Case Narrative

Analysis: Hydrogen Cyanide
Preparation SOP: NMAM 6010 MOD
Analysis SOP: NMAM 6010 MOD

Client: Atmospheric Analysis & Consulting, Inc.
Matrix: Soda Lime Tubes
ALS Work Order ID(s): 1315667

General Set Information: Seven samples from this work order were analysed for hydrogen cyanide collected on soda lime.

Method Summary: The front and back sections from each soda lime tube are emptied into separate dram vials. The soda lime is desorbed in 20 mL of 0.*25N* NaOH for at least one hour with occasional agitation. Cyanide is reacted with Chloramine-T and a pyridine-barbituric acid solution in a phosphate buffer. The resulting species is quantitated by automated colorimetry at 570nm on a WestCo SmartChem (Instrument ID: WET01).

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

Hold Times: The hold times were met for both preparation and analysis.

Instrument Calibration Data: Instrument calibration was performed in accordance with published procedures. Calibration results are within control limits.

Initial and Continuing Calibration 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.

Dilutions: None were required.

Method QC Data: The method blank concentration was less than the reporting limit. The LCS and LCSD results were within method control limits. The relative percent difference (RPD) between the LCS and LCSD was within control limits.

NC/CAR: None were required.

Flagging Codes: Refer to laboratory report.

Sample Calculation: The analysis instrument produces results in µg/L. The final results are calculated by the equation below. Results are reported to two significant figures on the sample report and three significant figures on the QC report.

Result for soda lime tubes: (A) x (B) x (C) x (D) = (µg HCN/sample)

A = Analyte concentration from the instrument determination (µg/L)

B = Conversion factor from µg CN to µg HCN (1.039)

C = Conversion factor from µg/L to µg/sample

D = Dilution(s) performed before to prep and at time of analysis if any

Miscellaneous Comments: None.

Mary N. Karanu June 13th, 2013

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Case Narrative

Analysis: Mercury on Sorbent Tubes

Client: Atmospheric Analysis & Consulting, Inc.

Preparation SOP: NMAM 6009 MOD

Matrix: Hopcalite/Hydrar Sorbent Tubes

Analysis SOP: NMAM 6009 MOD

ALS Workorder ID: 1315667

General Set Information: Seven 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 vapor 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 differences between the LCS and LCSD were within control limits.

Dilutions: No dilutions were required for this workorder.

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 were required.

Christopher R Hansen 06/11/2013

Christopher R. Hansen June 11, 2013

ANALYTICAL REPORT

Report Date: June 14, 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: **34-1315667**
Client Project ID: 130650/Landfill 060513
Purchase Order: 130650
Project Manager: Paul Pope

Analytical Results

Sample ID: **BZ-1** Media: SKC 226-17-1A, Hopcalite Tube Collected: 05/29/2013
Lab ID: 1315667001 Sampling Location: Landfill Received: 06/05/2013
Method: **NIOSH 6009** **Sampling Parameter:** **Air Volume 102 L** **Analyzed:** 06/10/2013

Analyte	ug/sample	ug/m³	ppb	RL (ug/sample)
Mercury	<0.010	<0.098	<0.012	0.010

Sample ID: **BZ-2** Media: SKC 226-17-1A, Hopcalite Tube Collected: 05/29/2013
Lab ID: 1315667002 Sampling Location: Landfill Received: 06/05/2013
Method: **NIOSH 6009** **Sampling Parameter:** **Air Volume 106 L** **Analyzed:** 06/10/2013

Analyte	ug/sample	ug/m³	ppb	RL (ug/sample)
Mercury	<0.010	<0.094	<0.011	0.010

Sample ID: **U-1** Media: SKC 226-17-1A, Hopcalite Tube Collected: 05/29/2013
Lab ID: 1315667003 Sampling Location: Landfill Received: 06/05/2013
Method: **NIOSH 6009** **Sampling Parameter:** **Air Volume 119 L** **Analyzed:** 06/10/2013

Analyte	ug/sample	ug/m³	ppb	RL (ug/sample)
Mercury	<0.010	<0.084	<0.010	0.010

Sample ID: **U-2** Media: SKC 226-17-1A, Hopcalite Tube Collected: 05/29/2013
Lab ID: 1315667004 Sampling Location: Landfill Received: 06/05/2013
Method: **NIOSH 6009** **Sampling Parameter:** **Air Volume 97.5 L** **Analyzed:** 06/10/2013

Analyte	ug/sample	ug/m³	ppb	RL (ug/sample)
Mercury	<0.010	<0.10	<0.013	0.010

ANALYTICAL REPORT

Workorder: **34-1315667**
Client Project ID: 130650/Landfill 060513
Purchase Order: 130650
Project Manager: Paul Pope

Analytical Results

Sample ID: **D-1** Media: SKC 226-17-1A, Hopcalite Tube Collected: 05/29/2013
Lab ID: 1315667005 Sampling Location: Landfill Received: 06/05/2013
Method: NIOSH 6009 **Sampling Parameter:** Air Volume 116 L **Analyzed:** 06/10/2013

Analyte	ug/sample	ug/m³	ppb	RL (ug/sample)
Mercury	<0.010	<0.086	<0.011	0.010

Sample ID: **D-2** Media: SKC 226-17-1A, Hopcalite Tube Collected: 05/29/2013
Lab ID: 1315667006 Sampling Location: Landfill Received: 06/05/2013
Method: NIOSH 6009 **Sampling Parameter:** Air Volume 93 L **Analyzed:** 06/10/2013

Analyte	ug/sample	ug/m³	ppb	RL (ug/sample)
Mercury	<0.010	<0.11	<0.013	0.010

Sample ID: **Trip Blank** Media: SKC 226-17-1A, Hopcalite Tube Collected: 05/29/2013
Lab ID: 1315667007 Sampling Location: Landfill Received: 06/05/2013
Method: NIOSH 6009 **Sampling Parameter:** Air Volume Not Applicable **Analyzed:** 06/10/2013

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

Sample ID: **BZ-1** Media: SKC 226-28, Soda Lime-200/600 Collected: 05/29/2013
Lab ID: 1315667008 Sampling Location: Landfill Received: 06/05/2013
Method: NIOSH 6010 **Sampling Parameter:** Air Volume 119 L **Analyzed:** 06/13/2013

Analyte	ug/sample	ug/m³	ppb	RL (ug/sample)
Hydrogen Cyanide	<0.21	<1.8	<1.6	0.21

Sample ID: **BZ-2** Media: SKC 226-28, Soda Lime-200/600 Collected: 05/29/2013
Lab ID: 1315667009 Sampling Location: Landfill Received: 06/05/2013
Method: NIOSH 6010 **Sampling Parameter:** Air Volume 110 L **Analyzed:** 06/13/2013

Analyte	ug/sample	ug/m³	ppb	RL (ug/sample)
Hydrogen Cyanide	<0.21	<1.9	<1.7	0.21

Sample ID: **U-1** Media: SKC 226-28, Soda Lime-200/600 Collected: 05/29/2013
Lab ID: 1315667010 Sampling Location: Landfill Received: 06/05/2013
Method: NIOSH 6010 **Sampling Parameter:** Air Volume 128 L **Analyzed:** 06/13/2013

Analyte	ug/sample	ug/m³	ppb	RL (ug/sample)
Hydrogen Cyanide	<0.21	<1.6	<1.5	0.21

ANALYTICAL REPORT

Workorder: **34-1315667**
Client Project ID: 130650/Landfill 060513
Purchase Order: 130650
Project Manager: Paul Pope

Analytical Results

Sample ID: **U-2** Media: SKC 226-28, Soda Lime-200/600 Collected: 05/29/2013
Lab ID: 1315667011 Sampling Location: Landfill Received: 06/05/2013

Method: NIOSH 6010 **Sampling Parameter:** Air Volume 102 L **Analyzed:** 06/13/2013

Analyte	ug/sample	ug/m³	ppb	RL (ug/sample)
Hydrogen Cyanide	<0.21	<2.1	<1.9	0.21

Sample ID: **D-1** Media: SKC 226-28, Soda Lime-200/600 Collected: 05/29/2013
Lab ID: 1315667012 Sampling Location: Landfill Received: 06/05/2013

Method: NIOSH 6010 **Sampling Parameter:** Air Volume 131 L **Analyzed:** 06/13/2013

Analyte	ug/sample	ug/m³	ppb	RL (ug/sample)
Hydrogen Cyanide	<0.21	<1.6	<1.5	0.21

Sample ID: **D-2** Media: SKC 226-28, Soda Lime-200/600 Collected: 05/29/2013
Lab ID: 1315667013 Sampling Location: Landfill Received: 06/05/2013

Method: NIOSH 6010 **Sampling Parameter:** Air Volume 106 L **Analyzed:** 06/13/2013

Analyte	ug/sample	ug/m³	ppb	RL (ug/sample)
Hydrogen Cyanide	<0.21	<2.0	<1.8	0.21

Sample ID: **Trip Blank** Media: SKC 226-28, Soda Lime-200/600 Collected: 05/29/2013
Lab ID: 1315667014 Sampling Location: Landfill Received: 06/05/2013

Method: NIOSH 6010 **Sampling Parameter:** Air Volume Not Applicable **Analyzed:** 06/13/2013

Analyte	ug/sample	ug/m³	ppb	RL (ug/sample)
Hydrogen Cyanide	<0.21	NA	NA	0.21

Report Authorization

Method	Analyst	Peer Review
NIOSH 6009	Christopher R. Hansen	Kevin Tucker
NIOSH 6010	Mary N. Karanu	Elijah Gregory

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

ANALYTICAL REPORT

Workorder: **34-1315667**
Client Project ID: 130650/Landfill 060513
Purchase Order: 130650
Project Manager: Paul Pope

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.
This test report shall not be reproduced, except in full, without written approval of ALS.

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

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: **1315667**

Limits:	Historical/Performance	**Preparation:**	NA	**Analysis:**	NIOSH 6009
Basis:	ALS Laboratory Group	**Batch:**	NA	**Batch:**	IHG/2325 (HBN: 108158)
		Prepared By:	NA	**Analyzed By:**	Christopher R. Hansen

Blank

LRB: 337364
Analyzed: 06/10/2013 16:18
Units: ug/sample

Analyte	Result	MDL	RL
Mercury	ND	NA	0.0100

LMB: 337365
Analyzed: 06/10/2013 16:19
Units: ug/sample

Analyte	Result	MDL	RL
Mercury	ND	NA	0.0100

LRB: 337369
Analyzed: 06/10/2013 16:48
Units: ug/sample

Analyte	Result	MDL	RL
Mercury	ND	NA	0.0100

LMB: 337370
Analyzed: 06/10/2013 16:49
Units: ug/sample

Analyte	Result	MDL	RL
Mercury	ND	NA	0.0100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 337366
Analyzed: 06/10/2013 16:20
Dilution: 1
Units: ug/sample

LCSD: 337367
Analyzed: 06/10/2013 16:21
Dilution: 1
Units: ug/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Mercury	0.523	0.500	105	80.3	128.9	0.521	104	0.307	0.0	15.0

LCS: 337371
Analyzed: 06/10/2013 16:50
Dilution: 1
Units: ug/sample

LCSD: 337372
Analyzed: 06/10/2013 16:51
Dilution: 1
Units: ug/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Mercury	0.522	0.500	104	80.3	128.9	0.522	104	0.0766	0.0	15.0

Quality Control Sample
Batch Report

Analysis Information

Workorder: **1315667**

Limits:	Historical/Performance	**Preparation:**	NA	**Analysis:**	NIOSH 6009
Basis:	ALS Laboratory Group	**Batch:**	NA	**Batch:**	IHG/2325 (HBN: 108158)
		Prepared By:	NA	**Analyzed By:**	Christopher R. Hansen

Initial Calibration Verification

ICV: 337528
Analyzed: 06/10/2013 16:15
Units: ug/sample
Criteria: ± 20%

Analyte	Result	Target	% Rec.
Mercury	0.525	0.500	105

Continuing Calibration Verification

CCV: 337530 **Analyzed:** 06/10/2013 16:29 **Units:** ug/sample **Criteria:** ± 20%				**CCV:** 337532 **Analyzed:** 06/10/2013 16:45 **Units:** ug/sample **Criteria:** ± 20%			**CCV:** 337534 **Analyzed:** 06/10/2013 16:58 **Units:** ug/sample **Criteria:** ± 20%		
Analyte	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**
Mercury	0.513	0.500	103	0.514	0.500	103	0.517	0.500	103

CCV: 337536
Analyzed: 06/10/2013 17:13
Units: ug/sample
Criteria: ± 20%

Analyte	Result	Target	% Rec.
Mercury	0.517	0.500	103

Initial Calibration Blank

ICB: 337529
Analyzed: 06/10/2013 16:17
Units: ug/sample

Analyte	Result	Qual.
Mercury	ND	U

Continuing Calibration Blank

CCB: 337531 **Analyzed:** 06/10/2013 16:30 **Units:** ug/sample			**CCB:** 337533 **Analyzed:** 06/10/2013 16:46 **Units:** ug/sample		**CCB:** 337535 **Analyzed:** 06/10/2013 16:59 **Units:** ug/sample	
Analyte	**Result**	**Qual.**	**Result**	**Qual.**	**Result**	**Qual.**
Mercury	ND	U	ND	U	ND	U

CCB: 337537
Analyzed: 06/10/2013 17:14
Units: ug/sample

Analyte	Result	Qual.
Mercury	ND	U

Quality Control Sample
Batch Report

Analysis Information

Workorder: **1315667**

Limits:	Historical/Performance	**Preparation:**	NA	**Analysis:**	NIOSH 6009
Basis:	ALS Laboratory Group	**Batch:**	NA	**Batch:**	IHG/2325 (HBN: 108158)
		Prepared By:	NA	**Analyzed By:**	Christopher R. Hansen

QC Data Approved and Reviewed by

Christopher R. Hansen	Kevin Tucker	6/11/2013
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

Quality Control Sample
Batch Report

Analysis Information

Workorder: **1315667**

Limits:	Historical/Performance	**Preparation:**	NA	**Analysis:**	NIOSH 6010
Basis:	ALS Laboratory Group	**Batch:**	NA	**Batch:**	IWC/1875 (HBN: 108318)
		Prepared By:	NA	**Analyzed By:**	Mary N. Karanu

Blank

LMB: 337822
Analyzed: 06/13/2013 13:48
Units: ug/sample

Analyte	Result	MDL	RL
Cyanide	ND	NA	0.200

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 337823
Analyzed: 06/13/2013 14:48
Dilution: 1
Units: ug/sample

LCSD: 337824
Analyzed: 06/13/2013 14:48
Dilution: 1
Units: ug/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Cyanide	1.83	2.00	91.4	56.2	128.2	1.89	94.4	3.21	0.0	20.0

Quality Control Sample
Batch Report

Analysis Information

Workorder: **1315667**

Limits:	Historical/Performance	**Preparation:**	NA	**Analysis:**	NIOSH 6010
Basis:	ALS Laboratory Group	**Batch:**	NA	**Batch:**	IWC/1875 (HBN: 108318)
		Prepared By:	NA	**Analyzed By:**	Mary N. Karanu

QC Data Approved and Reviewed by

Mary N. Karanu	Elijah Gregory	6/14/2013
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.
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Ventura, California 93003
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E-mail: info@aaclab.com

AAC Project No. 130650 Page 1 of 1

1315667

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
1315667
Terms are pay when payed

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	130650							
Sampler's Name (Print Name)	Sampler's Signature							Phone #: 805-650-1642
								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				Send Invoice to:
130559-63208	05/29/13		Tube	BZ-1 102	Tube 1	X						Attn: Eric Grosjean
130559-63217	05/29/13		Tube	BZ-2 106	Tube 1	X						egrosjean@aaclab.com
130559-63226	05/29/13		Tube	U-1 119	Tube 1	X						P.O. # NA
130559-63235	05/29/13		Tube	U-2 97.5	Tube 1	X						
130559-63244	05/29/13		Tube	D-1 116	Tube 1	X						Turn Around Time
130559-63253	05/29/13		Tube	D-2 93	Tube 1	X						24-Hr ____ 48-Hr ____
130559-63261	05/29/13		Tube	Trip Blank	Tube 1	X						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:	Date/Time	Received by (Signature)	Print Name
	Eric Grosjean	06/03/13 05:45	6/4/13 0920	
Relinquished by (Signature)	Print name:	Date/Time	Received by (Signature)	Print Name
6/4/13 0920		6/4/13 0920	Tamivan Tassell 06-05-13 9:43	Tamivan Tassell

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

AAC Project No. 130650 Page 1 of 1

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

Terms are pay when payed

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	130650							
Sampler's Name (Print Name)	Sampler's Signature							Phone #: 805-650-1642

AAC Sample No.	Date Sampled	Time Sampled	Sample Type	Client Sample ID/Description	Type/No. of containers	NIOSH 6010 HCN	Hold for Backup	Sample Volume, Liters				Fax #: 805-650-1644
130650-63206	05/29/13		Tube	BZ-1 119	Tube 1	X						Send Invoice to:
130650-63215	05/29/13		Tube	BZ-2 110	Tube 1	X						Attn: Eric Grosjean
130650-63224	05/29/13		Tube	U-1 128	Tube 1	X						egrosjean@aaclab.com
130650-63233	05/29/13		Tube	U-2 102	Tube 1	X						P.O. # NA
130650-63242	05/29/13		Tube	D-1 131	Tube 1	X						Turn Around Time
130650-63251	05/29/13		Tube	D-2 106	Tube 1	X						24-Hr ____ 48-Hr ____
130650-63259	05/29/13		Tube	Trip Blank	Tube 1	X						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:	Date/Time	Received by (Signature)	Print Name
Eric Grosjean	Eric Grosjean	06/04/13 05:45		
Relinquished by (Signature)	Print name:	Date/Time	Received by (Signature)	Print Name
			Tamlan Tassel	Tamlan Tassel
			06-05-13 9:43	

AAC Sample No.	Sample Name	Date	Parameter	Description	Volume (Liters)
130650-63202	BZ-1-Acids	5/29/2013	Carboxylic Acids	ONSITE Ambient	102
130650-63211	BZ-2-Acids	5/29/2013	Carboxylic Acids	ONSITE Ambient	106
130650-63220	U-1-Acids	5/29/2013	Carboxylic Acids	Off-site Ambient	119
130650-63229	U-2-Acids	5/29/2013	Carboxylic Acids	Off-site Ambient	97.5
130650-63238	D-1-Acids	5/29/2013	Carboxylic Acids	Off-site Ambient	116
130650-63247	D-2-Acids	5/29/2013	Carboxylic Acids	Off-site Ambient	93.0
130650-63255	Trip Blank-Acids	5/29/2013	Carboxylic Acids		
130650-63206	BZ-1-HCN	5/29/2013	Hydrogen Cyanide	ONSITE Ambient	119
130650-63215	BZ-2-HCN	5/29/2013	Hydrogen Cyanide	ONSITE Ambient	110
130650-63224	U-1-HCN	5/29/2013	Hydrogen Cyanide	Off-site Ambient	128
130650-63233	U-2-HCN	5/29/2013	Hydrogen Cyanide	Off-site Ambient	102
130650-63242	D-1-HCN	5/29/2013	Hydrogen Cyanide	Off-site Ambient	131
130650-63251	D-2-HCN	5/29/2013	Hydrogen Cyanide	Off-site Ambient	106
130650-63259	Trip Blank-HCN	5/29/2013	Hydrogen Cyanide		
130559-63208	BZ-1-Mercury	5/29/2013	Mercury	ONSITE Ambient	111
130559-63217	BZ-2-Mercury	5/29/2013	Mercury	ONSITE Ambient	109
130559-63226	U-1-Mercury	5/29/2013	Mercury	Off-site Ambient	119
130559-63235	U-2-Mercury	5/29/2013	Mercury	Off-site Ambient	96.7
130559-63244	D-1-Mercury	5/29/2013	Mercury	Off-site Ambient	122
130559-63253	D-2-Mercury	5/29/2013	Mercury	Off-site Ambient	97.3
130559-63261	Trip Blank-Mercury	5/29/2013	Mercury		

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

6010

Analytical Documentation

Batch Worklist

Batch: IWC/ 1875 Created: 6/12/2013 08:27 Instrument: HBN: 108318

Rule: NIOSH 6010, Air Analyst: M. Karanu Status: WP

Workorder: 1315667 lot ~~855~~ 8238 SKC 226-28 ex. Dec/2017 ini 6/13/13

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Mx	Type	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	337822	LMB for HBN 108318 [IWC/1875]	lot 7542 ex - Apr. 2017		1	LMB		N6010...1Q	6135		6/12/2013	
2	337823	LCS for HBN 108318 [IWC/1875]			1	LCS		N6010...1Q	6135		6/12/2013	
3	337824	LCSD for HBN 108318 [IWC/1875]			1	LCSD		N6010...1Q	6135		6/12/2013	
4	1315667008 - -	BZ-1			1	SAMPLE	1315667008-A	N6010....1	5975		6/12/2013	
5	1315667009 - -	BZ-2			1	SAMPLE	1315667009-A	N6010....1	5975		6/12/2013	
6	1315667010 - -	U-1			1	SAMPLE	1315667010-A	N6010....1	5975		6/12/2013	
7	1315667011 - -	U-2			1	SAMPLE	1315667011-A	N6010....1	5975		6/12/2013	
8	1315667012 - -	D-1			1	SAMPLE	1315667012-A	N6010....1	5975		6/12/2013	
9	1315667013 - -	D-2			1	SAMPLE	1315667013-A	N6010....1	5975		6/12/2013	
10	1315667014 - -	Trip Blank			1	FLDBK	1315667014-A	N6010....1	5975		6/12/2013	

ccv/ccb

ccv/ccb

ccv/ccb

10:30 - 11:30

Set ID's:	1315667
Sample ID's:	1315667008-014
Matrix:	Soda Lime Tubes
Analyst/Date:	Mary Karanu 06/13/13
Analyte/Method:	HCN /NIOSH 6010Mod
Batch/HBN ID:	IWC: 1875 / 108318
Reporting Limit:	(HCN) 0.21 µg/sample

SAMPLE PREPARATION/ANALYSIS: Front (F) and back (B) sections of each tube are added separately to dram vials. 20mL of 0.25N NaOH are added to each and desorbed for a minimum of one hour [10:30 – 11:30] with occasional agitation. Then an aliquot of each front section and back section is filtered with a 0.45µm PES membrane filter prior to analysis on a SmartChem Discrete AA (WET01).
In variation to the method; 0.25N NaOH is used instead of water to stabilize the cyanide, and 20mL is used instead of 10mL to allow for complete desorption.

REAGENTS:	0.25 N NaOH	06/13/13 MNK Horizon # 19536
	Chloramine-T	06/13/13 MNK Notebook # 2082, pg.53
	Pyridine	04/29/13 EG Notebook # 2082, pg.50
	Phosphate Buffer	04/16/13 EG Notebook # 2082, pg.49

STANDARDS: Working Stock: [19238] 1000 mg/L Check Stock: [18176] 1000 mg/L
Int. Working: [19545, 50000 µg/L] Int. Check: [19546 , 50000 µg/L]
Working Stds: prepared per analysis Check Std: prepared per analysis
ICV is 0.200mL of Int. Check Int. [19546] brought to 50mL with 0.25N NaOH = 200µg/L.

INSTRUMENT PARAMETERS: See instrument printout for operating parameters.
Plan #: 20130613002.

CONVERSIONS/CALCULATIONS:
Conversion: *(MW, HCN)* 27.026/ *(MW, CN)* 26.018 = 1.039
HCN: µg CN/L x 0.020 L/sample x 1.039 HCN = 0.02078 **[conversion factor (CF) = 0.02078]**
QC CN: µg CN/L x 0.020 L/sample = 0.02 **[conversion factor (CF) = 0.02]**

REPORTING LIMIT:
(HCN) RL: 10.0 µg/L (*low standard*) x 0.02078 = 0.2078 = 0.21 µgHCN/sample

DILUTIONS: None.

COMMENTS: QC's are reported as µg CN^-/sample; results are not converted to HCN.
(HCN) Media is Soda Lime Tube, SKC Cat.No.226-28, Lot 7542 ex. Apr. /2017.
LCS/LCSD: 0.04 mL/20 mL x 0.02 x 50,000 µg/L [19546] = 2 µg CN^-/sample.
Field sample media WO 1315667 Lot 8238 SKC 226-28 exp. Dec/2017.

STANDARD REPORT

Working Standard - CN ENV wkg

CN ENV wkg					**Description - CN ENV wkg**
Standard:	19546	**Expires:**	01/31/2014	**Usable:**	Yes
Lab Lot:	CN ENV wkg	**Created By:**	M. Karanu	**Amount:**	10 mL
Part ID:		**Create Date:**	06/13/2013	**Validated By:**	
MFG:	Ultra Scientific	**MFG Lot:**	P01284	**Validated Date:**	

Pos.	Analyte	Name	Concentration
1	57-12-5	Cyanide	50000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume Added	Expires
18176	CN stock	CN stock	CN stock	0.5 mL	1/31/2014
19536	0.25N NaOH	0.25N NaOH	0.25N NaOH	9.5 mL	6/13/2015

Stock Standard - CN stock

CN stock					Description - CN stock
Standard:	18176	Expires:	1/31/2014	Usable:	Yes
Lab Lot:	CN stock	Created By:	E. Gregory	Amount:	120 mL
Part ID:		Create Date:	3/7/2013	Validated By:	
MFG:	ULTRA Scientific	MFG Lot:	P01284	Validated Date:	

Pos.	Analyte	Name	Concentration
1	57-12-5	Cyanide	1000 ug/mL

STANDARD REPORT

Constituent

Solvent Standard - 0.25N NaOH

0.25N NaOH				**Description - 20g pellets diluted to 2L with DDI**	
Standard:	19536	**Expires:**	6/13/2015	**Usable:**	Yes
Lab Lot:	0.25N NaOH	**Created By:**	M. Karanu	**Amount:**	2 L
Part ID:		**Create Date:**	6/13/2013	**Validated By:**	
MFG:	EMD	**MFG Lot:**	B0510904036	**Validated Date:**	

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

STANDARD REPORT

Working Standard - CN INT wkg

CN INT wkg					Description - CN INT WKG
Standard:	19545	Expires:	08/31/2013	Usable:	Yes
Lab Lot:	CN INT wkg	Created By:	M. Karanu	Amount:	10 mL
Part ID:		Create Date:	06/13/2013	Validated By:	
MFG:	MNK	MFG Lot:	RICCA 1206311	Validated Date:	

Pos.	Analyte	Name	Concentration
1	57-12-5	Cyanide	50000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume Added	Expires
19238	CN stock	CN stock	CN stock	0.5 mL	8/31/2013
19536	0.25N NaOH	0.25N NaOH	0.25N NaOH	9.5 mL	6/13/2015

STANDARD REPORT

Constituent

Stock Standard - CN stock

CN stock					Description - CN stock
Standard:	19238	Expires:	8/31/2013	Usable:	Yes
Lab Lot:	CN stock	Created By:	E. Gregory	Amount:	120 mL
Part ID:		Create Date:	6/3/2013	Validated By:	
MFG:	Ricca	MFG Lot:	1302993	Validated Date:	

Pos.	Analyte	Name	Concentration
1	57-12-5	Cyanide	1000 ug/mL

STANDARD REPORT

Constituent

Solvent Standard - 0.25N NaOH

0.25N NaOH				**Description - 20g pellets diluted to 2L with DDI**	
Standard:	19536	**Expires:**	6/13/2015	**Usable:**	Yes
Lab Lot:	0.25N NaOH	**Created By:**	M. Karanu	**Amount:**	2 L
Part ID:		**Create Date:**	6/13/2013	**Validated By:**	
MFG:	EMD	**MFG Lot:**	B0510904036	**Validated Date:**	

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

From Page No.

Analyte	Reagent	Chemical	Manufacturer/Lot #	Pipettor/Balance	Analyst/Date
TKN	Stock Buffer	sodium phosphate dibasic, anhydrous	Mallinckrodt/7917KJRA	102838(3.55g)/50mL	EJ 04/04/13
↓	↓	sodium hydroxide	EMD/B0510904036	102838(1.0g)/DDI H2O	exp. 04/04/14
TKN	Salicylate Color	Sodium salicylate	Mall./12094 A05605	102838(7.5g)/25mL DDI H2O + 0.15mL rinse	EJ 04/04/13 04/11/13
TKN	4% Sulfuric Acid	— SAME —	EMD/50280	WC#4 (4mL)/100mL DDI H2O	EJ 04/08/13 exp. 05/08/13
TKN/TP	Digestion Soln.	H_2SO_4, conc.	EMD/50280	Grad cyl. + WC#4 (100mL + 1.25mL)	EJ 04/05/13
↓	↓	mercuric oxide, red	Fisher/9775522	102838 (1.0g)/500mL	exp. 04/05/14
		potassium sulfate	Amresco/1042C266	102838 (66.5g)/DDI H2O	↓
TKN	6% NaOCl	NaOCl	Baker/0000023399	WC#4 (1.5mL)/25mL DDI H2O	EJ 04/05/13 make daily
Cr^{6+}	Extraction/Digestion	NaOH pellets	EMD/B0310906036	102838(4g)/200mL	EJ 04/08/13
↓	Solution	Na_2CO_3	Aldrich/02108AR	102838 (6g)/DDI H2O	exp. 07/08/13
NH_3	Dechlorinating Agent	Sodium Thiosulfate	Baker/L06467	102838(0.175g)/50mL DDI H2O	EJ 04/08/13 exp. 04/08/14
NH_3	6% NaOCl	NaOCl	Baker/0000023399	WC#4 (1.5mL)/25mL DDI H2O	EJ 04/08/13 make daily
NH_3	1:1 NaOCl	— SAME —	Baker/0000023399	WC#4 (10mL)/20mL DDI H2O	EJ 04/08/13 make daily
amenable CN	5% Calcium Hypochlorite	— SAME —	Baker/L34659	102838(2.5g)/50mL DDI H2O	EJ 04/09/13 exp. 04/16/13
CN	Releasing Soln.	$MgCl_2 \cdot 6H_2O$	CALBIOCHEM/D00127194	102838 (32.2g)/110.8g DDI H2O	EJ 04/09/13
↓	↓	H_2SO_4, conc.	EMD/50280	102838 (139g)/DDI H2O	exp. 04/09/14
Dont need 4/11/13 F^-	25% NaOH	NaOH pellets	EMD/B0519040360	102838 (200g)/1000mL DDI H2O	MK 04/09/13 ex. 04/09/14
CN	Chloramine-T	— SAME —	TCI America/QYNVA	102838(0.25g)/25mL DDI H2O	EJ 04/09/13 make daily
TKN	Salicylate Color	Sodium salicylate	Mallinckrodt/12094 A05605	102838 (7.5g)/25mL DDI H2O + 0.15mL rinse	EJ 04/11/13 exp. 04/18/13
TKN	4% Sulfuric Acid	— SAME —	EMD/50280	WC#4 (4mL)/100mL DDI H2O	EJ 04/12/13 exp. 05/12/13
TKN	6% NaOCl	NaOCl	Baker/0000023399	WC#4 (1.5mL)/25mL DDI H2O	EJ 04/12/13 make daily
TOC	20% H_3PO_4	Conc. H_3PO_4	EMD/50196	Grad cyl. (40mL)/200mL DDI H2O	MK 04/15/13 ex. 1 yr
amenable CN	5% Calcium Hypochlorite	— SAME —	Baker/L34659	102838(2.5g)/50mL DDI H2O	EJ 04/16/13 exp. 04/23/13
CN	Chloramine-T	— SAME —	TCI America/QYNVA	102838 (0.25g)/25mL DDI H2O	EJ 04/10/13 make daily
CN	Phosphate Buffer	$NaH_2PO_4 \cdot H_2O$	EMD/A9046 49	102838 (69g)/500mL DDI + 25mL rinse	EJ 04/16/13 exp. 1 year
SiO_2	Ascorbic acid	— Same —	Mall. 8829Y356002	102838(0.88g)	MK 04/18/13
↓	↓	15% SDS	[EG 08/31/12, 20824/39]	PL-214 (0.25mL)/50mL DDI H2O	make daily.
	oxalic acid	— Same —	Baker/K07331	102838(2.5g)/50mL DDI H2O	MK 04/18/13 make daily.
	Ammonium molybdate tetrahydrate	— Same —	EMD/47290033	102838(0.5g)	
		1:1 H_2SO_4	[MK 04/25/12, 20824/31]	PL-214 (0.28mL)/50mL DDI H2O	MK 04/18/13
		15% SDS	[EG 08/31/12, 20824/39]	PL-214 (0.25mL)/50mL DDI H2O	Make daily
MBAS	Wash Solution	6N H_2SO_4	[EJ 03/25/13, 20824/48]	grad. cyl. (20.5mL)/500mL	EJ 04/19/13
↓	↓	$NaH_2PO_4 \cdot H_2O$	EMD/A9046 49	102838 (25g)/DDI H2O	exp. 04/19/14
Alk. Dust	0.02N NaOH	0.1N NaOH	[EJ 03/26/13, 20824/48]	grad. cyl. (50mL)/250mL DDI H2O	MK EJ 04/19/13 exp. 03/26/14
CN	Chloramine-T	— SAME —	TCI America/QYNVA	102838 (0.25g)/25mL DDI H2O	EJ 04/23/13 make daily

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Witnessed & Understood by me,	Date	Invented by N/A	Date
Mary Kavanaugh	04/24/13	Recorded by Elijah Garay	04/23/13

From Page No. _____

Analyte	Reagent	Chemical	Manufacturer / Lot #	Pipettor/Balance	Analyst/Date
NH_3	1:1 NaOCl	-SAME-	Baker / 000002339	WC#4 (10mL) / 20mL DDI H_2O	EJ 09/23/13 make daily
CN	Chloramine-T	-SAME-	TCI America / QYNVA	102838 (0.25g) / 25mL DDI H_2O	EJ 04/24/13 make daily
TKN	Salicylate color	Sodium Salicylate	Mall. / 12094A05605	102838 (7.5g) / 25mM DDI + 0.15M phosphate	MK 04/24/13 ex. 04/30/13
TKN	6% NaOCl	NaOCl	Baker / 000002339	WC-4 (1.5mL) / 25mL DDI H_2O	MK 04/25/13 ex. 04/25/13
↓	4% Sulfuric acid	conc. H_2SO_4	EMD / 50280	WC-4 (4mL) / 100 mL DDI H_2O	MK 04/25/13 ex 1 mo.
CN amenable	Chloramine-T	-SAME-	TCI America / QYNVA	102838 (0.25g) / 25mL DDI H_2O	EJ 04/23/13 make daily
CN	5% Calcium Hypochlorite	-SAME-	Baker / L34659	102838 (2.5g) / 50mL DDI H_2O	EJ 04/26/13 exp. 05/02/13
CN	Chloramine-T	-SAME-	TCI America / QYNVA	102838 (0.25g) / 25mL DDI H_2O	EJ 04/26/13 make daily
CN	Color Solution	Barbituric Acid	Aldrich / 07021HU	102838 (7.5g) / 500mL grad. cylinder (37.5mL) / DDI H_2O	EJ 04/29/13
↓	↓	Pyridine	EM Science / 36282		exp. 10/29/13
		HCl, conc.	EMD / 52250	WC#4 (7.5mL)	
CN	Chloramine-T	-SAME-	TCI America / QYNVA	102838 (0.25g) / 25mL DDI H_2O	EJ 04/29/13 make daily
CN	Chloramine-T	-SAME-	TCI America / QYNVA	102838 (0.25g) / 25mL DDI H_2O	EJ 04/30/13 make daily
TKN	Salicylate color	Sodium Salicylate	Mall. / 12094A05605	102838 (7.5g) / 25mL DDI for 15mM phosphate	MK 04/30/13 ex 05/07/13
TKN	6% NaOCl	NaOCl	Baker / 000002339	WC#4 (1.5mL) / 25mL DDI H_2O	MK 05/02/13 ex. 05/02/13
TKN	Salicylate color	Sodium Salicylate	Mall. / 12094A05605	102838 (7.5g) / 25mL DDI H_2O for 15mM phosphate	MK 05/02/13 ex 05/09/13
TKN	6% NaOCl	NaOCl	Baker / 000002339	WC#4 (1.5mL) / 25mL DDI H_2O	ME 05/03/13 ex. 05/08/13
CN	Chloramine-T	-SAME-	TCI America / QYNVA	102838 (0.25g) / 25mL DDI H_2O	EJ 05/05/13 make daily
CN	Chloramine-T	-SAME-	TCI America / QYNVA	102838 (0.25g) / 25mL DDI H_2O	EJ 05/06/13 make daily
TKN	Salicylate color	Sodium Salicylate	Mallinckrodt / 12094405605	102838 (7.5g) / 25mL DDI H_2O 0.15mM phosphate	EJ 05/06/13 exp. 05/13/13
amenable CN	5% Calcium Hypochlorite	-SAME-	Baker / L34656	102838 (2.5g) / 50mL DDI H_2O	EJ 05/07/13 exp. 05/14/13
amenable CN	0.1N $NaAsO_2$	-SAME-	Aldrich / SLBF3312V	102838 (0.64g) / 50mL DDI H_2O	EJ 05/07/13 exp. 05/14/13
CN	Chloramine-T	-SAME-	TCI America / QYNVA	102838 (0.25g) / 25mL DDI H_2O	EJ 05/07/13 make daily
TKN	6% NaOCl	NaOCl	Baker / 000002339	WC#4 (1.5mL) / 25mL DDI H_2O	EJ 05/07/13 make daily
TKN	4% Sulfuric Acid	H_2SO_4, conc.	EMD / 50280	WC#4 (4mL) / 100mL DDI H_2O	EJ exp. 06/07/13
Total Polyphenols	Sodium Carbonate	-SAME-	Aldrich / 02108AR	102838 (5.0g) / 25mL boiled DDI	EJ 05/09/13 exp. 05/09/14
Acid insol. Ash	2N HCl	HCl, conc.	EMD / 52250	acid disp. (33.4mL) / 200mL DDI H_2O	EJ 05/10/13 CONSUMED
NO/NO_2	Absorbing Soln.	Triethanolamine	Baker / H51616	102838 (15g) / 1L	MK 05/10/13
↓	↓	n-Butyl alcohol	B&J / BN461	PL-214 (0.5mL) / DDI H_2O	exp. 08/10/13
NO/NO_2	Sulfanilamide Soln.	Sulfanilamide	Baker / E03H08	102838 (4g) / 200mL	MK 05/10/13
↓	↓	H_3PO_4, conc.	EMD / 50196	WC#4 (10mL) / DDI H_2O	exp. 08/10/13
TOC	20% H_3PO_4	H_3PO_4, conc.	EMD / 50196	grad. cyl. (40mL) / 200mL DDI H_2O	EJ 05/14/13 exp. 1yr.
Hardness	Buffer	$MgSO_4$	J.T. Baker / J34160	102838 (0.312g) / 100mL DDI H_2O	EJ 05/14/13
↓	↓	EDTA, powder	J.T. Baker / K16643	102838 (0.476g)	exp. 06/14/13
		NH_4OH, liq.	BDH / 20110304 72	grad. cyl. (57.2mL)	↓
		NH_4Cl	Mallinckrodt / 3084 KMET	102838 (6.762g)	To Page No. X

Witnessed & Understood by me, Mary Karanian — Date 05/14/13

Invented by N/A — Date

Recorded by Elijah Gurney — Date 05/14/13

TITLE Reagent Preparation water lab

Project No. —

Book No. 2082

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Analyte	Reagent	chemical	Manufacturer / Lot #	Pipettor / Balance	Analyst / Date
HCN	Chloramine-T	-SAME-	Acros / A0319842	102838 (0.25g) / 25mL DDI H_2O	EH 06/10/13 make daily
TKN	6% NaOCl	-SAME-	Baker / 0000023399	WC#4 (1.5mL) / 25mL DDI H_2O	EH 06/11/13 make daily
sulfate	KI + KIO_3 sulfite titrant	KIO_3	Mall. / 1094KHKC	102838 (0.223g) / 500mL DDI H_2O	MK 06/12/13 ex. 06/12/14
↓	↓ KI mix 6/12/13	KI	VWR / 4822434 9	102838 (2.125g)	
	↓	$NaHCO_3$	Mall. / 7412KHJJ	102838 (0.15g)	
	Sodium thiosulfate	$Na_2S_2O_3 \cdot 5H_2O$	fisher / 460569	102838 (0.205g) / 1L DDI H_2O	MK 06/12/13 ex. 06/12/14
↓	↓	NaOH pellets	EMD / B0441604003	102838 (0.4g)	
HCN	chloramine-T	- Same -	Acros / A0319842	102838 (0.25g) / 25ml DDI H_2O	MK 06/13/13 ex. 06/13/13
NH_3	1:1 NaOCl	-SAME-	Baker / 0000023399	WC#4 (10mL) / 20mL DDI H_2O	EH 06/13/13 exp. Make daily
NH_3	EDTA Soln.	EDTA	Fisher / 716941	102838 (5.0g) / 100mL DDI H_2O	EH 06/13/13.
↓	↓	NaOH, pellets	EMD / B0310904036	102838 (0.1g)	exp. 06/13/14

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Witnessed & Understood by me, Date

Invented by Date

Recorded by

TITLE Instrument Log (INST. ID: WET01) Project No. — Book No. 4222

ALS Environmental DATA CHEM LABORATORIES EH 03/06/13

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Date	Time ON	Time OFF	Analyte	Analyst	Work Order ID(s)	Comments
05/21/13	12:55	13:34	NH_3	MK	1313538, 1313681	Great!
05/21/13	14:23	15:58	HCN	EH	1313504, 1313581, 1313648	Good! 1 ccv fail
05/24/13	09:59	11:08	Cr^{6+}	EH	1313519	Good!
05/24/13	12:17	12:41	NH_3	MK	1314104	Good
05/28/13	11:53	13:00	amenable CN	EH	1314314	Good! dilutions req'd
05/28/13	15:20	16:48	TKN	MK	1314012	OK ccv failed 1st run.
05/28/13	21:47	22:50	CN	EH	1313735	OK, some dilutions req'd
05/29/13	14:19	15:37	NH_3	MK	1313674, 1314356	ok, dilutions required
06/03/13	11:53	12:23	CN	EH	MC0BC6 (1314221, 1314324, 1314438)	Great!
06/04/13	4:07	11:28	NO_3X	MK	1314356	Failed! No curve no color dvlpmt
06/04/13	11:56	12:14	↓	↓	1314356	Failed No color development clogged col cont'l.
06/04/13	14:24	14:33	NO_2	MK	1314356	Great!
06/05/13	10:49	11:51	NO_3X	MK	1314356	Good, dilutions required
06/06/13	10:05	10:37	NH_3	EH	1315125, 1315148	Good!
06/07/13	13:02	14:28	amenable CN	EH+CH	1315620	Great!
06/10/13	10:43	12:16	NH_3	EH	1314801	Good! dilutions needed
06/10/13	13:29	MK 6/11/13 & 14:02	HCN	MK	1315608	Good
06/11/13	13:38	13:56	TKN	EH	1315614	Good!
06/13/13	13:33	14:09	HCN	MK	1315667	Good! Had to repour reagents
06/13/13	14:51	16:30	NH_3	EH	1315819, 1315856	Great!

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

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

ALS Environmental

Instrument ID: WET01
Mary Karanu 06/13/13
1315667 / 108318 HBIV
HCN NiOSH 6010
Reporting limit
0.21 ug/sample
Conversion factor
0.02078 - samples
0.02 - QCs
No dilutions.

Method : CYN -Unit [µg/L] - CYANIDE

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Analysis Time	
DIL-1	RBL	0.000	-0.0005	0.00	1:33:40 PM	
DIL-1	RBL	0.000	0.0051	0.00	1:33:58 PM	
DIL-1	RBL	0.000	0.0016	0.00	1:36:40 PM	
DIL-1	Std-1	0.000	0.0006	0.00	1:36:59 PM	
SR5-1	Std-2	10.000	0.0131	0.00	1:39:40 PM	
SR5-2	Std-3	50.000	0.0611	0.00	1:39:59 PM	
SR5-3	Std-4	100.000	0.1181	0.00	1:40:52 PM	
SR5-4	Std-5	200.000	0.2367	0.00	1:41:11 PM	
SR5-5	Std-6	300.000	0.3383	0.00	1:43:53 PM	
SR5-6	Std-7	400.000	0.4597	0.00	1:44:10 PM	
1	ICV	190.677	0.2201	0.00	1:45:05 PM	
2	ICB	0.028	0.0029	0.00	1:45:23 PM	
3	LMB	1.695	0.0047	0.00	1:48:05 PM	x 1.02 = 0.0339
4	LCS	91.402	0.1070	0.00	1:48:22 PM	x 0.02 = 1.82804
5	LCSD	94.387	0.1104	0.00	1:49:17 PM	x 0.02 = 1.88774
6	1315667008F	-4.419	-0.0022	0.00	1:49:34 PM	
7	008B	1.257	0.0043	0.00	1:52:17 PM	
8	009F	-1.026	0.0016	0.00	1:52:34 PM	
9	009B	0.730	0.0037	0.00	1:53:29 PM	
10	010F	-1.991	0.0006	0.00	1:53:47 PM	
11	010B	1.695	0.0048	0.00	1:56:28 PM	
12	CCV	207.793	0.2396	0.00	1:56:46 PM	
13	CCB	-0.236	0.0026	0.00	1:57:40 PM	
14	011F	-3.947	-0.0017	0.00	1:57:58 PM	
15	011B	1.169	0.0041	0.00	2:00:40 PM	
16	012F	-0.587	0.0022	0.00	2:00:58 PM	
17	012B	0.467	0.0034	0.00	2:01:52 PM	
18	013F	0.554	0.0035	0.00	2:02:10 PM	
19	013B	1.432	0.0045	0.00	2:04:52 PM	
20	014F	2.749	0.0059	0.00	2:05:10 PM	
21	014B	1.520	0.0046	0.00	2:06:04 PM	
22	CCV2	204.633	0.2360	0.00	2:06:22 PM	

Report Date :06/13/2013 Run Date :6/13/2013 Operator : KARANU Plan # :20130613002

Plan Description : 108318

ALS Environmental

Method : CYN -Unit [µg/L] - CYANIDE

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Analysis Time
23	**CCB2**	**-1.289**	**0.0014**	**0.00**	**2:09:04 PM**

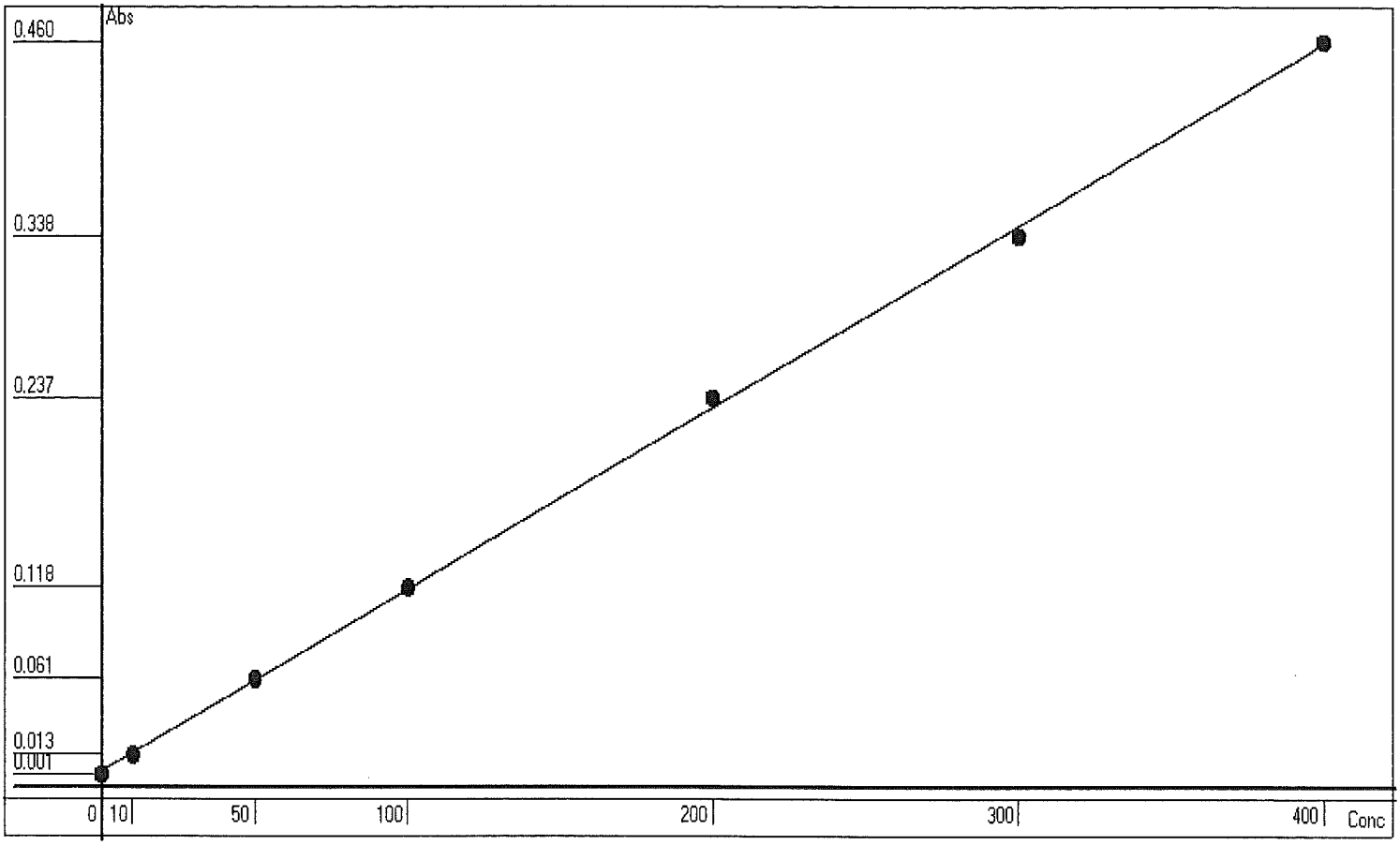
Report Date :06/13/2013 **Run Date :6/13/2013** **Operator : KARANU** **Plan # :20130613002**

Plan Description : 108318

Calibrant Report - CYN -

Calib Lot #:N/A Exp Date:1/1/2025 User:Westco Scientific

Plan # : 20130613002 Description : [108318] Unit



Point	OD	Conc	Recalc Conc	% Error
1	0.0006	0	-1.9473	-194.73
2	0.0131	10	9.0246	-9.75
3	0.0611	50	51.1571	2.31
4	0.1181	100	101.1894	1.19
5	0.2367	200	205.2916	2.65
6	0.3383	300	294.4719	-1.84
7	0.4597	400	401.0319	0.26

Conc= +877.7592*Abso -2.474 R^2=0.9995

RBL
0.0033
0

Report Date 6/13/2013 Run Date 6/13/2013

CYN - CYANIDE

Type	: End Point
Direction	: Up
Unit	: µg/L
Model	: Linear
Unit Factor	: 1
Factor	: 1
Decimal	: 3
Slope	: 1
Intercept	: 0
Linearity Low	: -10
Linearity High	: 400
Filter 1	: 570
Fluidics	: Yes
Sample Blank	: Yes *

RBL 1	: 0.0034
Rbl Replicate	: 3
Use RBL	: Yes
Rgt Rate 1	: 0.0026
E.P. OD Limit	: 0.0030

	Code	Vol	Delay	Read	Rinse
Reagent 1	CNSP	89	108	0	0
Reagent 2 *	CNCL	21	36	0	0
Reagent 3	CNPY	210	0	576	0

	Diluent	: NAOH
	Sample Vol	: 210

	Concentration	OD		Concentration	OD
C1	0	0.0006	C5	200	0.2367
C2	10	0.0131	C6	300	0.3383
C3	50	0.0611	C7	400	0.4597
C4	100	0.1181	C8	-	-

Code	: CN
Description	: Cyanide
Lot#	: N/A
Exp Date	: 1/1/2025
User	: Westco Scientific
Cal Replicate	: 1
Std - Stock	: 500

Report Date :06/13/2013 **Run Date :06/13/2013** **Operator : KARANU** **Plan # :20130613002**

Plan Description : 108318

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

6009

Analytical Documentation

Batch Worklist

Batch: IHG/ 2325 Created: 6/10/2013 08:47 Instrument: HBN: 108158

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

Workorder: 1315608
Workorder: 1315610
Workorder: 1315667
Workorder: 1315736

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Mx	Type	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	337528	ICV			1	ICV		N6009...1Q	6118		6/11/2013	
2	337529	ICB			1	ICB		N6009...1Q	6118		6/11/2013	
3	337364	RB			1	LRB		N6009...1Q	6118		6/11/2013	
4	337365	MB			1	LMB		N6009...1Q	6118		6/11/2013	
5	337366	LCS			1	LCS		N6009...1Q	6118		6/11/2013	
6	337367	LCSD			1	LCSD		N6009...1Q	6118		6/11/2013	
7	1315608003	A529U1-5 Hg			1	SAMPLE	1315608003-A	N6009....1	5975		6/11/2013	
8	1315608007	A529D1-5 Hg			1	SAMPLE	1315608007-A	N6009....1	5975		6/11/2013	
9	1315608011	A5290S-5 Hg			1	SAMPLE	1315608011-A	N6009....1	5975		6/11/2013	
10	1315608015	P529U1-5 Hg			1	SAMPLE	1315608015-A	N6009....1	5975		6/11/2013	
11	1315608019	P529D1-5 Hg			1	SAMPLE	1315608019-A	N6009....1	5975		6/11/2013	
12	1315608023	P5290S-5 Hg			1	SAMPLE	1315608023-A	N6009....1	5975		6/11/2013	
13	337530	CCV			1	CCV		N6009...1Q	6118		6/11/2013	
14	337531	CCB			1	CCB		N6009...1Q	6118		6/11/2013	
15	1315608027	529-13 Hg			1	SAMPLE	1315608027-A	N6009....1	5975		6/11/2013	
16	1315610001	4785403546-Steve			1	SAMPLE	1315610001-A	N6009....1	5003		6/12/2013	
17	1315610002	Blank-4785403552			1	FLDBK	1315610002-A	N6009....1	5003		6/12/2013	
18	1315667001	BZ-I			1	SAMPLE	1315667001-A	N6009....1	5975		6/12/2013	
19	337368	BZ-1(1315667001REP)			1	REP		N6009...1Q	6118		6/11/2013	
20	1315667002	BZ-2			1	SAMPLE	1315667002-A	N6009....1	5975		6/12/2013	
21	1315667003	U-1			1	SAMPLE	1315667003-A	N6009....1	5975		6/12/2013	
22	1315667004	U-2			1	SAMPLE	1315667004-A	N6009....1	5975		6/12/2013	
23	1315667005	D-1			1	SAMPLE	1315667005-A	N6009....1	5975		6/12/2013	
24	1315667006	D-2			1	SAMPLE	1315667006-A	N6009....1	5975		6/12/2013	
25	337532	CCV			1	CCV		N6009...1Q	6118		6/11/2013	
26	337533	CCB			1	CCB		N6009...1Q	6118		6/11/2013	

Batch Worklist

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Mx	Type	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
27	1315667007	Trip Blank			1	FLDBK	1315667007-A	N6009....1	5975		6/12/2013	
28	337369	RB			1	LRB		N6009...1Q	6118		6/11/2013	
29	337370	MB			1	LMB		N6009...1Q	6118		6/11/2013	
30	337371	LCS			1	LCS		N6009...1Q	6118		6/11/2013	
31	337372	LCSD			1	LCSD		N6009...1Q	6118		6/11/2013	
32	1315736001	Phg-01-5.9.13			1	SAMPLE	1315736001-A	N6009....1	5003		6/13/2013	
33	1315736002	Phg-02-5.9.13			1	SAMPLE	1315736002-A	N6009....1	5003		6/13/2013	
34	1315736003	Phg-03-5.9.13			1	SAMPLE	1315736003-A	N6009....1	5003		6/13/2013	
35	1315736004	Phg-01-5.14.13			1	SAMPLE	1315736004-A	N6009....1	5003		6/13/2013	
36	1315736005	Phg-02-5.14.13			1	SAMPLE	1315736005-A	N6009....1	5003		6/13/2013	
37	337534	CCV			1	CCV		N6009...1Q	6118		6/11/2013	
38	337535	CCB			1	CCB		N6009...1Q	6118		6/11/2013	
39	1315736006	Phg-03-5.14.13			1	SAMPLE	1315736006-A	N6009....1	5003		6/13/2013	
40	1315736007	Phg-01-5.15.13			1	SAMPLE	1315736007-A	N6009....1	5003		6/13/2013	
41	1315736008	Phg-02-5.15.13			1	SAMPLE	1315736008-A	N6009....1	5003		6/13/2013	
42	337373	Phg-02-5.15.13(1315736008REP)			1	REP		N6009...1Q	6118		6/11/2013	
43	1315736009	Phg-03-5.15.13			1	SAMPLE	1315736009-A	N6009....1	5003		6/13/2013	
44	1315736010	Phg-05-5.15.13			1	SAMPLE	1315736010-A	N6009....1	5003		6/13/2013	
45	1315736011	Blank-01-Hg			1	FLDBK	1315736011-A	N6009....1	5003		6/13/2013	
46	1315736012	Blank-02-Hg			1	FLDBK	1315736012-A	N6009....1	5003		6/13/2013	
47	337536	CCV			1	CCV		N6009...1Q	6118		6/11/2013	
48	337537	CCB			1	CCB		N6009...1Q	6118		6/11/2013	

NMAM 6009 MOD Hg on Hopcalite Sorbent Tubes/Badges:

Sample, Set, Prep-Batching Information

Workorder ID	Sample #s	HBN	Account	Level
1315608	003, 007, 011,	108158	7003	IH-2
↓	015, 019, 023,	↓	↓	↓
↓	027			
1315610	001, 002			IH-1
1315667	001-007			IH-4
1315736	001-012	↓	↓	IH-1
	CH 06/10/2013			

Sample Media Type Information

Tube Sets	1315608, 1315610, 1315667
Badge Sets	1315736

Preparation Information

Preparer Name: Christopher R. Hansen	
Prep Start Date: 06/10/2013	Prep Start Time: 11:50

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: Carulite (HYDRAR) 78835KC 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	19253	Hg-3	0.01
S0.05	500µL B	↓	G32733B	0.05
S0.10	100µL A	19252	Hg-3	0.10
S0.50/CCV	500µL A	↓	G32733B	0.50
S1.00	1000µL A	↓	↓	1.00
ICV	500µL ICV	19251	↓	0.50
x2 MB	NONE	NONE	NONE	0
LCS, LCSD	500µL ICV/A	19251	G32733B	0.50
RLVS (optional)	100µL B	NA	NA	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: 13:46		End Time: 14:46	

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:

No chain of custody provided for IH-LVL 4 workorders. ~~NA~~ CH 06/11/13
CH 06/11/13

CH 06/10/2013

Analysis Information

Analyst Name: Christopher R. Hansen	
Date Received for Analysis: 06/10/13	Time Received: 15:15

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: 26
5% HCl + 5% HNO_3	Reagent Notebook Info: Book: 2243	Page: 92	Entry: 28

Run Information

Run Date: 06/10/13	Start Time: 16:09	End Time: 17:14
Analysis HBN: 108158		Run Data File: CV2-13143

Dilution Information

Sample	Dilution	Pipette(s)	Reason
1315610001	10X	G32733B + 22031181	Hg > 51.00
		CH 06/10/2013	

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:

HBN: 108158 batch worksheet edited to include ICV/ICB and CCV/CCB pairs to accomodate extended QC reporting for IH_LVL 4 report for WO: 1315667. CH 06/10/2013.

CH 06/10/2013

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
05/30/13	14:14	14:59	45 min	CH	8001	1313738; 1314233, 358, 442, 909	NA	water and liquid	6	AACV02	CV2-13134
05/30/13	15:08	15:37	29 min	CH	8201	1314221, 321, 438	MC0BC6	Water	12	AACV02	CV2-13135
05/30/13	15:41	16:10	29 min	CH	8201	1314222, 326, 439	MC0BC7	Water	12	AACV02	CV2-13136
06/03/13	14:34	15:31	57 min	CH	7003	1314923, 1315079	NA	Hopcalite	16	AACV02	CV2-13137
06/05/13	10:31	11:03	32 min	CH	1101	1314959, 961, 1315002-008, 014, 017, 022, 025	NA 032 06/05/13 CH	DS Bulk	13	AACV02	CV2-13138
06/05/13	11:06	11:40	34 min	CH	8001	1315067, 1315085	NA	Soil	8	AACV02	CV2-13139
06/05/13	13:22	14:05	43 min	CH	8001	1314262	NA	Dust wipes	2	AACV02	CV2-13140
06/06/13	12:39	13:19	40 min	CH	7003	1315463, 432, 604	NA	Hopcalite	11	AACV02	CV2-13141
06/10/13	15:33	15:53	20 min	CH	7350	1315513	NA	Ghost wipes	3	AACV02	CV2-13142
06/10/13	16:09	17:14	65 min	CH	7003	1315608, 616, 667, 736	NA	Hopcalite	28	AACV02	CV2-13143

To Page No. X

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

To Page No. X

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

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~~ CH 09/05/12 2243/89	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	K24W004 CH 6/14	CH 09/19/12 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 stock	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 ~~287.5~~ 287.5 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 ~~287.5~~ 287.5 mL	Blnc 102887 Dispenser	2243/89	10/26/12	10/26/13	~2.5L	CH
8	10% $SnCl_2$ in 7% HCl	$SnCl_2$ $SnCl_2$ HCl	Alfa Aesar EMD	H12X004 50 g F28Y019 200 g 51258 (287.5 mL)	Balance 102887 Acid Dispenser	2243/89	10/26/12	10/26/13	~5L ~(2.5L) twice CH 10/26/12	CH
9	5% HNO_3 + 5% HCl	HNO_3 HCl	EMD EMD	52095 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	12/19/12	12/19/13	10L	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	5% 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% 10% $SnCl_2$ in 7% HCl	$SnCl_2$ HCl	Alfa Aesar EMD	~~5225~~ 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	~~01/16/14~~ 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	5% 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
27	5% HNO_3 + 5% HCl	HNO_3 HCl	EMD EMD	~~52088~~ 45 CH 52250 05/02/13	Acid Dispensers	2243/89	05/02/13	05/02/14	2L	CH
28	5% HNO_3 + 5% HCl	HNO_3 HCl	EMD EMD	52045 52250	Acid Dispensers	2243/89	05/08/13	05/08/14	10L	CH
29	12% $NH_2OH \cdot HCl$	$NH_2OH \cdot HCl$	J.T. Baker	25789	Balance 102887	2243/89	05/24/13	05/24/14	2.8L	CH
30	10% $SnCl_2$ in 7% HCl	$SnCl_2$ HCl	Alfa Aesar EMD	F28Y014 52250	Blnc 102887 Acid Dispenser	2243/89	06/07/13	06/07/14	6L	CH
31	~~10%~~ 5% HNO_3 ~~5%~~ + 5% HCl	HNO_3 HCl	EMD EMD	52045 52250	Acid Dispensers	2243/89	06/07/13	06/07/14	8L	CH

To Page No. NA

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:	**19251**	**Expires:**	06/12/2013	**Usable:**	Yes
Lab Lot:	IHg060593ICV	**Created By:**	C. Hansen	**Amount:**	50 mL
Part ID:		**Create Date:**	06/05/2013	**Validated By:**	
MFG:	CRH	**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
15941	HNO3	Concentrated Nitric Acid	HNO3 (52045)	1 mL	8/6/2017
18149	Hg ICV Stock	Hg ICV Stock Solution	SPEX Hg-1000	0.05 mL	2/28/2014

STANDARD REPORT

Working Standard - Hg A Cal Sol

Hg A Cal Sol				Description - Hg A Calibration Solution	
Standard:	19252	**Expires:**	06/12/2013	**Usable:**	Yes
Lab Lot:	IHg0605-061113A	**Created By:**	C. Hansen	**Amount:**	50 mL
Part ID:		**Create Date:**	06/05/2013	**Validated By:**	
MFG:	CRH	**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
15941	HNO3	Concentrated Nitric Acid	HNO3 (52045)	1 mL	8/6/2017
19250	Hg Working	Hg CCV/Calibration Working	IHg060513WS	5 mL	6/12/2013

STANDARD REPORT

Working Standard - Hg B Cal Sol

Hg B Cal Sol				Description - Hg B Calibration Solution	
Standard:	19253	Expires:	06/12/2013	Usable:	Yes
Lab Lot:	IHg0605-061113B	Created By:	C. Hansen	Amount:	50 mL
Part ID:		Create Date:	06/05/2013	Validated By:	
MFG:	CRH	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
15941	HNO3	Concentrated Nitric Acid	HNO3 (52045)	1 mL	8/6/2017
19250	Hg Working	Hg CCV/Calibration Working	IHg060513WS	0.5 mL	6/12/2013

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

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

Working Standard - Hg Working

Hg Working				Description - Hg CCV/Calibration Working	
Standard:	19250	**Expires:**	06/12/2013	**Usable:**	Yes
Lab Lot:	IHg060513WS	**Created By:**	C. Hansen	**Amount:**	50 mL
Part ID:		**Create Date:**	06/05/2013	**Validated By:**	
MFG:	CRH	**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
15941	HNO3	Concentrated Nitric Acid	HNO3 (52045)	1 mL	8/6/2017
17082	Hg WS Stock		InorganicVenturesHg10	0.5 mL	12/1/2013

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:	15941	Expires:	8/6/2017	Usable:	Yes
Lab Lot:	HNO3 (52045)	Created By:	C. Hansen	Amount:	2.5 L
Part ID:		Create Date:	8/6/2012	Validated By:	
MFG:	EMD OmniTrace	MFG Lot:	52045	Validated Date:	

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

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)	6/10/13 16:09	Standard	0	ug/sample	-244.67	
S0.01 (µg/sample)	6/10/13 16:10	Standard	0.01	ug/sample	2106.8	
S0.05 (µg/sample)	6/10/13 16:11	Standard	0.05	ug/sample	11426	
S0.10 (µg/sample)	6/10/13 16:12	Standard	0.1	ug/sample	23959	
S0.50 (µg/sample)	6/10/13 16:13	Standard	0.5	ug/sample	116050	
S1.00 (µg/sample)	6/10/13 16:14	Standard	1	ug/sample	224480	
337528 - ICV	6/10/13 16:15	ICV	0.5248	ug/sample	118860	
337529 - ICB	6/10/13 16:17	ICB	-0.0043	ug/sample	-334.42	
337364 - RB	6/10/13 16:18	Reagent Blank	-0.0038	ug/sample	-218.53	
337365 - MB	6/10/13 16:19	Method Blank	-0.0022	ug/sample	149.19	
337366 - LCS	6/10/13 16:20	LCS	0.5225	ug/sample	118340	
337367 - LCSD	6/10/13 16:21	LCS	0.5209	ug/sample	117990	
1315608003	6/10/13 16:22	Unknown	0.0057	ug/sample	1910.6	
1315608007	6/10/13 16:23	Unknown	0.0007	ug/sample	801.23	
1315608011	6/10/13 16:24	Unknown	0.0097	ug/sample	2811.7	
1315608015	6/10/13 16:26	Unknown	0.0245	ug/sample	6163.2	
1315608019	6/10/13 16:27	Unknown	0.0015	ug/sample	973.88	
1315608023	6/10/13 16:28	Unknown	-0.0006	ug/sample	507.86	
337530 - CCV	6/10/13 16:29	CCV	0.5125	ug/sample	116100	
337531 - CCB	6/10/13 16:30	CCB	-0.0039	ug/sample	-240.2	
1315608027	6/10/13 16:31	Unknown	-0.0016	ug/sample	281.69	
~~1315610001~~	~~6/10/13 16:32~~	~~Unknown~~	~~4.6497~~	~~ug/sample~~	~~1048100~~	Dilution required
1315610002	6/10/13 16:36	Unknown	-0.0029	ug/sample	-21.617	
1315667001	**6/10/13 16:37**	**Unknown**	**-0.0024**	**ug/sample**	**84.241**	
337368 - 1315667001REP	6/10/13 16:38	Duplicate	-0.0024	ug/sample	83.945	
1315667002	**6/10/13 16:39**	**Unknown**	**-0.002**	**ug/sample**	**191.8**	
1315667003	**6/10/13 16:40**	**Unknown**	**-0.0027**	**ug/sample**	**37.326**	
1315667004	**6/10/13 16:41**	**Unknown**	**-0.0026**	**ug/sample**	**58.967**	
1315667005	**6/10/13 16:42**	**Unknown**	**-0.0013**	**ug/sample**	**344.79**	
1315667006	**6/10/13 16:43**	**Unknown**	**-0.0012**	**ug/sample**	**365.57**	
337532 - CCV	6/10/13 16:45	CCV	0.5136	ug/sample	116330	
337533 - CCB	6/10/13 16:46	CCB	-0.0039	ug/sample	-235.84	
1315667007	**6/10/13 16:47**	**Unknown**	**-0.0029**	**ug/sample**	**-15.085**	
337369 - RB	6/10/13 16:48	Reagent Blank	-0.0037	ug/sample	-208.83	
337370 - MB	6/10/13 16:49	Method Blank	-0.0028	ug/sample	0.1687	
337371 - LCS	6/10/13 16:50	LCS	0.5224	ug/sample	118320	
337372 - LCSD	6/10/13 16:51	LCS	0.522	ug/sample	118230	
1315736001	6/10/13 16:53	Unknown	-0.0027	ug/sample	24.843	
1315736002	6/10/13 16:54	Unknown	-0.0027	ug/sample	37.778	
1315736003	6/10/13 16:55	Unknown	-0.0022	ug/sample	146.4	
1315736004	6/10/13 16:56	Unknown	-0.003	ug/sample	-45.278	
1315736005	6/10/13 16:57	Unknown	-0.0032	ug/sample	-82.365	
337534 - CCV	6/10/13 16:58	CCV	0.5174	ug/sample	117180	
337535 - CCB	6/10/13 16:59	CCB	-0.0041	ug/sample	-296.73	
1315736006	6/10/13 17:01	Unknown	-0.0032	ug/sample	-90.098	
1315736007	6/10/13 17:02	Unknown	-0.0031	ug/sample	-51.78	

Mercury Data Summary

1315736008	6/10/13 17:03	Unknown	-0.0032 ug/sample	-96.255	
337373 - 1315736008REP	6/10/13 17:05	Duplicate	-0.0033 ug/sample	-105.76	
1315736009	6/10/13 17:06	Unknown	-0.003 ug/sample	-36.881	
1315736010	6/10/13 17:07	Unknown	-0.0032 ug/sample	-86.017	
1315736011	6/10/13 17:08	Unknown	-0.0032 ug/sample	-87.645	
1315736012	6/10/13 17:09	Unknown	-0.0033 ug/sample	-117.19	
1315610001 (10x)	6/10/13 17:10	Unknown	0.8824 ug/sample	199430	
~~1315610001 (20x)~~	~~6/10/13 17:11~~	~~Unknown~~	~~0.4536 ug/sample~~	~~102820~~	Verification only
337536 - CCV	6/10/13 17:13	CCV	0.5172 ug/sample	117140	
337537 - CCB	6/10/13 17:14	CCB	-0.0042 ug/sample	-311.27	

NOTE: Calibration QC ID numbers were assigned after run was completed and are indicated in the comments section of the raw data.

Workorder: 1315608, 1315610, **1315667**, 1315736 (IH_LVL 4 data is in bold)

Method: NMAM-6009 MOD (HOPCALITE TUBES and/or BADGES)

Instrument: AACV02

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

Batch HBN: 108158

Data File: CV2-13143

Correlation Coefficient: 0.99971

Prep Date: 06/10/2013

Analyst: Christopher R. Hansen

Christopher R Hansen
06/11/2013

ALS Environmental - SLC

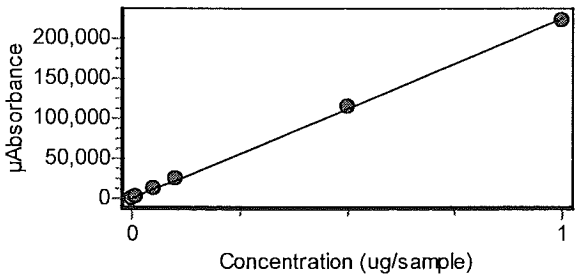
Report Generated By CETAC QuickTrace
Analyst: christopher.hansen Christopher R Hansen
Worksheet file: C:\Program Files\QuickTrace\Worksheets\CV2-13143.wsz
Date Started: 6/10/2013 3:52:59 PM
Comment: HBN: 108158

Results

Sample Name	Type	Date/Time	Conc (ug/sample)	µAbs	Flags
S0 (µg/sample)	STD	06/10/13 04:09:10 pm	0.0000	-245	
S0.01 (µg/sample)	STD	06/10/13 04:10:17 pm	0.0100	2107	
S0.05 (µg/sample)	STD	06/10/13 04:11:25 pm	0.0500	11426	
S0.10 (µg/sample)	STD	06/10/13 04:12:32 pm	0.1000	23959	
S0.50 (µg/sample)	STD	06/10/13 04:13:41 pm	0.5000	116046	
S1.00 (µg/sample)	STD	06/10/13 04:14:49 pm	1.0000	224475	

Calibration

Equation: A = 635.393 + 225274.400C
R2: 0.99971
SEE: 1731.4750
Flags:



ICV % Recovery 104.96	ICV	06/10/13 04:15:59 pm	0.5248	118857	
ICB	ICB	06/10/13 04:17:08 pm	-0.0043	-334	
337364 - RB	RB	06/10/13 04:18:15 pm	-0.0038	-219	
337365 - MB	MB	06/10/13 04:19:22 pm	-0.0022	149	

Sample Name	Type	Date/Time	Conc (ug/sample)	µAbs	Flags
337366 - LCS	LCS	06/10/13 04:20:30 pm	0.5225	118344	
% Recovery 104.50					
337367 - LCSD	LCS	06/10/13 04:21:37 pm	0.5209	117986	
% Recovery 104.18					
1315608003	UNK	06/10/13 04:22:45 pm	0.0057	1911	
1315608007	UNK	06/10/13 04:23:51 pm	0.0007	801	
1315608011	UNK	06/10/13 04:24:58 pm	0.0097	2812	
1315608015	UNK	06/10/13 04:26:05 pm	0.0245	6163	
1315608019	UNK	06/10/13 04:27:12 pm	0.0015	974	
1315608023	UNK	06/10/13 04:28:20 pm	-0.0006	508	
CCV	CCV	06/10/13 04:29:29 pm	0.5125	116098	
% Recovery 102.51					
CCB	CCB	06/10/13 04:30:39 pm	-0.0039	-240	
1315608027	UNK	06/10/13 04:31:47 pm	-0.0016	282	
1315610001 Diluton Required	UNK	06/10/13 04:32:54 pm	4.6497	1048088	S
			CH 06/10/2013		
1315610002	UNK	06/10/13 04:36:02 pm	-0.0029	-22	
1315667001	UNK	06/10/13 04:37:11 pm	-0.0024	84	
337368 - 1315667001REP	DUP	06/10/13 04:38:19 pm	-0.0024	84	
RPD 0.00					
1315667002	UNK	06/10/13 04:39:27 pm	-0.0020	192	
1315667003	UNK	06/10/13 04:40:34 pm	-0.0027	37	

Sample Name	Type	Date/Time	Conc (ug/sample)	µAbs	Flags
1315667004	UNK	06/10/13 04:41:42 pm	-0.0026	59	
1315667005	UNK	06/10/13 04:42:49 pm	-0.0013	345	
1315667006	UNK	06/10/13 04:43:56 pm	-0.0012	366	
CCV	CCV	06/10/13 04:45:05 pm	0.5136	116327	
% Recovery 102.71					
CCB	CCB	06/10/13 04:46:15 pm	-0.0039	-236	
1315667007	UNK	06/10/13 04:47:22 pm	-0.0029	-15	
337369 - RB	RB	06/10/13 04:48:30 pm	-0.0037	-209	
337370 - MB	MB	06/10/13 04:49:37 pm	-0.0028	0	
337371 - LCS	LCS	06/10/13 04:50:45 pm	0.5224	118317	
% Recovery 104.48					
337372 - LCSD	LCS	06/10/13 04:51:52 pm	0.5220	118231	
% Recovery 104.40					
1315736001	UNK	06/10/13 04:53:00 pm	-0.0027	25	
1315736002	UNK	06/10/13 04:54:08 pm	-0.0027	38	
1315736003	UNK	06/10/13 04:55:16 pm	-0.0022	146	
1315736004	UNK	06/10/13 04:56:24 pm	-0.0030	-45	
1315736005	UNK	06/10/13 04:57:31 pm	-0.0032	-82	
CCV	CCV	06/10/13 04:58:40 pm	0.5174	117183	
% Recovery 103.47					
CCB	CCB	06/10/13 04:59:50 pm	-0.0041	-297	

Sample Name	Type	Date/Time	Conc (ug/sample)	µAbs	Flags
1315736006	UNK	06/10/13 05:01:43 pm	-0.0032	-90	
1315736007	UNK	06/10/13 05:02:51 pm	-0.0031	-52	
1315736008	UNK	06/10/13 05:03:59 pm	-0.0032	-96	
337373 - 1315736008REP RPD 0.00	DUP	06/10/13 05:05:07 pm	-0.0033	-106	
1315736009	UNK	06/10/13 05:06:16 pm	-0.0030	-37	
1315736010	UNK	06/10/13 05:07:24 pm	-0.0032	-86	
1315736011	UNK	06/10/13 05:08:32 pm	-0.0032	-88	
1315736012	UNK	06/10/13 05:09:41 pm	-0.0033	-117	
1315610001 (10x)	UNK	06/10/13 05:10:49 pm	0.8824	199426	
1315610001 (20x) verification only.	UNK	06/10/13 05:11:57 pm	0.4536	102816	QA 06/10/2013
CCV % Recovery 103.43	CCV	06/10/13 05:13:06 pm	0.5172	117141	
CCB	CCB	06/10/13 05:14:16 pm	-0.0042	-311	

Notes

Batch edited to accomodate level 4 reporting QC: ICV/ICB = 337528/337529. CCV/CCB = 337530/337531, 337532/337533, 337534/337535, and
337536/337537.

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

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