001 **Matrix Type:** 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 for % moisture