Case Narrative

Analysis: Mercury on Sorbent Tubes
Preparation SOP: NMAM 6009 MOD
Analysis SOP: NMAM 6009 MOD

Client: Atmospheric Analysis & Consulting, Inc.
Matrix: Hopcalite/Hydrar Sorbent Tubes
ALS Workorder ID: 1311469

General Set Information: Five samples were analyzed for mercury on sorbent tubes.

Method Summary: Sorbent material is transferred into digestion vessels and dissolved in 5mL of a solution that is 50% concentrated nitric acid and 50% concentrated hydrochloric acid. The acid solution and dissolved sorbent material is diluted to 50mL final volume with ASTM Type II water. Digested samples are then analyzed using a CETAC M-7500 cold vapour mercury analyzer with a CETAC ASX-130 autosampler, utilizing stannous chloride as a reducing reagent.

Sample Preparation: All samples were prepared in accordance with published procedures.

Hold Time: All samples were prepared and analyzed within the appropriate hold time.

Instrument Calibration: Instrument calibration was performed at the range of 0.01 to 1.0 µg/sample utilizing solutions prepared at the same time and by the same process as the field samples and quality control samples. Calibration results are within acceptable criteria.

Initial and Continuing Calibration Verification Data: Initial and continuing calibration verifications were performed in accordance with published procedures. All calibration verifications were within control limits. All calibration blank concentrations were less than the reporting limit.

Method and Sample QC Data: The reagent blank and method blank concentrations were less than the reporting limit. The LCS and LCSD results were within control limits. The relative percent difference between the LCS and LCSD is within control limits.

Dilutions: No dilutions were required.

Matrix Spike and Matrix Spike Duplicate Analysis: NA

Post-Digestion Spike analysis: NA.

NC/CAR: None were required.

Flagging Codes: Refer to the last page of the report for all applicable flagging codes.

Sample Calculation: The analysis instrument produces results in µg/sample. Reported results are calculated by the following equation; results are reported to two significant figures.

mg of mercury per m^3 = [(A)(B)(C)] / [(D)(E)]

A = Analyte concentration from instrument determination (µg/sample)
B = Dilution performed at time of analysis if applicable
C = Conversion factor: (1 mg/1000µg)
D = Air volume per sample
E = Conversion factor: (1 m^3/1000L) if air volume provided in L

Example Calculation: [(0.5µg/sample)(1 mg/1000µg)] / [(500L)(1 m^3/1000L)] = 0.001 mg/m^3

- Note that because the conversion factors cancel mathematically the same result will be obtained by simply dividing the µg/sample result by the sample air volume in L.

Miscellaneous Comments: None.

Christopher R Hansen 04/29/13

Christopher R. Hansen April 29, 2013

ANALYTICAL REPORT

Report Date: April 29, 2013

Eric Grosjean
Atmospheric Analysis & Consulting, Inc.
1534 Eastman Avenue
Suite A
Ventura, CA 93003

Phone: (805) 650-1642
Fax: (805) 650-1644
E-mail: egrosjean@aaclab.com

Workorder: **34-1311469**
Client Project ID: 130456/Landfill 042313 2
Purchase Order: 130456
Project Manager: Paul Pope

Analytical Results

Sample ID: **130456-62455** Media: SKC 226-17-1A, Hopcalite Tube Collected: 04/16/2013
Lab ID: 1311469001 Sampling Location: Landfill Received: 04/23/2013
Method: **NIOSH 6009** **Sampling Parameter:** **Air Volume 127 L** **Analyzed:** 04/26/2013

Analyte	ug/sample	ug/m³	ppb	RL (ug/sample)
Mercury	<0.010	<0.079	<0.0096	0.010

Sample ID: **130456-62464** Media: SKC 226-17-1A, Hopcalite Tube Collected: 04/16/2013
Lab ID: 1311469002 Sampling Location: Landfill Received: 04/23/2013
Method: **NIOSH 6009** **Sampling Parameter:** **Air Volume 1.01 L** **Analyzed:** 04/26/2013

Analyte	ug/sample	ug/m³	ppb	RL (ug/sample)
Mercury	<0.010	<9.9	<1.2	0.010

Sample ID: **130456-62473** Media: SKC 226-17-1A, Hopcalite Tube Collected: 04/16/2013
Lab ID: 1311469003 Sampling Location: Landfill Received: 04/23/2013
Method: **NIOSH 6009** **Sampling Parameter:** **Air Volume 0.93 L** **Analyzed:** 04/26/2013

Analyte	ug/sample	ug/m³	ppb	RL (ug/sample)
Mercury	<0.010	<11	<1.3	0.010

Sample ID: **130456-62482** Media: SKC 226-17-1A, Hopcalite Tube Collected: 04/16/2013
Lab ID: 1311469004 Sampling Location: Landfill Received: 04/23/2013
Method: **NIOSH 6009** **Sampling Parameter:** **Air Volume 0.99 L** **Analyzed:** 04/26/2013

Analyte	ug/sample	ug/m³	ppb	RL (ug/sample)
Mercury	<0.010	<10	<1.2	0.010

ANALYTICAL REPORT

Workorder: **34-1311469**
Client Project ID: 130456/Landfill 042313 2
Purchase Order: 130456
Project Manager: Paul Pope

Analytical Results

Sample ID: **130456-62492** Media: SKC 226-17-1A, Hopcalite Tube Collected: 04/16/2013
Lab ID: 1311469005 Sampling Location: Landfill Received: 04/23/2013

Method: NIOSH 6009 **Sampling Parameter: Air Volume Not Applicable** **Analyzed:** 04/26/2013

Analyte	ug/sample	ug/m³	ppb	RL (ug/sample)
Mercury	<0.010	NA	NA	0.010

Report Authorization

Method	Analyst	Peer Review
NIOSH 6009	Christopher R. Hansen	Kevin Tucker

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	ACLASS (DoD ELAP)	ADE-1420	http://www.aclasscorp.com
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing:			
CPSC	ACLASS (ISO 17025, CPSC)	ADE-1420	http://www.aclasscorp.com
Soil, Dust, Paint ,Air	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aclasscorp.com

ANALYTICAL REPORT

Workorder: **34-1311469**
Client Project ID: 130456/Landfill 042313 2
Purchase Order: 130456
Project Manager: Paul Pope

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1311469

Limits: Historical/Performance
Basis: ALS Laboratory Group

Preparation: NA
Batch: NA
Prepared By: NA

Analysis: NIOSH 6009
Batch: IHG/2280 (HBN: 105920)
Analyzed By: Christopher R. Hansen

Blank

LRB: 331272
Analyzed: 04/26/2013 17:58
Units: ug/sample

Analyte	Result	MDL	RL
Mercury	ND	NA	0.0100

LMB: 331273
Analyzed: 04/26/2013 17:59
Units: ug/sample

Analyte	Result	MDL	RL
Mercury	ND	NA	0.0100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 331274
Analyzed: 04/26/2013 18:01
Dilution: 1
Units: ug/sample

LCSD: 331275
Analyzed: 04/26/2013 18:02
Dilution: 1
Units: ug/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Mercury	0.516	0.500	103	80.3	128.9	0.519	104	0.715	0.0	15.0

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1311469

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** NIOSH 6009
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IHG/2280 (HBN: 105920)
	Prepared By: NA	**Analyzed By:** Christopher R. Hansen

Initial Calibration Verification

ICV: 331270
Analyzed: 04/26/2013 17:56
Units: ug/L
Criteria: ± 20%

Analyte	Result	Target	% Rec.
Mercury	0.517	0.500	103

Continuing Calibration Verification

	CCV: 331277			CCV: 331280		
	Analyzed: 04/26/2013 18:04			Analyzed: 04/26/2013 18:13		
	Units: ug/L			Units: ug/L		
	Criteria: ± 20%			Criteria: ± 20%		
Analyte	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**
Mercury	0.512	0.500	102	0.508	0.500	102

Initial Calibration Blank

ICB: 331271
Analyzed: 04/26/2013 17:57
Units: ug/L

Analyte	Result	Qual.
Mercury	ND	U

Continuing Calibration Blank

	CCB: 331278			CCB: 331281	
	Analyzed: 04/26/2013 18:05			Analyzed: 04/26/2013 18:14	
	Units: ug/L			Units: ug/L	
Analyte	**Result**	**Qual.**	**Result**	**Qual.**	
Mercury	ND	U	ND	U	

QC Data Approved and Reviewed by

Christopher R. Hansen	Kevin Tucker	4/29/2013
Analyst	**Peer Review**	**Date**

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
◆ - Sample and Matrix Duplicate less than 5 times the reporting limit

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
QC results are not adjusted for moisture correction, where applicable

ATMOSPHERIC ANALYSIS & CONSULTING, INC.
1534 Eastman Avenue, Suite A
Ventura, California 93003
Phone (805) 650-1642 Fax (805) 650-1644
E-mail: info@aaclab.com

1311469

11098/2

AAC Project No. 130456

Subcontractor Lab:
ALS-Salt Lake City UT
Paul E Pope
1 800-356-9135
960 West LeVoy Drive, Salt Lake City, UT 84123

Ship:
ONTRAC STD OVN
AAC Account

1311469

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

Client Name	Project Name	Analysis Requested	Send Report:
AAC, Inc.	Landfill		
Project Mgr (Print Name)	Project Number		Attn: Eric Grosjean
Eric Grosjean	130456		Phone #: 805-650-1642
Sampler's Name (Print Name)	Sampler's Signature		Fax #: 805-650-1644

AAC Sample No.	Date Sampled	Time Sampled	Sample Type	Client Sample ID/Description	Type/No. of containers	NIOSH 6009 Mercury	Hold for Backup	Sample Volume, Liters			
130456-62455	04/16/2013	15:58	Tube	BZ-1	Tube 1	X					
130456-62464	04/16/2013	13:24	Tube	F-1	Tube 1	X					
130456-62473	04/16/2013	14:43	Tube	F-2	Tube 1	X					
130456-62482	04/16/2013	15:18	Tube	F-3	Tube 1	X					
130456-62492	04/16/2013	NA	Tube	Trip Blank	Tube 1	X					

Send Invoice to:
Attn: Eric Grosjean
egrosjean@aaclab.com
P.O. # NA

Turn Around Time
24-Hr ____ 48-Hr ____
5 day ____ Normal X
Other (Specify)

Special Intructions / remarks:

Please provide Level IV Data Package

Please report in ppbv and ug/m^3 and email Excel spreadsheet

Relinquished by (Signature)	Print name: Eric Grosjean	Date/Time 4/18/13 13:20	Received by (Signature)	Print Name
Relinquished by (Signature)	Print name:	Date/Time 4/22/13 1420	Received by (Signature) 04/23/13 0845	Print Name

Log of Air Samples Collected on April 16, 2013				
Sample ID	Sample Name	Parameter	Description	Volume (Liters)
130456-62453	BZ-1	Hydrogen Cyanide	On-site Ambient	84.2
130456-62462	F-1	Hydrogen Cyanide	Landfill Gas	0.950
130456-62471	F-2	Hydrogen Cyanide	Landfill Gas	0.879
130456-62480	F-3	Hydrogen Cyanide	Landfill Gas	0.972
130456-62449	BZ-1	Carboxylic Acids	On-site Ambient	114
130456-62458	F-1	Carboxylic Acids	Landfill Gas	1.04
130456-62467	F-2	Carboxylic Acids	Landfill Gas	0.958
130456-62476	F-3	Carboxylic Acids	Landfill Gas	1.05
130456-62455	BZ-1	Mercury	On-site Ambient	127
130456-62464	F-1	Mercury	Landfill Gas	1.01
130456-62473	F-2	Mercury	Landfill Gas	0.930
130456-62482	F-3	Mercury	Landfill Gas	0.990

Log of Air Samples Collected on April 16, 2013				
Sample ID	**Sample Name**	**Parameter**	**Description**	**Volume (Liters)**
130456-62453	BZ-1	Hydrogen Cyanide	On-site Ambient	84.2
130456-62462	F-1	Hydrogen Cyanide	Landfill Gas	0.950
130456-62471	F-2	Hydrogen Cyanide	Landfill Gas	0.879
130456-62480	F-3	Hydrogen Cyanide	Landfill Gas	0.972
130456-62449	BZ-1	Carboxylic Acids	On-site Ambient	114
130456-62458	F-1	Carboxylic Acids	Landfill Gas	1.04
130456-62467	F-2	Carboxylic Acids	Landfill Gas	0.958
130456-62476	F-3	Carboxylic Acids	Landfill Gas	1.05
130456-62455	BZ-1	Mercury	On-site Ambient	127
130456-62464	F-1	Mercury	Landfill Gas	1.01
130456-62473	F-2	Mercury	Landfill Gas	0.930
130456-62482	F-3	Mercury	Landfill Gas	0.990

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

Batch Worklist

Batch: IHG/ 2280 Created: 4/26/2013 12:33 Instrument: HBN: 105920

Rule: IH Mercury, Air Analyst: C. Hansen Status: WP

Workorder: 1311469 IH_LVL 4

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Mx	Type	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	331270	ICV			3	ICV		N6009..C1Q	6118		4/30/2013	
2	331271	ICB			3	ICB		N6009..C1Q	6118		4/30/2013	
3	331272	RB			1	LRB		N6009...1Q	6118		4/30/2013	
4	331273	MB			1	LMB		N6009...1Q	6118		4/30/2013	
5	331274	LCS			1	LCS		N6009...1Q	6118		4/30/2013	
6	331275	LCSD			1	LCSD		N6009...1Q	6118		4/30/2013	
7	331276	RLVS			1	RLVS		N6009...1Q	6118		4/30/2013	
8	331277	CCV			3	CCV		N6009..C1Q	6118		4/30/2013	
9	331278	CCB			3	CCB		N6009..C1Q	6118		4/30/2013	
10	1311469001	130456-62455			1	SAMPLE	1311469001-A	N6009....1	5975		4/30/2013	
11	1311469002	130456-62464			1	SAMPLE	1311469002-A	N6009....1	5975		4/30/2013	
12	1311469003	130456-62473			1	SAMPLE	1311469003-A	N6009....1	5975		4/30/2013	
13	1311469004	130456-62482			1	SAMPLE	1311469004-A	N6009....1	5975		4/30/2013	
14	331279	130456-62482(1311469004REP)			1	REP		N6009...1Q	6118		4/30/2013	
15	1311469005	130456-62492			1	FLDBK	1311469005-A	N6009....1	5975		4/30/2013	
16	331280	CCV			3	CCV		N6009..C1Q	6118		4/30/2013	
17	331281	CCB			3	CCB		N6009..C1Q	6118		4/30/2013	

NMAM 6009 MOD Hg on Hopcalite Sorbent Tubes/Badges:

Sample, Set, Prep-Batching Information

Workorder ID	Sample #s	HBN	Account	Level
1311469	001-005	105920	7003	IH-4
1311226	001-003	105921	↓	IH-1
1311474	003, 008, 012, 015, 017	↓	↓	IH-2
↓	↓	↓	↓	↓

CH 04/26/2013

Sample Media Type Information

Tube Sets	1311469, 1311474
Badge Sets	1311226

Preparation Information

Preparer Name: Christopher R Hansen	
Prep Start Date: 04/26/2013	Prep Start Time: 15:00

Method Information

QC and sample hopcalite materials are transferred into digestion vessels. (Blank tubes are always used for hopcalite QC material)

Hopcalite QC matrix: MB,LCS,LCSD,RLVS	Lot ID: Tube, Carulite (HYDRAR) Lot 7883 Exp May/2017

10 mL of ASTM Type II H_2O is added to digestion vessels for standards and RB (all digestion vessels that do not contain hopcalite material). Mercury Standards and QCs spiked as indicated. [Hg] in µg/sample. LCS, LCSD, and RLVS are spiked on hopcalite QC material.

Standard Name	Spiking Volume	Spike ID	Pipette Used	[Hg]
S0/ICB/CCB/ RB	NONE	NONE	NONE	0
S0.01	100µL B	18701	Hg-3	0.01
S0.05	500µL B	↓	G32733B	0.05
S0.10	100µL A	18700	Hg-3	0.10
S0.50/CCV	500µL A	↓	G32733B	0.50
S1.00	1000µL A	↓	↓	1.00
ICV	500µL ICV	18699	↓	0.50
MB	NONE	NONE	NONE	0
LCS, LCSD	500µL ICV/A	18699	G32733B	0.50
RLVS (optional)	100µL B	18701	Hg-3	0.01

2.5 mL HNO_3 and then 2.5 mL HCl is added to each vessel. Allow QCs and samples to digest until completely dissolved (about one hour).

HNO3	Lot: 52088	Manufacturer: EMD	
HCl	Lot: 52250	Manufacturer: EMD	
Start Time: 16:23		End Time: 17:23	

Dilute all standards QCs and samples to final volume of 50 mL with ASTM Type II H_2O. Cap tightly and shake to mix. Since the final volumes of the instrument calibration standards and all the QCs and samples are the same, the targets of the instrument calibration standards are entered into the method in ug/sample. Therefore all results are given in ug/sample.

Prep comments:

Samples obtained from sample-receiving 04/26/2013 14:40 to metals prep lab. CH

The sorbent material in sample 1311474-003 CH 04/29/13 was moist causing it to clump. A small amount of ASTM Type II H2O was used to rinse the material from the tube. The glass-wool plug was included with the digestion of this sample because it contained clumped and moistened sorbent material also. CH 04/26/13

Digestion of sample 1311474-003 appeared normal. CH 04/26/13 CH 04/29/13

Tubes had an odor.

Analysis Information

Analyst Name: Christopher R Hansen	
Date Received for Analysis: 04/26/13	Time Received: 17:37

CVAA Instrument Information

Type: Cold vapor atomic absorption	Wavelength: 253.7 nm
Name: CETAC M-7500	Lab ID: AACV02

Reagent Information

10% $SnCl_2$ + 7% HCl	Reagent Notebook Info: Book: 2243	Page: 92	Entry: 22
5% HCl + 5% HNO_3	Reagent Notebook Info: Book: 2243	Page: 92	Entry: 25

Run Information

Run Date: 04/26/13	Start Time: 17:49	End Time: 18:27
Analysis HBN: 105920, 21	Run Data File: CV2-13103	

Dilution Information

Sample	Dilution	Pipette(s)	Reason

NONE CH 04/26/2013

Sample Result Information

Data Conversion: (µg/sample result)(dilution factor) = (µg/sample final result)
Conversion For Tubes: (ug/sample)(1sample/[#]L)(1000L/m^3)(1mg/1000ug)=mg/m^3
Conversion For Badges: (ug/sample)(1sample/[#]minutes)(1min/20cm^3)(1x10^6cm^3/m^3)(1mg/1000ug)=mg/m^3
QC Control Limits: Calibration R^2 0.995 minimum; ICV ± 20%; CCV/CCVA ± 20%; LCS/LCSD ± 20%; RPD = 20% max
Reporting Limit (RL) = 0.01 ug/sample Hg.
This log page, batch sheets, and any associated data is scanned and saved as a PDF file named for the analysis HBN and stored in a network folder also named for the analysis HBN. Saved to: \\Alsltws013\DataReview
Mercury reagents notebook pages are scanned and saved online to: \\Alsltws013\pccommon\Mercury\Reagents
ALS Method: NMAM 6009 MOD (NIOSH 6009 MOD)

Additional Information

Analysis comments:

NONE CH 04/26/2013

TITLE ALS Mercury Preparation Reagents Log Book Project No. Book No. 3707

From Page No.

No.	Reagent Name	Chemicals used	Chemical source	Chemical Lot ID	Balance/ pipette used	Prep Recipe Book/page	Date prepared	Date Expires	Volume prepared	Initials
1	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/80	8/2/2011	8/2/2012	10 L	CH
2	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/80	8/22/2011	8/22/2012	10L	CH
3	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/80	9/14/2011	9/14/2012	10L	CH
4	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/80	10/06/2011	10/06/2012	10 L	EG
5	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/80	10/14/2011	10/14/2012	6 L	CH
6	5% $K_2S_2O_8$	$K_2S_2O_8$	Alfa Aesar	F22W007	102887	2243/80	10/14/2011	10/14/2012	4 L	CH
7	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	11/09/2011	11/09/2012	10 L	CH
8	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	12/22/2011	12/22/2012	8 L	CH
9	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	01/17/2012	01/17/2013	10 L	CH
10	5% $K_2S_2O_8$	$K_2S_2O_8$	Alfa Aesar	F22W007	102887	2243/89	01/17/2012	01/17/2013	4 L	CH
11	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	02/06/12	02/06/13	12 L	CH
12	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	02/27/12	02/27/13	10 L	EG
13	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	03/09/12	03/09/13	10 L	CH
14	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	03/28/12	03/28/13	6 L	CH
15	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	04/30/2012	04/30/2013	10 L	CH
16	5% $K_2S_2O_8$	$K_2S_2O_8$	Alfa Aesar	F22W007	102887	2243/89	05/09/12	05/09/13	4 L	CH
17	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	05/25/12	05/25/13	8 L	CH
18	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	05/25/12	05/25/13	2 L	EG
19	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	06/12/12	06/12/13	8L	KT
20	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	07/18/2012	07/18/2013	10 L	CH
21	5% $K_2S_2O_8$	$K_2S_2O_8$	Alfa Aesar	F22W007	102887	2243/89	07/23/2012	07/23/2013	4 L	CH
22	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	08-28-12	08-28-13	2L	KT
23	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	08/29/12	08/29/13	8 L	CH
24	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	E03X015	102887	2243/89	09/27/12	09/27/13	2 L	CH
25	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	10/18/12	10/18/13	8L	KT
26	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	10/24/12	10/24/13	8 L	CH
27	5% $K_2S_2O_8$	$K_2S_2O_8$	Alfa Aesar	F22W007	102887	2243/89	11/09/12	11/09/13	6 L	CH
28	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	11/26/12	11/26/13	6L	KT
29	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	12/19/2012	12/19/2013	8 L	CH
30	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	1-10-13	1-10-14	8L	KT
31	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	SH 02/25/13 lot 02/25/13	02/25/14	8 L	CH
32	5% $KMnO_4$	$KMnO_4$	Alfa Aesar	D12W012	102887	2243/89	04/08/13	04/08/14	8 L	CH

To Page No.

Witnessed & Understood by me, Date

Invented by Date

Recorded by

From Page No. X Entry	Reagent	Chemicals used	Chemical Source	Lot IDs	Measured with	Recipe Page	Date prepared	Expiration Date	Volume prepared	Initials
1	10% $SnCl_2$ in 7% HCl	$SnCl_2$ HCl	Alfa Aesar EMD	H12X004 51258	Balance 102887 Acid Dispenser	2243/~~92~~ 89	09/05/12	09/05/13	8L CH 09/05/12	CH
2	5% HNO_3/5% HCl	HNO_3 HCl	EMD EMD	52045 51181	Acid dispensers	2243/89	09/19/12	09/19/13	6L	CH
3	12% $NH_2OH \cdot HCl$ CH 09/19/12	$NH_2OH \cdot HCl$	Alfa Aesar	K24W044 CH 09/19/12 684	Blnc 102887	2243/89	09/19/12	09/19/13	8L	CH
4	5% HNO_3/5% HCl	HNO_3 HCl	EMD EMD	52088 51181	Acid dispenser	2243/89	10/04/12	10/04/13	2L	CH
5	5% HNO_3/5% HCl	HNO_3 HCl	EMD EMD	52045 51258	Acid dispensers	2243/89	10/05/12	10/05/13	8L	CH
6	5% HNO_3/5% HCl	HNO_3 HCl	EMD EMD	52045 250 g 51258 187.5 mL	Acid dispenser	2243/89	10/25/12	10/25/13	8L	CH
7	10% $SnCl_2$ in 7% HCl	$SnCl_2$ HCl	Alfa Aesar EMD	H12X004 250 g 51258 (187.5 mL)	Blnc 102887 Dispenser	2243/89	10/26/12	10/26/13	~2.5 L	CH
8	10% $SnCl_2$ in 7% HCl	$SnCl_2$ $SnCl_2$ HCl	Alfa Aesar EMD	H12X004 50 g F28Y019 200 g 51258 (187.5 mL)	Balance 102887 Acid Dispenser	2243/89	10/26/12	10/26/13	~5 L (2.5) twice CH 10/26/12	CH
9	5% HNO_3 + 5% HCl	HNO_3 HCl	EMD EMD	52045 51258	Acid Dispensers	2243/89	11/07/12	11/07/13	8L	CH
10	12% $NH_2OH \cdot HCl$	$NH_2OH \cdot HCl$	Alfa Aesar	K24W004	bal. 102887	2243/89	11/26/12	11/26/13	4L	KT
11	5% HNO_3 + 5% HCl	HCl, HNO_3	EMD/EMD	52045/51258	Acid dispenser	2243/89	11/26/12	11/26/13	8L	KT
12	10% $SnCl_2$ 7% HCl	$SnCl_2$ HCl	Alfa Aesar EMD	F28Y014 51258	bal. 102887 Acid disp.	2243/89	11/27/12	11/27/13	6L	KT
13	5% HNO_3/5% HCl	HNO_3 HCl	EMD EMD	52045 51258	Acid Dispensers	2243/89	12/14/12	12/14/13	10 L	CH
14	12% $NH_2OH \cdot HCl$	$NH_2OH \cdot HCl$	J.T. Baker	25789	Balance 102887	2243/89	01/02/13	01/02/14	4L	CH
15	10% $SnCl_2$ in 10% HCl	$SnCl_2$ HCl	Alfa Aesar EMD	F28Y014 52250	Balance 102887	2243/89	01/08/13	01/08/14	1L	CH
16	8% HNO_3 + 5% HCl	HNO_3 HCl	EMD EMD	52088 52250	Acid Dispensers	2243/89	01/09/13	01/09/14	8L	CH
17	5% L 10% $SnCl_2$ in 10% HCl	$SnCl_2$ HCl	Alfa Aesar EMD	~~52250~~ F28Y014 52250	balance 102887 Dispensers	2243/89	1/10/13	01/10/14	6L	KT
18	10% HCl	HCl	EMD	52250	Acid Dispenser	2243/89	01/16/2013	CH 01/16/13 01/16/14	2L	CH
19	12% $NH_2OH \cdot HCl$	$NH_2OH \cdot HCl$	J.T. Baker	25789	Balance 102887	2243/89	02/01/13	02/01/14	4L	CH
20	8% HNO_3 + 5% HCl	HNO_3 HCl	EMD EMD	52088 52250	Acid Dispenser	2243/89	02/05/13	02/05/14	8L	CH
21	5% HNO_3 + 5% HCl	HNO_3 HCl	EMD EMD	52088 52250	Acid Dispensers	2243/89	02/26/13	02/26/14	8L	CH
22	10% $SnCl_2$ in 7% HCl	$SnCl_2$ HCl	Alfa Aesar EMD	F28Y014 52250	Blnc. 102887 Acid dispenser	2243/89	03/20/13	03/20/14	4L	CH
23	5% HNO_3 + 5% HCl	HNO_3 HCl	EMD EMD	52088 52250	Acid Dispensers	2243/89	03/26/13	03/26/14	8L	CH
24	12% $NH_2OH \cdot HCl$	$NH_2OH \cdot HCl$	J.T. Baker	25789	Balance 102887	2243/89	04/08/13	04/08/14	6L	CH
25	5% HNO_3 + 5% HCl	HNO_3 HCl	EMD/EMD	52088 52250	Acid Dispensers	2243/89	04/15/13	04/15/14	8L	KT
26	10% $SnCl_2$ in 7% HCl	$SnCl_2$ HCl	CH 04/24/13 ~~EMD~~ Alfa Aesar EMD	F28Y014 52250	Blnc. 102887 Acid Dispenser	2243/89	04/24/13	04/24/14	8L	CH

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Witnessed & Understood by me,	Date	Invented by	Date
		Recorded by	

From Page No. X

Mercury Preparation/Analysis Reagents

(2L) 5% Potassium Permanganate ($KMnO_4$) W/V in DDI water:
Dissolve 100g $KMnO_4$ crystals in 2L ASTM Type II H_2O and mix thoroughly. Stir before using.

(2L) 5% Potassium Persulfate ($K_2S_2O_8$) W/V in DDI water:
Dissolve 100g $K_2S_2O_8$ crystals in 2L ASTM Type II H_2O and mix thoroughly. Stir before using.

Potassium Persulfate is also known as Potassium Peroxydisulfate.

(2L) 12% Hydroxylamine Hydrochloride ($NH_2OH•HCl$) W/V in DDI water:
Dissolve 240g $NH_2OH•HCl$ crystals in 2L ASTM Type II H_2O and mix thoroughly.

Hydroxylamine Hydrochloride is also known as Hydroxylammonium Chloride ($NH_3OH•Cl$).

(2L) 10% Hydrochloric Acid (HCl) V/V in DDI water:
Add 200mL HCl to ASTM Type II H_2O then dilute to 2L to ASTM Type II H_2O and mix thoroughly.

(2L) 5% Nitric Acid (HNO_3) / 5% Hydrochloric Acid (HCl) V/V in DDI water:
Add 100mL concentrated HNO_3 and 100mL concentrated HCl to ASTM Type II H_2O then dilute to 2L with ASTM Type II H_2O and mix thoroughly.

(2L) 10% Stannous Chloride ($SnCl_2$) W/V in 10% HCl:
Dissolve 200g $SnCl_2$ crystals in 200mL concentrated HCl. Dilute to 2L with ASTM Type II H_2O and mix thoroughly.

(2L) 10% Stannous Chloride ($SnCl_2$) W/V in 7% HCl:
Dissolve 200g $SnCl_2$ crystals in 140mL concentrated HCl. Dilute to 2L with ASTM Type II H_2O and mix thoroughly.

(1L) 10% Stannous Chloride ($SnCl_2$) W/V in 7% HCl:
Dissolve 100g $SnCl_2$ crystals in 70mL concentrated HCl. Dilute to 1L with ASTM Type II H_2O and mix thoroughly.

Stannous Chloride is also known as Tin (II) Chloride Dihydrate.

Aqua Regia:
Carefully add three parts concentrated HCl to one part concentrated HNO_3. Use fume hood as vapors will result.

CH 10/20/2011

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Witnessed & Understood by me,	Date	Invented by NA	Date
Elijah Lacey	10/27/11	Recorded by Christopher R Hansen	10/20/2011

TITLE ALS Mercury Analysis Log Book

Project No. NA

Book No. 4723

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Date	Start Time	End Time	Total Time	Initials	Account	Workorder ID/Comments	CLP SDG	Matrix	No. of samples	Instrument ID	File Name
04/25/13	11:20	11:36	16 min	CH	8201	1310118	MBARW1	Water	1	AACV02	CV2-13100
04/25/13	↓	↓	↓	↓	↓	1310212	MBARX5	↓	1	↓	↓
04/26/13	10:02	10:27	25 min	CH	1101	1311225, 228, 229, 230, 234, 243, 439	NA	DS Bulk	7	AACV02	CV2-13101
04/26/13	10:30	10:53	23 min	CH	8201	1310212	MBARX5	Soil	6	AACV02	CV2-13102
04/26/13	17:49	18:27	38 min	CH	7003	1311469, 226, 474	NA	Hopcalite	13	AACV02	CV2-13103

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Witnessed & Understood by me, | Date | Invented by: | Date

Recorded by:

STANDARD REPORT

Working Standard - Hg ICV Work

Hg ICV Work					Description - Hg ICV Working Solution
Standard:	**18699**	**Expires:**	04/30/2013	**Usable:**	Yes
Lab Lot:	IHg042313ICV	**Created By:**	K. Tucker	**Amount:**	50 mL
Part ID:		**Create Date:**	04/23/2013	**Validated By:**	
MFG:	KRT	**MFG Lot:**		**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	7439-97-6	Mercury	1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume Added	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	48.95 mL	11/7/2015
17441	HNO3	Concentrated Nitric Acid	HNO3 (52088)	1 mL	12/27/2017
18149	Hg ICV Stock	Hg ICV Stock Solution	SPEX Hg-1000	0.05 mL	2/28/2014

Stock Standard - Hg ICV Stock

Hg ICV Stock					Description - Hg ICV Stock Solution
Standard:	18149	Expires:	2/28/2014	Usable:	Yes
Lab Lot:	SPEX Hg-1000	Created By:	C. Hansen	Amount:	125 mL
Part ID:	CLHG4-2Y	Create Date:	3/1/2013	Validated By:	
MFG:	SPEX CertiPrep	MFG Lot:	CL5-163HGY	Validated Date:	

Pos.	Analyte	Name	Concentration
1	7439-97-6	Mercury	1000 ug/mL

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O				Description - ASTM Type II Water	
Standard:	109	**Expires:**	11/7/2015	**Usable:**	Yes
Lab Lot:	LAB 109	**Created By:**	ALS Support (Lims)	**Amount:**	100 L
Part ID:		**Create Date:**	10/6/2005	**Validated By:**	
MFG:	DCL In House	**MFG Lot:**		**Validated Date:**	

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Solvent Standard - HNO3

HNO3					Description - Concentrated Nitric Acid
Standard:	17441	Expires:	12/27/2017	Usable:	Yes
Lab Lot:	HNO3 (52088)	Created By:	C. Hansen	Amount:	2.5 L
Part ID:		Create Date:	12/27/2012	Validated By:	
MFG:	EMD OmniTrace	MFG Lot:	52088	Validated Date:	

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Working Standard - Hg A Cal Sol

Hg A Cal Sol					Description - Hg A Calibration Solution
Standard:	18700	**Expires:**	04/30/2013	**Usable:**	Yes
Lab Lot:	IHg0423-043013A	**Created By:**	K. Tucker	**Amount:**	50 mL
Part ID:		**Create Date:**	04/23/2013	**Validated By:**	
MFG:	KRT	**MFG Lot:**		**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	7439-97-6	Mercury	1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume Added	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	44 mL	11/7/2015
17441	HNO3	Concentrated Nitric Acid	HNO3 (52088)	1 mL	12/27/2017
18698	Hg Working	Hg CCV/Calibration Working	IHg042313WS	5 mL	4/30/2013

STANDARD REPORT

Constituent

Working Standard - Hg Working

Hg Working				Description - Hg CCV/Calibration Working	
Standard:	18698	**Expires:**	04/30/2013	**Usable:**	Yes
Lab Lot:	IHg042313WS	**Created By:**	K. Tucker	**Amount:**	50 mL
Part ID:		**Create Date:**	04/23/2013	**Validated By:**	
MFG:	KRT	**MFG Lot:**		**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	7439-97-6	Mercury	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume Added	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	48.5 mL	11/7/2015
17082	Hg WS Stock		InorganicVenturesHg10	0.5 mL	12/1/2013
17441	HNO3	Concentrated Nitric Acid	HNO3 (52088)	1 mL	12/27/2017

STANDARD REPORT

Constituent

Stock Standard - Hg WS Stock

Hg WS Stock				Description - Hg CCV/Cal Stock Solution	
Standard:	17082	**Expires:**	12/1/2013	**Usable:**	Yes
Lab Lot:	InorganicVenturesHg1000	**Created By:**	C. Hansen	**Amount:**	125 mL
Part ID:	AAHG1-1	**Create Date:**	11/30/2012	**Validated By:**	
MFG:	Inorganic Ventures	**MFG Lot:**	F2-HG02101	**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	7439-97-6	Mercury	1000 mg/L

STANDARD REPORT

Working Standard - Hg B Cal Sol

Hg B Cal Sol					Description - Hg B Calibration Solution
Standard:	18701	**Expires:**	04/30/2013	**Usable:**	Yes
Lab Lot:	IHg0423-043013B	**Created By:**	K. Tucker	**Amount:**	50 mL
Part ID:		**Create Date:**	04/23/2013	**Validated By:**	
MFG:	KRT	**MFG Lot:**		**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	7439-97-6	Mercury	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume Added	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	48.5 mL	11/7/2015
17441	HNO3	Concentrated Nitric Acid	HNO3 (52088)	1 mL	12/27/2017
18698	Hg Working	Hg CCV/Calibration Working	IHg042313WS	0.5 mL	4/30/2013

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Mercury Data Summary

Sample ID	Time Stamp	Sample Type	Average Conc.	Conc. Units	Average Intensity
S0 (µg/sample)	4/26/2013 17:49	Standard	0	ug/sample	-110.21
S0.01 (µg/sample)	4/26/2013 17:50	Standard	0.01	ug/sample	2288.7
S0.05 (µg/sample)	4/26/2013 17:51	Standard	0.05	ug/sample	11754
S0.10 (µg/sample)	4/26/2013 17:53	Standard	0.1	ug/sample	24315
S0.50 (µg/sample)	4/26/2013 17:54	Standard	0.5	ug/sample	116090
S1.00 (µg/sample)	4/26/2013 17:55	Standard	1	ug/sample	222910
331270 - ICV	4/26/2013 17:56	ICV	0.5171	ug/sample	116630
331271 - ICB	4/26/2013 17:57	ICB	-0.0053	ug/sample	-168.68
331272/331282 - RB	4/26/2013 17:58	Reagent Blank	-0.0048	ug/sample	-52.632
331273/331283 - MB	4/26/2013 17:59	Method Blank	-0.0025	ug/sample	453.11
331274/331284 - LCS	4/26/2013 18:01	LCS	0.5155	ug/sample	116280
331275/331285 - LCSD	4/26/2013 18:02	LCS	0.5192	ug/sample	117110
331276/331286 - RLVS	4/26/2013 18:03	CRDL Standard	0.0071	ug/sample	2598.3
331277 - CCV	4/26/2013 18:04	CCV	0.512	ug/sample	115490
331278 - CCB	4/26/2013 18:05	CCB	-0.0052	ug/sample	-150.3
1311469001	**4/26/2013 18:06**	**Unknown**	**-0.0031**	**ug/sample**	**314.77**
1311469002	**4/26/2013 18:07**	**Unknown**	**0.0002**	**ug/sample**	**1058.7**
1311469003	**4/26/2013 18:08**	**Unknown**	**-0.0013**	**ug/sample**	**718.23**
1311469004	**4/26/2013 18:10**	**Unknown**	**-0.0028**	**ug/sample**	**394.62**
331279 - 1311469004REP	4/26/2013 18:11	Duplicate	-0.0027	ug/sample	406.65
1311469005	**4/26/2013 18:12**	**Unknown**	**-0.0036**	**ug/sample**	**205.12**
331280 - CCV	4/26/2013 18:13	CCV	0.5084	ug/sample	114690
331281 - CCB	4/26/2013 18:14	CCB	-0.0049	ug/sample	-75.7

The original data contains multiple batches of samples. Each batch is reported only with applicable samples and QC information as indicated by the batch HBN.
Batch data is indicated by boxed areas. Field sample data is in bold.
Additional run data not pertaining to this batch is not included in this summary.
See the original instrument raw data for the full analytical sequence.

Workorder: 1311469
Method: NMAM-6009 MOD (HOPCALITE TUBES and/or BADGES)
Instrument: AACV02
Conversion 1: Since the final volumes of the instrument calibration standards and all the samples are the same, the targets of the instrument calibration standards are entered into the method in ug/sample. Therefore, the results shown in the raw data for samples and standards are in ug/sample not ug/L.
Conversion 2: For Tubes: (ug/sample)(1sample/[#]L)(1000L/m^3)(1mg/1000ug)=mg/m^3
Conversion 3: For Badges: (ug/sample)(1sample/[#]minutes)(1min/20cm^3)(1x10^6cm^3/m^3)(1mg/1000ug)=mg/m^3
Batch HBN: 105920
Data File: CV2-13103
Correlation Coefficient: 0.99958
Prep Date: 04/26/2013
Analyst: Christopher R. Hansen

Christopher R. Hansen
04/29/2013

ALS Environmental - SLC

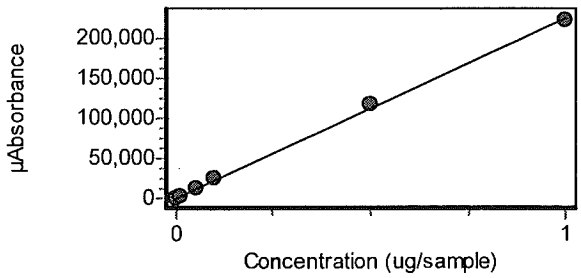
Report Generated By CETAC QuickTrace
Analyst: christopher.hansen Christopher R Hansen
Worksheet file: C:\Program Files\QuickTrace\Worksheets\CV2-13103.wsz
Date Started: 4/26/2013 5:37:32 PM
Comment: HBN: 105920, 105921

Results

Sample Name	Type	Date/Time	Conc (ug/sample)	µAbs	Flags
S0 (µg/sample)	STD	04/26/13 05:49:42 pm	0.0000	-110	
S0.01 (µg/sample)	STD	04/26/13 05:50:49 pm	0.0100	2289	
S0.05 (µg/sample)	STD	04/26/13 05:51:57 pm	0.0500	11754	
S0.10 (µg/sample)	STD	04/26/13 05:53:05 pm	0.1000	24315	
S0.50 (µg/sample)	STD	04/26/13 05:54:13 pm	0.5000	116088	
S1.00 (µg/sample)	STD	04/26/13 05:55:22 pm	1.0000	222908	

Calibration

Equation: A = 1011.972 + 223597.400C
R2: 0.99958
SEE: 2055.2190
Flags:



331270 - ICV % Recovery 103.42	ICV	04/26/13 05:56:32 pm	0.5171	116633	
331271 - ICB	ICB	04/26/13 05:57:41 pm	-0.0053	-169	
331272/331282 - RB	RB	04/26/13 05:58:48 pm	-0.0048	-53	
331273/331283 - MB	MB	04/26/13 05:59:56 pm	-0.0025	453	

Sample Name	Type	Date/Time	Conc (ug/sample)	µAbs	Flags
331274/331284 - LCS	LCS	04/26/13 06:01:03 pm	0.5155	116279	
% Recovery 103.10					
331275/331285 - LCSD	LCS	04/26/13 06:02:11 pm	0.5192	117107	
% Recovery 103.84					
331276/331286 - RLVS	CRDL	04/26/13 06:03:19 pm	0.0071	2598	
% Recovery 70.94					
331277 - CCV	CCV	04/26/13 06:04:28 pm	0.5120	115493	
% Recovery 102.40					
331278 - CCB	CCB	04/26/13 06:05:37 pm	-0.0052	-150	
1311469001	UNK	04/26/13 06:06:44 pm	-0.0031	315	
1311469002	UNK	04/26/13 06:07:51 pm	0.0002	1059	
1311469003	UNK	04/26/13 06:08:58 pm	-0.0013	718	
1311469004	UNK	04/26/13 06:10:05 pm	-0.0028	395	
331279 - 1311469004REP	DUP	04/26/13 06:11:13 pm	-0.0027	407	
RPD 0.00					
1311469005	UNK	04/26/13 06:12:20 pm	-0.0036	205	
331280 - CCV	CCV	04/26/13 06:13:29 pm	0.5084	114695	
% Recovery 101.69					
331281 - CCB	CCB	04/26/13 06:14:39 pm	-0.0049	-76	
1311226001	UNK	04/26/13 06:15:46 pm	0.1764	40463	
1311226002	UNK	04/26/13 06:16:53 pm	0.1118	26016	
1311226003	UNK	04/26/13 06:18:00 pm	-0.0035	220	
1311474003	UNK	04/26/13 06:19:08 pm	-0.0040	107	

Sample Name	Type	Date/Time	Conc (ug/sample)	µAbs	Flags
1311474008	UNK	04/26/13 06:20:16 pm	0.0005	1116	
331287 - 1311474008REP	DUP	04/26/13 06:21:23 pm	0.0005	1122	
RPD 0.00					
1311474012	UNK	04/26/13 06:22:30 pm	-0.0014	699	
1311474015	UNK	04/26/13 06:23:38 pm	-0.0024	471	
1311474017	UNK	04/26/13 06:24:45 pm	-0.0033	267	
CCV	CCV	04/26/13 06:25:55 pm	0.5046	113838	
% Recovery 100.92					
CCB	CCB	04/26/13 06:27:04 pm	-0.0050	-106	

Analysis Parameters

Instrument M-7500 Mercury Analyzer

Conditions

Gas flow (mL/min)	Sample Uptake (s)	Rinse (s)	Read delay (s)	Replicates (#)	Replicate time (s)	Pump speed (%)	Wavelength (nm)
215	20.00	40.00	32.00	1	2.00	100	253.65

ASX Pump Rate (%)
100

Instrumental Zero

Zero before first sample: No

Zero periodically: Yes

Before each calibration.

Baseline Correction

#1 Start time (s)	#1 End time (s)	#2 Start time (s)	#2 End time (s)
7.00	11.00		

Standby Mode

Enabled: Yes

Standby Options: gas off, lamp off

Autodilution

Enabled: No

Condition:

Tube # range:

If no autodilution tubes remaining

Calibration

Settings

Algorithm	Through blank	Weighted fit	Cal. Type	Racalibration rate	Reslope rate	Reslope standard
Linear	No	No	Normal	0	0	N/A

Limits

Calibration slope		Reslope		Coeff. of Determination
Lower (%)	Upper (%)	Lower (%)	Upper (%)	
20	150	75	125	0.99500

Error action: Flag and continue

QC

GLP Override: Yes

QC Tests

CCB

Concentration ug/sample
0.0100

Failure flag: Q

Error action for manually inserted QC: Flag and continue

ICB

Concentration ug/sample
0.0100

Failure flag: Z

Error action for manually inserted QC: Flag and continue

CCV

Concentration ug/sample	Low Limit %	High Limit %
0.5000	80.0000	120.0000

Failure flag: Q

Error action for manually inserted QC: Flag and continue

ICV

Concentration ug/sample	Low Limit %	High Limit %
0.5000	90.0000	110.0000

Failure flag: Q

Error action for manually inserted QC: Flag and continue

CRDL

Concentration ug/sample	Low Limit %	High Limit %
0.0100	50.0000	150.0000

Failure flag: Y

Error action for manually inserted QC: Flag and continue

LCS

Concentration ug/sample	Low Limit %	High Limit %
0.5000	80.0000	120.0000

Failure flag: L

Error action for manually inserted QC: Flag and continue

DUP

Concentration ug/sample	Low Limit ug/sample	High Limit ug/sample	RPD
0.0100	-0.0100	100.0000	20.0000

Failure flag: D

Error action for manually inserted QC: Flag and continue

MB

Concentration ug/sample
0.0100

Failure flag: Z

Error action for manually inserted QC: Flag and continue

RB

Concentration ug/sample
0.0100

Failure flag: Z

Error action for manually inserted QC: Flag and continue