



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
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F: +1 805 526 7270
www.alsglobal.com

LABORATORY REPORT

August 15, 2014

Deborah Gray
Stantec Consulting Services, Inc.
1500 Lake Shore Drive Suite 100
Columbus, OH 43204

RE: Bridgeton / 182608020

Dear Deborah:

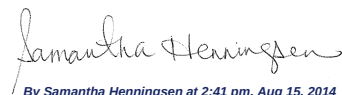
Enclosed are the results of the samples submitted to our laboratory on July 31, 2014. For your reference, these analyses have been assigned our service request number P1403090. The samples submitted for analysis by NIOSH 6009 and NIOSH 6010 were submitted for analysis to ALS Salt Lake City, UT. Please find their report 1422058 attached.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental



By Samantha Henningsen at 2:41 pm, Aug 15, 2014

Samantha Henningsen
Project Manager



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Client: Stantec Consulting Services, Inc.
Project: Bridgeton / 182608020

Service Request No: P1403090

CASE NARRATIVE

The samples were received intact under chain of custody on July 31, 2014 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Ammonia Analysis

The samples were prepared in accordance with OSHA ID-188 and analyzed for ammonia in air by Ion Selective Electrode per OSHA ID-164. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

Amine Analysis

The samples were analyzed for amines using a gas chromatograph equipped with a nitrogen phosphorus detector (NPD). This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

The lower control criterion was exceeded for butylamine in the Laboratory Control Sample (LCS) and duplicate laboratory control sample (DLCS) analyzed on August 5, 2014. The error associated with reduced recovery equates to a potential low bias; however, a Method Reporting Limit (MRL) check standard containing the analyte of concern was analyzed. The MRL check standard verified that instrument sensitivity was adequate to detect the analyte(s) at the MRL on the day of analysis. The data quality is not significantly affected. No further corrective action was taken.

The upper control criterion was exceeded for ethylamine and butylamine in the Continuing Calibration Verification (CCV) analyzed on August 5, 2014. Since the apparent problem equates to a potential high bias and the field sample(s) analyzed in this sequence did not contain the analyte(s) in question, the data quality is not affected. No corrective action was required.

Aldehyde Analysis

The DNPH silica gel tube samples were analyzed for aldehydes according to EPA Method TO-11A using high performance liquid chromatography (HPLC). This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

Carboxylic Acids Analysis

The Silica gel tube samples were analyzed for carboxylic acids using combined gas chromatography/mass spectrometry (GC/MS) in accordance with laboratory operating



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procedures. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.



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ALS Environmental – Simi Valley
 Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L14-2
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	643428
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-14-5
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA01627201 3-3
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Stantec Consulting Services, Inc.
Project ID: Bridgeton / 182608020

Service Request: P1403090

Date Received: 7/31/2014
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	TO-11A - Carbonyls	Amines - Amines	OSHA ID-164 Modified - Ammonia	Carbox Acids - Carboxy Acids
730U1-2 ALD	P1403090-001	Air	7/30/2014	16:13	X			
730U1-4 AMINE	P1403090-002	Air	7/30/2014	16:13		X		
730U1-6 NH3	P1403090-003	Air	7/30/2014	16:13			X	
730U1-7 CARBOX	P1403090-004	Air	7/30/2014	16:13				X
730D1-2 ALD	P1403090-005	Air	7/30/2014	16:25	X			
730D1-4 AMINE	P1403090-006	Air	7/30/2014	16:25		X		
730D1-6 NH3	P1403090-007	Air	7/30/2014	16:25			X	
730D1-7 CARBOX	P1403090-008	Air	7/30/2014	16:25				X
730D2-2 ALD	P1403090-009	Air	7/30/2014	16:32	X			
730D2- 4 AMINE	P1403090-010	Air	7/30/2014	16:32		X		
730D2- 6 NH3	P1403090-011	Air	7/30/2014	16:32			X	
730D2- 7 CARBOX	P1403090-012	Air	7/30/2014	16:32				X
730LFN-2 ALD	P1403090-013	Air	7/30/2014	16:49	X			
730LFN-4 AMINE	P1403090-015	Air	7/30/2014	16:49		X		
730LFN-6 NH3	P1403090-017	Air	7/30/2014	16:49			X	
730LFN-7 CARBOX	P1403090-018	Air	7/30/2014	16:49				X
730LFNQ-2 ALD	P1403090-019	Air	7/30/2014	16:45	X			
730LFNQ-4 AMINE	P1403090-020	Air	7/30/2014	16:45		X		
730LFNQ-6 NH3	P1403090-022	Air	7/30/2014	16:45			X	
730LFNQ-7 CARBOX	P1403090-023	Air	7/30/2014	16:45				X
730N-sALD	P1403090-024	Air	7/30/2014	14:02	X			
730N-sAMINE	P1403090-026	Air	7/30/2014	14:12		X		
730N-sNH3	P1403090-028	Air	7/30/2014	13:41			X	
730N-sCARBOX	P1403090-029	Air	7/30/2014	13:58				X
730NQ-sALD	P1403090-030	Air	7/30/2014	13:00	X			
730NQ-sAMINE	P1403090-032	Air	7/30/2014	13:06		X		
730NQ-sNH3	P1403090-034	Air	7/30/2014	12:55			X	
730NQ-sCARBOX	P1403090-035	Air	7/30/2014	12:39				X
730SQ-sALD	P1403090-036	Air	7/30/2014	15:32	X			
730SQ-sAMINE	P1403090-038	Air	7/30/2014	15:21		X		
730SQ-sNH3	P1403090-040	Air	7/30/2014	15:27			X	
730SQ-sCARBOX	P1403090-041	Air	7/30/2014	15:09				X
730F-sALD	P1403090-042	Air	7/30/2014	16:16	X			
730F-sAMINE	P1403090-044	Air	7/30/2014	16:47		X		
730F-sNH3	P1403090-046	Air	7/30/2014	16:24			X	
730F-sCARBOX	P1403090-047	Air	7/30/2014	16:39				X
730-BALD	P1403090-048	Air	7/30/2014	16:00	X			
730-BAmine	P1403090-050	Air	7/30/2014	16:00		X		
730-BNH3	P1403090-052	Air	7/30/2014	16:00			X	
730-BCARBOX	P1403090-053	Air	7/30/2014	16:00				X



Page 1 of 4

Chain of Custody Record & Analytical Service Request

Company Name & Address (Reporting Information)										Project Name				ALS Contact:		ALS Project No.
Stantec 1500 Lake Shore Dr Suite 100 Columbus, Ohio 43204 Project Manager: Deb Gray Phone: (603) 526-7161 Fax: (603) 526-7270										Bridgton Project Number 182608020 P.O. # / Billing Information Direct Bill - Republic Services				Sam Henningsen		
Email Address for Result Reporting nick.iannaggi@stantec.com deb.gray@stantec.com										Sampler (Print & Sign) 						
Laboratory ID #	Tube ID	Flow Rate	Total mls	Date/Time Start	Date/Time End	Total Sampling Time (minutes)	EPA TO-11a, Aldehydes	NIOSH 6010, HCN	AQL 101, Amines	NIOSH 6009, Hg	OSHA ID 188, NH ₃	AQL 102, Carboxylics	Comments			
730U1-2 ALD		1218.0	292,320	7/30/2014, 12:13	7/30/2014, 16:13	240	X									
730U1-4 Amine		62.8	15,072	7/30/2014, 12:13	7/30/2014, 16:13	240			X							
730U1-6 NH3		489.8	117,540	7/30/2014, 12:13	7/30/2014, 16:13	240					X					
730U1-7 CARBOX		396.1	95,052	7/30/2014, 12:13	7/30/2014, 16:13	240						X				
730D1-2 ALD		1175.0	282,000	7/30/2014, 12:25	7/30/2014, 16:25	240	X									
730D1-4 Amine		58.4	14,016	7/30/2014, 12:25	7/30/2014, 16:25	240			X							
730D1-6 NH3		514.7	123,528	7/30/2014, 12:25	7/30/2014, 16:25	240					X					
730D1-7 CARBOX		389.8	93,552	7/30/2014, 12:25	7/30/2014, 16:25	240						X				
730D2-2 ALD		1178.0	282,720	7/30/2014, 12:32	7/30/2014, 16:32	240	X									
730D2-4 Amine		60.4	14,496	7/30/2014, 12:32	7/30/2014, 16:32	240			X							
730D2-6 NH3		489.0	117,360	7/30/2014, 12:32	7/30/2014, 16:32	240					X					
730D2-7 CARBOX		391.5	93,960	7/30/2014, 12:32	7/30/2014, 16:32	240						X				
730LFN-2 ALD		1175.0	282,000	7/30/2014, 12:49	7/30/2014, 16:49	240	X									
730LFN-3 HCN		54.5	12,197	7/30/2014, 14:22	7/30/2014, 18:06	224		X								
730LFN-4 Amine		61.3	14,712	7/30/2014, 12:49	7/30/2014, 16:49	240			X							

Report Tier Levels - please select		Tier III (Data Validation Package) 10% Surcharge		EDD required Yes / No		EDD Units:	
Tier I - (Results Default if not specified)	Tier II (Results + QC)	Tier III (client specified)	Tier IV (client specified)	Type:	Yes / No	Units:	Units:
					X	ug/m ³	
Relinquished by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)	Received by: (Signature)	Date: 7/31/14	Date: 7/31/14	Time: 10:30	Time: 10:30
Relinquished by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)	Received by: (Signature)	Date: 7/31/14	Date: 7/31/14	Time: 10:30	Time: 10:30
Relinquished by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)	Received by: (Signature)	Date: 7/31/14	Date: 7/31/14	Time: 10:30	Time: 10:30

Cooler / Blank Temperature 2°C

Please J-flag the report.



Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone: (805) 528-7161 Fax: (805) 528-7270

Company Name & Address (Reporting Information)

Stantec
1500 Lake Shore Dr, suite 100
Columbus, Ohio 43204

Project Manager
Deb Gray

Phone
614-643-4362

Email Address for Result Reporting
deb.gray@stantec.com

nick.iannaggi@stantec.com

Sampler (Print & Sign)
Nick Iannaggi

Project Name
Bridgeton

Project Number
182808020

P.O. # / Billing Information
Direct Bill - Republic Services

ALS Contact:
Sam Henningsen

ALS Project No.

Requested Turnaround Time in Business Days (Surcharges) Please Circle:

1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day (Standard)

Client Sample ID	Laboratory ID #	Tube ID	Flow Rate	Date/Time			Total Sampling Time (minutes)	Analysis Method/Analytes					Comments
				Date/Time Start	Date/Time End			EPA TO-11a, Aldehydes	NIOSH 6010, HCN	AQL 101, Amines	NIOSH 6009, Hg	OSHA ID 188, NH3	AQL 102, Carboxylics
7301FN-5 Hg			204.1	7/30/2014, 12:49	7/30/2014, 16:49		240			X			
7301FN-6 NH3			496.0	7/30/2014, 12:49	7/30/2014, 16:49		240				X		
7301FN-7 CARBOX			398.5	7/30/2014, 12:49	7/30/2014, 16:49		240						X
7301FNQ-2 ALD			1175.5	7/30/2014, 12:45	7/30/2014, 16:45		240	X					
Intentionally Left Blank													
7301FNQ-4 Amine			57.6	7/30/2014, 12:45	7/30/2014, 16:45		240			X			
7301FNQ-5 Hg			199.3	7/30/2014, 12:45	7/30/2014, 16:45		240			X			
7301FNQ-6 NH3			483.9	7/30/2014, 12:45	7/30/2014, 16:45		240				X		
7301FNQ-7 CARBOX			388.0	7/30/2014, 12:45	7/30/2014, 16:45		240						X
7301FNQ-8 CARBOX			1386.0	7/30/2014, 14:00	7/30/2014, 14:02		2	X					
7301FNQ-9 CARBOX			53.8	7/30/2014, 13:45	7/30/2014, 13:51		6		X				
7301FNQ-10 CARBOX			54.3	7/30/2014, 14:04	7/30/2014, 14:12		8			X			
7301FNQ-11 CARBOX			282.6	7/30/2014, 14:14	7/30/2014, 14:20		6				X		
7301FNQ-12 CARBOX			494.0	7/30/2014, 13:37	7/30/2014, 13:41		4					X	
7301FNQ-13 CARBOX			466.3	7/30/2014, 13:52	7/30/2014, 13:58		6						X

Report Tier Levels - please select

Tier I - (Results/Default if not specified)

Tier II (Results + QC)

Tier III (Data Validation Package) 10% Surcharge

Tier IV (client specified)

EDD required Yes / No
Type: *xls*

EDD Units: *ug/m3*

EDD Units:

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Date:

Time:

Date:

Time:

Date:

Time:

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Date:

Time:

Date:

Time:

Date:

Time:

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Date:

Time:

Date:

Time:

Date:

Time:

Project Requirements
(MRLs, QAPP)

Cooler / Blank
Temperature °C



Chain of Custody Record & Analytical Service Request

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Phone: (805) 528-7161 Fax: (805) 528-7270

Company Name & Address (Reporting Information)

Stantec
1500 Lake Shore Dr, suite 100
Columbus, Ohio 43204
Project Manager
Deb Gray
Phone
614-643-4362
Fax

Email Address for Result Reporting
deb.gray@stantec.com
nick.iannagui@stantec.com

Project Name

Bridgeton
Project Number
182608020
P.O. # / Billing Information
Direct Bill - Republic Services

ALS Contact:

Sam Henningsen

Requested Turnaround Time in Business Days (Surcharges) Please Circle:

1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day (Standard)

ALS Project No.

Company Name & Address (Reporting Information)				Project Name		ALS Contact:		Analysis Method/Analytes										Comments											
Stantec 1500 Lake Shore Dr, suite 100 Columbus, Ohio 43204 Project Manager Deb Gray				Bridgeton Project Number 182608020 P.O. # / Billing information Direct Bill - Republic Services		Sam Henningsen																							
Laboratory ID #				Tube ID		Flow Rate		Total mls		Date/Time Start		Date/Time End		Total Sampling Time (minutes)		Sampler (Print & Sign)		EPA TO-11a, Aldehydes		NIOSH 6010, HCN		AQL 101, Amines		NIOSH 6009, Hg		OSHA ID 188, NH3		AQL 102, Carboxylics	
Client Sample ID																													
730NQ-SALD						1219.0		2,438		7/30/2014, 12:58		7/30/2014, 13:00		2				X											
730NQ-SHCN						57.0		342		7/30/2014, 12:42		7/30/2014, 12:48		6				X											
730NQ-sAmine						54.5		436		7/30/2014, 12:58		7/30/2014, 13:06		8						X									
730NQ-sHg						240.4		1,442		7/30/2014, 12:22		7/30/2014, 12:28		6								X							
730NQ-sNH3						494.5		1,978		7/30/2014, 12:51		7/30/2014, 12:55		4															
730NQ-sCARBOX						475.7		2,854		7/30/2014, 12:33		7/30/2014, 12:39		6															
730SQ-SALD						1541.0		3,082		7/30/2014, 15:30		7/30/2014, 15:32		2		X													
730SQ-SHCN						54.6		328		7/30/2014, 15:44		7/30/2014, 15:50		6				X											
730SQ-sAmine						55.2		441		7/30/2014, 15:13		7/30/2014, 15:21		8						X									
730SQ-sHg						281.6		1,689		7/30/2014, 15:34		7/30/2014, 15:40		6								X							
730SQ-sNH3						488.1		1,952		7/30/2014, 15:23		7/30/2014, 15:27		4										X					
730SQ-sCARBOX						464.2		2,785		7/30/2014, 15:03		7/30/2014, 15:08		6												X			
730F-SALD						1629.5		1,630		7/30/2014, 16:15		7/30/2014, 16:16		1		X													
730F-SHCN						53.0		159		7/30/2014, 16:29		7/30/2014, 16:32		3				X											
730F-sAmine						52.1		208		7/30/2014, 16:43		7/30/2014, 16:47		4						X									
Report Tier Levels - please select																													
Tier I - (Results/Default if not specified)																													
Tier II (Results + QC)																													
Tier III (Data Validation Package) 10% Surcharge																													
Tier IV (client specified)																													
Relinquished by: (Signature)				Date: 7/31/14		Time: 09:30		Received by: (Signature)		Date: 7/31/14		Time: 09:30		EDD required Yes/No		Type: XLS		EDD Units: 0.01 mg/m ³		Date: 7/31/14		Time: 09:30		EDD Units:		Date: 7/31/14		Time: 09:30	
Relinquished by: (Signature)				Date: 7/31/14		Time: 09:30		Received by: (Signature)		Date: 7/31/14		Time: 09:30								Date: 7/31/14		Time: 09:30				Cooler / Blank Temperature °C			



Chain of Custody Record & Analytical Service Request

[illegible]

ALS Environmental Sample Acceptance Check Form

Client: Stantec Consulting Services, Inc.

Work order: P1403090

Project: Bridgeton / 182608020

Sample(s) received on: 7/31/14

Date opened: 7/31/14

by: KKELPE

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

	Yes	No	N/A
1 Were sample containers properly marked with client sample ID?	☒	☐	☐
2 Container(s) supplied by ALS ?	☒	☐	☐
3 Did sample containers arrive in good condition?	☒	☐	☐
4 Were chain-of-custody papers used and filled out?	☒	☐	☐
5 Did sample container labels and/or tags agree with custody papers?	☒	☐	☐
6 Was sample volume received adequate for analysis?	☒	☐	☐
7 Are samples within specified holding times?	☒	☐	☐
8 Was proper temperature (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
Cooler Temperature: 2° C Blank Temperature: ° C Wet Ice			
9 Was a trip blank received?	☒	☐	☐
10 Were custody seals on outside of cooler/Box?	☒	☐	☐
Location of seal(s)? _____ Sealing Lid?	☒	☐	☐
Were signature and date included?	☒	☐	☐
Were seals intact?	☒	☐	☐
Were custody seals on outside of sample container?	☐	☒	☐
Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
Were signature and date included?	☐	☐	☒
Were seals intact?	☐	☐	☒
11 Do containers have appropriate preservation , according to method/SOP or Client specified information?	☐	☐	☒
Is there a client indication that the submitted samples are pH preserved?	☐	☐	☒
Were VOA vials checked for presence/absence of air bubbles?	☐	☐	☒
Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it?	☐	☐	☒
12 Tubes: Are the tubes capped and intact?	☒	☐	☐
Do they contain moisture?	☐	☒	☐
13 Badges: Are the badges properly capped and intact?	☐	☐	☒
Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1403090-001.01	Silica Gel DNPH Tube					
P1403090-002.01	Treated Alumina Tube					
P1403090-003.01	Anasorb 747 Tube					
P1403090-004.01	Silica Gel (C. Acids)					
P1403090-005.01	Silica Gel DNPH Tube					
P1403090-006.01	Treated Alumina Tube					
P1403090-007.01	Anasorb 747 Tube					
P1403090-008.01	Silica Gel (C. Acids)					

Explain any discrepancies: (include lab sample ID numbers): _____

ALS Environmental
Sample Acceptance Check Form

Client: Stantec Consulting Services, Inc.

Work order: P1403090

Project: Bridgeton / 182608020

Sample(s) received on: 7/31/14

Date opened: 7/31/14

by: KKELPE

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1403090-009.01	Silica Gel DNPH Tube					
P1403090-010.01	Treated Alumina Tube					
P1403090-011.01	Anasorb 747 Tube					
P1403090-012.01	Silica Gel (C. Acids)					
P1403090-013.01	Silica Gel DNPH Tube					
P1403090-014.01	Solid Sorbent (Custom) Tube					
P1403090-015.01	Treated Alumina Tube					
P1403090-016.01	Solid Sorbent (Custom) Tube					
P1403090-017.01	Anasorb 747 Tube					
P1403090-018.01	Silica Gel (C. Acids)					
P1403090-019.01	Silica Gel DNPH Tube					
P1403090-020.01	Treated Alumina Tube					
P1403090-021.01	Solid Sorbent (Custom) Tube					
P1403090-022.01	Anasorb 747 Tube					
P1403090-023.01	Silica Gel (C. Acids)					
P1403090-024.01	Silica Gel DNPH Tube					
P1403090-025.01	Solid Sorbent (Custom) Tube					
P1403090-026.01	Treated Alumina Tube					
P1403090-027.01	Solid Sorbent (Custom) Tube					
P1403090-028.01	Anasorb 747 Tube					
P1403090-029.01	Silica Gel (C. Acids)					
P1403090-030.01	Silica Gel DNPH Tube					
P1403090-031.01	Solid Sorbent (Custom) Tube					
P1403090-032.01	Treated Alumina Tube					
P1403090-033.01	Solid Sorbent (Custom) Tube					
P1403090-034.01	Anasorb 747 Tube					
P1403090-035.01	Silica Gel (C. Acids)					
P1403090-036.01	Silica Gel DNPH Tube					
P1403090-037.01	Solid Sorbent (Custom) Tube					
P1403090-038.01	Treated Alumina Tube					
P1403090-039.01	Solid Sorbent (Custom) Tube					
P1403090-040.01	Anasorb 747 Tube					
P1403090-041.01	Silica Gel (C. Acids)					
P1403090-042.01	Silica Gel DNPH Tube					
P1403090-043.01	Solid Sorbent (Custom) Tube					
P1403090-044.01	Treated Alumina Tube					
P1403090-045.01	Solid Sorbent (Custom) Tube					
P1403090-046.01	Anasorb 747 Tube					
P1403090-047.01	Silica Gel (C. Acids)					
P1403090-048.01	Silica Gel DNPH Tube					

Explain any discrepancies: (include lab sample ID numbers): _____

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental Sample Acceptance Check Form

Client: Stantec Consulting Services, Inc.

Work order: P1403090

Project: Bridgeton / 182608020

Sample(s) received on: 7/31/14 Date opened: 7/31/14 by: KKELPE

Date opened: 7/31/14 by: KKEP

by: KKE LPE

[illegible]

Explain any discrepancies: (include lab sample ID numbers): _____

RSK - MEEPP, HCL (pH<2); RSK - CO₂, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Stantec Consulting Services, Inc.

Client Sample ID: 730U1-2 ALD

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090

ALS Sample ID: P1403090-001

Test Code: EPA Method TO-11A
Instrument ID: Agilent Infinity LC 1220/LC3
Analyst: Madeleine Dangazyan
Sample Type: Silica Gel DNPH Tube
Test Notes: BC

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/5/14
Desorption Volume: 1.0 ml
Volume Sampled: 292.32 Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	770	2.6	0.34	2.1	0.28	
75-07-0	Acetaldehyde	740	2.5	0.34	1.4	0.19	
123-38-6	Propionaldehyde	< 100	ND	0.34	ND	0.14	
4170-30-3	Crotonaldehyde, Total	< 100	ND	0.34	ND	0.12	
123-72-8	Butyraldehyde	< 100	ND	0.34	ND	0.12	
100-52-7	Benzaldehyde	< 100	ND	0.34	ND	0.079	
590-86-3	Isovaleraldehyde	< 100	ND	0.34	ND	0.097	
110-62-3	Valeraldehyde	< 100	ND	0.34	ND	0.097	
529-20-4	o-Tolualdehyde	< 100	ND	0.34	ND	0.070	
620-23-5							
104-87-0	m,p-Tolualdehyde	< 200	ND	0.68	ND	0.14	
66-25-1	n-Hexaldehyde	150	0.51	0.34	0.13	0.084	
5779-94-2	2,5-Dimethylbenzaldehyde	< 100	ND	0.34	ND	0.062	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.

Client Sample ID: 730D1-2 ALD

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090

ALS Sample ID: P1403090-005

Test Code: EPA Method TO-11A
Instrument ID: Agilent Infinity LC 1220/LC3
Analyst: Madeleine Dangazyan
Sample Type: Silica Gel DNPH Tube
Test Notes: BC

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/5/14
Desorption Volume: 1.0 ml
Volume Sampled: 282 Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	820	2.9	0.35	2.4	0.29	
75-07-0	Acetaldehyde	250	0.87	0.35	0.48	0.20	
123-38-6	Propionaldehyde	< 100	ND	0.35	ND	0.15	
4170-30-3	Crotonaldehyde, Total	< 100	ND	0.35	ND	0.12	
123-72-8	Butyraldehyde	< 100	ND	0.35	ND	0.12	
100-52-7	Benzaldehyde	< 100	ND	0.35	ND	0.082	
590-86-3	Isovaleraldehyde	< 100	ND	0.35	ND	0.10	
110-62-3	Valeraldehyde	< 100	ND	0.35	ND	0.10	
529-20-4	o-Tolualdehyde	< 100	ND	0.35	ND	0.072	
620-23-5							
104-87-0	m,p-Tolualdehyde	< 200	ND	0.71	ND	0.14	
66-25-1	n-Hexaldehyde	120	0.43	0.35	0.10	0.087	
5779-94-2	2,5-Dimethylbenzaldehyde	< 100	ND	0.35	ND	0.065	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.

Client Sample ID: 730D2-2 ALD

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090

ALS Sample ID: P1403090-009

Test Code: EPA Method TO-11A

Instrument ID: Agilent Infinity LC 1220/LC3

Analyst: Madeleine Dangazyan

Sample Type: Silica Gel DNPH Tube

Test Notes: BC

Date Collected: 7/30/14

Date Received: 7/31/14

Date Analyzed: 8/5/14

Desorption Volume: 1.0 ml

Volume Sampled: 282.72 Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	690	2.4	0.35	2.0	0.29	
75-07-0	Acetaldehyde	230	0.82	0.35	0.46	0.20	
123-38-6	Propionaldehyde	< 100	ND	0.35	ND	0.15	
4170-30-3	Crotonaldehyde, Total	< 100	ND	0.35	ND	0.12	
123-72-8	Butyraldehyde	< 100	ND	0.35	ND	0.12	
100-52-7	Benzaldehyde	< 100	ND	0.35	ND	0.082	
590-86-3	Isovaleraldehyde	< 100	ND	0.35	ND	0.10	
110-62-3	Valeraldehyde	< 100	ND	0.35	ND	0.10	
529-20-4	o-Tolualdehyde	< 100	ND	0.35	ND	0.072	
620-23-5							
104-87-0	m,p-Tolualdehyde	< 200	ND	0.71	ND	0.14	
66-25-1	n-Hexaldehyde	100	0.36	0.35	0.087	0.086	
5779-94-2	2,5-Dimethylbenzaldehyde	< 100	ND	0.35	ND	0.064	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Sample ID: 730LFN-2 ALD
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-013

Test Code: EPA Method TO-11A
Instrument ID: Agilent Infinity LC 1220/LC3
Analyst: Madeleine Dangazyan
Sample Type: Silica Gel DNPH Tube
Test Notes: BC

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/5/14
Desorption Volume: 1.0 ml
Volume Sampled: 282 Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	810	2.9	0.35	2.3	0.29	
75-07-0	Acetaldehyde	260	0.91	0.35	0.51	0.20	
123-38-6	Propionaldehyde	< 100	ND	0.35	ND	0.15	
4170-30-3	Crotonaldehyde, Total	< 100	ND	0.35	ND	0.12	
123-72-8	Butyraldehyde	< 100	ND	0.35	ND	0.12	
100-52-7	Benzaldehyde	< 100	ND	0.35	ND	0.082	
590-86-3	Isovaleraldehyde	< 100	ND	0.35	ND	0.10	
110-62-3	Valeraldehyde	< 100	ND	0.35	ND	0.10	
529-20-4	o-Tolualdehyde	< 100	ND	0.35	ND	0.072	
620-23-5							
104-87-0	m,p-Tolualdehyde	< 200	ND	0.71	ND	0.14	
66-25-1	n-Hexaldehyde	< 100	ND	0.35	ND	0.087	
5779-94-2	2,5-Dimethylbenzaldehyde	< 100	ND	0.35	ND	0.065	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Stantec Consulting Services, Inc.

Client Sample ID: 730LFNQ-2 ALD

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090

ALS Sample ID: P1403090-019

Test Code: EPA Method TO-11A
Instrument ID: Agilent Infinity LC 1220/LC3
Analyst: Madeleine Dangazyan
Sample Type: Silica Gel DNPH Tube
Test Notes: BC

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/5/14
Desorption Volume: 1.0 ml
Volume Sampled: 282.12 Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	780	2.8	0.35	2.2	0.29	
75-07-0	Acetaldehyde	250	0.88	0.35	0.49	0.20	
123-38-6	Propionaldehyde	< 100	ND	0.35	ND	0.15	
4170-30-3	Crotonaldehyde, Total	< 100	ND	0.35	ND	0.12	
123-72-8	Butyraldehyde	< 100	ND	0.35	ND	0.12	
100-52-7	Benzaldehyde	< 100	ND	0.35	ND	0.082	
590-86-3	Isovaleraldehyde	< 100	ND	0.35	ND	0.10	
110-62-3	Valeraldehyde	< 100	ND	0.35	ND	0.10	
529-20-4	o-Tolualdehyde	< 100	ND	0.35	ND	0.072	
620-23-5							
104-87-0	m,p-Tolualdehyde	< 200	ND	0.71	ND	0.14	
66-25-1	n-Hexaldehyde	< 100	ND	0.35	ND	0.087	
5779-94-2	2,5-Dimethylbenzaldehyde	< 100	ND	0.35	ND	0.065	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Stantec Consulting Services, Inc.

Client Sample ID: 730N-sALD

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090

ALS Sample ID: P1403090-024

Test Code: EPA Method TO-11A
Instrument ID: Agilent Infinity LC 1220/LC3
Analyst: Madeleine Dangazyan
Sample Type: Silica Gel DNPH Tube
Test Notes: BC

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/5/14
Desorption Volume: 1.0 ml
Volume Sampled: 2.772 Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	< 100	ND	36	ND	29	
75-07-0	Acetaldehyde	180	64	36	36	20	
123-38-6	Propionaldehyde	< 100	ND	36	ND	15	
4170-30-3	Crotonaldehyde, Total	< 100	ND	36	ND	13	
123-72-8	Butyraldehyde	< 100	ND	36	ND	12	
100-52-7	Benzaldehyde	< 100	ND	36	ND	8.3	
590-86-3	Isovaleraldehyde	< 100	ND	36	ND	10	
110-62-3	Valeraldehyde	< 100	ND	36	ND	10	
529-20-4	o-Tolualdehyde	< 100	ND	36	ND	7.3	
620-23-5							
104-87-0	m,p-Tolualdehyde	< 200	ND	72	ND	15	
66-25-1	n-Hexaldehyde	< 100	ND	36	ND	8.8	
5779-94-2	2,5-Dimethylbenzaldehyde	< 100	ND	36	ND	6.6	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Stantec Consulting Services, Inc.
Client Sample ID: 730NQ-sALD
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-030

Test Code: EPA Method TO-11A
Instrument ID: Agilent Infinity LC 1220/LC3
Analyst: Madeleine Dangazyan
Sample Type: Silica Gel DNPH Tube
Test Notes: BC

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/5/14
Desorption Volume: 1.0 ml
Volume Sampled: 2.438 Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	< 100	ND	41	ND	33	
75-07-0	Acetaldehyde	120	49	41	27	23	
123-38-6	Propionaldehyde	< 100	ND	41	ND	17	
4170-30-3	Crotonaldehyde, Total	< 100	ND	41	ND	14	
123-72-8	Butyraldehyde	< 100	ND	41	ND	14	
100-52-7	Benzaldehyde	< 100	ND	41	ND	9.5	
590-86-3	Isovaleraldehyde	< 100	ND	41	ND	12	
110-62-3	Valeraldehyde	< 100	ND	41	ND	12	
529-20-4	o-Tolualdehyde	< 100	ND	41	ND	8.4	
620-23-5							
104-87-0	m,p-Tolualdehyde	< 200	ND	82	ND	17	
66-25-1	n-Hexaldehyde	< 100	ND	41	ND	10	
5779-94-2	2,5-Dimethylbenzaldehyde	< 100	ND	41	ND	7.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Stantec Consulting Services, Inc.

Client Sample ID: 730SQ-sALD

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090

ALS Sample ID: P1403090-036

Test Code: EPA Method TO-11A
Instrument ID: Agilent Infinity LC 1220/LC3
Analyst: Madeleine Dangazyan
Sample Type: Silica Gel DNPH Tube
Test Notes: **BC**

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/5 - 8/6/14
Desorption Volume: 1.0 ml
Volume Sampled: 3.082 Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	< 100	ND	32	ND	26	
75-07-0	Acetaldehyde	4,800	1,600	32	870	18	BT
123-38-6	Propionaldehyde	3,900	1,300	32	540	14	BT
4170-30-3	Crotonaldehyde, Total	< 100	ND	32	ND	11	
123-72-8	Butyraldehyde	31,000	10,000	32	3,400	11	BT
100-52-7	Benzaldehyde	830	270	32	62	7.5	
590-86-3	Isovaleraldehyde	< 100	ND	32	ND	9.2	
110-62-3	Valeraldehyde	< 100	ND	32	ND	9.2	
529-20-4	o-Tolualdehyde	< 100	ND	32	ND	6.6	
620-23-5							
104-87-0	m,p-Tolualdehyde	< 200	ND	65	ND	13	
66-25-1	n-Hexaldehyde	1,400	450	32	110	7.9	BT
5779-94-2	2,5-Dimethylbenzaldehyde	340	110	32	20	5.9	BT

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

BT = Results indicated possible breakthrough; back section > 10% front section.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Stantec Consulting Services, Inc.

Client Sample ID: 730F-sALD

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090

ALS Sample ID: P1403090-042

Test Code: EPA Method TO-11A
Instrument ID: Agilent Infinity LC 1220/LC3
Analyst: Madeleine Dangazyan
Sample Type: Silica Gel DNPH Tube
Test Notes: **BC**

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/5/14
Desorption Volume: 1.0 ml
Volume Sampled: 1.630 Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	130	78	61	63	50	
75-07-0	Acetaldehyde	4,900	3,000	61	1,700	34	BT
123-38-6	Propionaldehyde	2,800	1,700	61	720	26	BT
4170-30-3	Crotonaldehyde, Total	< 100	ND	61	ND	21	
123-72-8	Butyraldehyde	11,000	6,900	61	2,300	21	BT
100-52-7	Benzaldehyde	5,100	3,100	61	720	14	BT
590-86-3	Isovaleraldehyde	< 100	ND	61	ND	17	
110-62-3	Valeraldehyde	< 100	ND	61	ND	17	
529-20-4	o-Tolualdehyde	< 100	ND	61	ND	12	
620-23-5							
104-87-0	m,p-Tolualdehyde	6,400	4,000	120	810	25	BH, M
66-25-1	n-Hexaldehyde	< 100	ND	61	ND	15	
5779-94-2	2,5-Dimethylbenzaldehyde	< 100	ND	61	ND	11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

BH = Results indicate breakthrough; back section of tube greater than front section.

BT = Results indicated possible breakthrough; back section > 10% front section.

M = Matrix interference; results may be biased high.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Stantec Consulting Services, Inc.
Client Sample ID: 730-BALD
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-048

Test Code: EPA Method TO-11A
Instrument ID: Agilent Infinity LC 1220/LC3
Analyst: Madeleine Dangazyan
Sample Type: Silica Gel DNPH Tube
Test Notes: BC

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/5/14
Desorption Volume: 1.0 ml
Volume Sampled: NA Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	< 100	NA	NA	NA	NA	
75-07-0	Acetaldehyde	< 100	NA	NA	NA	NA	
123-38-6	Propionaldehyde	< 100	NA	NA	NA	NA	
4170-30-3	Crotonaldehyde, Total	< 100	NA	NA	NA	NA	
123-72-8	Butyraldehyde	< 100	NA	NA	NA	NA	
100-52-7	Benzaldehyde	< 100	NA	NA	NA	NA	
590-86-3	Isovaleraldehyde	< 100	NA	NA	NA	NA	
110-62-3	Valeraldehyde	< 100	NA	NA	NA	NA	
529-20-4	o-Tolualdehyde	< 100	NA	NA	NA	NA	
620-23-5							
104-87-0	m,p-Tolualdehyde	< 200	NA	NA	NA	NA	
66-25-1	n-Hexaldehyde	< 100	NA	NA	NA	NA	
5779-94-2	2,5-Dimethylbenzaldehyde	< 100	NA	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

NA = Not applicable.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Stantec Consulting Services, Inc.

Client Sample ID: Method Blank

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090

ALS Sample ID: P140805-MB

Test Code: EPA Method TO-11A
Instrument ID: Agilent Infinity LC 1220/LC3
Analyst: Madeleine Dangazyan
Sample Type: Silica Gel DNPH Tube
Test Notes: BC

Date Collected: NA
Date Received: NA
Date Analyzed: 08/05/14
Desorption Volume: 1.0 ml
Volume Sampled: NA Liter(s)

CAS #	Compound	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
50-00-0	Formaldehyde	< 100	NA	NA	NA	NA	
75-07-0	Acetaldehyde	< 100	NA	NA	NA	NA	
123-38-6	Propionaldehyde	< 100	NA	NA	NA	NA	
4170-30-3	Crotonaldehyde, Total	< 100	NA	NA	NA	NA	
123-72-8	Butyraldehyde	< 100	NA	NA	NA	NA	
100-52-7	Benzaldehyde	< 100	NA	NA	NA	NA	
590-86-3	Isovaleraldehyde	< 100	NA	NA	NA	NA	
110-62-3	Valeraldehyde	< 100	NA	NA	NA	NA	
529-20-4	o-Tolualdehyde	< 100	NA	NA	NA	NA	
620-23-5							
104-87-0	m,p-Tolualdehyde	< 200	NA	NA	NA	NA	
66-25-1	n-Hexaldehyde	< 100	NA	NA	NA	NA	
5779-94-2	2,5-Dimethylbenzaldehyde	< 100	NA	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

NA = Not applicable.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Sample ID: 730U1-4 AMINE
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-002

Test Code: GC/NPD
Instrument ID: Agilent 6890N/GC14/NPD
Analyst: Zheng Wang
Sampling Media: Treated Alumina Tube
Test Notes: BC, DE

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/5/14
Desorption Volume: 2.0 ml
Volume Sampled: 15.072 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.0	ND	69	ND	37	
75-04-7	Ethylamine	< 1.1	ND	73	ND	40	
75-50-3	Trimethylamine	< 1.0	ND	66	ND	27	
75-31-0	Isopropylamine	< 1.0	ND	70	ND	29	
75-64-9	tert-Butylamine	< 1.0	ND	69	ND	23	
107-10-8	n-Propylamine	< 1.1	ND	72	ND	30	
109-89-7	Diethylamine	< 1.0	ND	69	ND	23	
13952-84-6	sec-Butylamine	< 1.1	ND	70	ND	23	
78-81-9	Isobutylamine	< 1.1	ND	71	ND	24	
109-73-9	n-Butylamine	< 1.1	ND	74	ND	25	L
108-18-9	Diisopropylamine	< 1.0	ND	69	ND	17	
121-44-8	Triethylamine	< 1.0	ND	69	ND	17	
142-84-7	Dipropylamine	< 1.0	ND	69	ND	17	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

DE = Results reported are corrected for desorption efficiency.

L = Laboratory control sample recovery outside the specified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Sample ID: 730D1-4 AMINE
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-006

Test Code: GC/NPD
Instrument ID: Agilent 6890N/GC14/NPD
Analyst: Zheng Wang
Sampling Media: Treated Alumina Tube
Test Notes: BC, DE

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/5/14
Desorption Volume: 2.0 ml
Volume Sampled: 14.016 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.0	ND	74	ND	40	
75-04-7	Ethylamine	< 1.1	ND	78	ND	43	
75-50-3	Trimethylamine	< 1.0	ND	71	ND	29	
75-31-0	Isopropylamine	< 1.0	ND	75	ND	31	
75-64-9	tert-Butylamine	< 1.0	ND	74	ND	25	
107-10-8	n-Propylamine	< 1.1	ND	77	ND	32	
109-89-7	Diethylamine	< 1.0	ND	74	ND	25	
13952-84-6	sec-Butylamine	< 1.1	ND	75	ND	25	
78-81-9	Isobutylamine	< 1.1	ND	76	ND	26	
109-73-9	n-Butylamine	< 1.1	ND	79	ND	27	L
108-18-9	Diisopropylamine	< 1.0	ND	74	ND	18	
121-44-8	Triethylamine	< 1.0	ND	74	ND	18	
142-84-7	Dipropylamine	< 1.0	ND	75	ND	18	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

DE = Results reported are corrected for desorption efficiency.

L = Laboratory control sample recovery outside the specified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.

Client Sample ID: 730D2- 4 AMINE

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090

ALS Sample ID: P1403090-010

Test Code: GC/NPD

Instrument ID: Agilent 6890N/GC14/NPD

Analyst: Zheng Wang

Sampling Media: Treated Alumina Tube

Test Notes: BC, DE

Date Collected: 7/30/14

Date Received: 7/31/14

Date Analyzed: 8/5/14

Desorption Volume: 2.0 ml

Volume Sampled: 14.496 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.0	ND	72	ND	39	
75-04-7	Ethylamine	< 1.1	ND	76	ND	41	
75-50-3	Trimethylamine	< 1.0	ND	69	ND	29	
75-31-0	Isopropylamine	< 1.0	ND	72	ND	30	
75-64-9	tert-Butylamine	< 1.0	ND	72	ND	24	
107-10-8	n-Propylamine	< 1.1	ND	75	ND	31	
109-89-7	Diethylamine	< 1.0	ND	71	ND	24	
13952-84-6	sec-Butylamine	< 1.1	ND	73	ND	24	
78-81-9	Isobutylamine	< 1.1	ND	74	ND	25	
109-73-9	n-Butylamine	< 1.1	ND	77	ND	26	L
108-18-9	Diisopropylamine	< 1.0	ND	71	ND	17	
121-44-8	Triethylamine	< 1.0	ND	71	ND	17	
142-84-7	Dipropylamine	< 1.0	ND	72	ND	17	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

DE = Results reported are corrected for desorption efficiency.

L = Laboratory control sample recovery outside the specified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Sample ID: 730LFN-4 AMINE
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-015

Test Code: GC/NPD
Instrument ID: Agilent 6890N/GC14/NPD
Analyst: Zheng Wang
Sampling Media: Treated Alumina Tube
Test Notes: BC, DE

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/5/14
Desorption Volume: 2.0 ml
Volume Sampled: 14.712 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.0	ND	71	ND	38	
75-04-7	Ethylamine	< 1.1	ND	75	ND	41	
75-50-3	Trimethylamine	< 1.0	ND	68	ND	28	
75-31-0	Isopropylamine	< 1.0	ND	71	ND	29	
75-64-9	tert-Butylamine	< 1.0	ND	71	ND	24	
107-10-8	n-Propylamine	< 1.1	ND	74	ND	30	
109-89-7	Diethylamine	< 1.0	ND	70	ND	23	
13952-84-6	sec-Butylamine	< 1.1	ND	71	ND	24	
78-81-9	Isobutylamine	< 1.1	ND	73	ND	24	
109-73-9	n-Butylamine	< 1.1	ND	76	ND	25	L
108-18-9	Diisopropylamine	< 1.0	ND	70	ND	17	
121-44-8	Triethylamine	< 1.0	ND	70	ND	17	
142-84-7	Dipropylamine	< 1.0	ND	71	ND	17	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

DE = Results reported are corrected for desorption efficiency.

L = Laboratory control sample recovery outside the specified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Sample ID: 730LFNQ-4 AMINE
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-020

Test Code: GC/NPD
Instrument ID: Agilent 6890N/GC14/NPD
Analyst: Zheng Wang
Sampling Media: Treated Alumina Tube
Test Notes: BC, DE

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/5/14
Desorption Volume: 2.0 ml
Volume Sampled: 13.812 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.0	ND	75	ND	41	
75-04-7	Ethylamine	< 1.1	ND	80	ND	43	
75-50-3	Trimethylamine	< 1.0	ND	72	ND	30	
75-31-0	Isopropylamine	< 1.0	ND	76	ND	31	
75-64-9	tert-Butylamine	< 1.0	ND	75	ND	25	
107-10-8	n-Propylamine	< 1.1	ND	78	ND	32	
109-89-7	Diethylamine	< 1.0	ND	75	ND	25	
13952-84-6	sec-Butylamine	< 1.1	ND	76	ND	25	
78-81-9	Isobutylamine	< 1.1	ND	78	ND	26	
109-73-9	n-Butylamine	< 1.1	ND	81	ND	27	L
108-18-9	Diisopropylamine	< 1.0	ND	75	ND	18	
121-44-8	Triethylamine	< 1.0	ND	75	ND	18	
142-84-7	Dipropylamine	< 1.0	ND	76	ND	18	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

DE = Results reported are corrected for desorption efficiency.

L = Laboratory control sample recovery outside the specified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Sample ID: 730N-sAMINE
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-026

Test Code: GC/NPD
Instrument ID: Agilent 6890N/GC14/NPD
Analyst: Zheng Wang
Sampling Media: Treated Alumina Tube
Test Notes: BC, DE

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/5/14
Desorption Volume: 2.0 ml
Volume Sampled: 0.434 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.0	ND	2,400	ND	1,300	
75-04-7	Ethylamine	< 1.1	ND	2,500	ND	1,400	
75-50-3	Trimethylamine	< 1.0	ND	2,300	ND	950	
75-31-0	Isopropylamine	< 1.0	ND	2,400	ND	1,000	
75-64-9	tert-Butylamine	< 1.0	ND	2,400	ND	800	
107-10-8	n-Propylamine	< 1.1	ND	2,500	ND	1,000	
109-89-7	Diethylamine	< 1.0	ND	2,400	ND	800	
13952-84-6	sec-Butylamine	< 1.1	ND	2,400	ND	810	
78-81-9	Isobutylamine	< 1.1	ND	2,500	ND	830	
109-73-9	n-Butylamine	< 1.1	ND	2,600	ND	860	L
108-18-9	Diisopropylamine	< 1.0	ND	2,400	ND	580	
121-44-8	Triethylamine	< 1.0	ND	2,400	ND	580	
142-84-7	Dipropylamine	< 1.0	ND	2,400	ND	580	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

DE = Results reported are corrected for desorption efficiency.

L = Laboratory control sample recovery outside the specified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.

Client Sample ID: 730NQ-sAMINE

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090

ALS Sample ID: P1403090-032

Test Code: GC/NPD

Instrument ID: Agilent 6890N/GC14/NPD

Analyst: Zheng Wang

Sampling Media: Treated Alumina Tube

Test Notes: BC, DE

Date Collected: 7/30/14

Date Received: 7/31/14

Date Analyzed: 8/5/14

Desorption Volume: 2.0 ml

Volume Sampled: 0.436 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.0	ND	2,400	ND	1,300	
75-04-7	Ethylamine	< 1.1	ND	2,500	ND	1,400	
75-50-3	Trimethylamine	< 1.0	ND	2,300	ND	950	
75-31-0	Isopropylamine	< 1.0	ND	2,400	ND	990	
75-64-9	tert-Butylamine	< 1.0	ND	2,400	ND	800	
107-10-8	n-Propylamine	< 1.1	ND	2,500	ND	1,000	
109-89-7	Diethylamine	< 1.0	ND	2,400	ND	790	
13952-84-6	sec-Butylamine	< 1.1	ND	2,400	ND	810	
78-81-9	Isobutylamine	< 1.1	ND	2,500	ND	820	
109-73-9	n-Butylamine	< 1.1	ND	2,600	ND	850	L
108-18-9	Diisopropylamine	< 1.0	ND	2,400	ND	570	
121-44-8	Triethylamine	< 1.0	ND	2,400	ND	570	
142-84-7	Dipropylamine	< 1.0	ND	2,400	ND	580	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

DE = Results reported are corrected for desorption efficiency.

L = Laboratory control sample recovery outside the specified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Stantec Consulting Services, Inc.
Client Sample ID: 730SQ-sAMINE
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-038

Test Code: GC/NPD
Instrument ID: Agilent 6890N/GC14/NPD
Analyst: Zheng Wang
Sampling Media: Treated Alumina Tube
Test Notes: BC, DE

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/5/14
Desorption Volume: 2.0 ml
Volume Sampled: 0.441 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.0	ND	2,400	ND	1,300	
75-04-7	Ethylamine	< 1.1	ND	2,500	ND	1,400	
75-50-3	Trimethylamine	< 1.0	ND	2,300	ND	940	
75-31-0	Isopropylamine	< 1.0	ND	2,400	ND	980	
75-64-9	tert-Butylamine	< 1.0	ND	2,400	ND	790	
107-10-8	n-Propylamine	< 1.1	ND	2,500	ND	1,000	
109-89-7	Diethylamine	< 1.0	ND	2,300	ND	780	
13952-84-6	sec-Butylamine	< 1.1	ND	2,400	ND	800	
78-81-9	Isobutylamine	< 1.1	ND	2,400	ND	810	
109-73-9	n-Butylamine	< 1.1	ND	2,500	ND	840	L
108-18-9	Diisopropylamine	< 1.0	ND	2,300	ND	570	
121-44-8	Triethylamine	< 1.0	ND	2,300	ND	570	
142-84-7	Dipropylamine	< 1.0	ND	2,400	ND	570	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

DE = Results reported are corrected for desorption efficiency.

L = Laboratory control sample recovery outside the specified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.

Client Sample ID: 730F-sAMINE

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090

ALS Sample ID: P1403090-044

Test Code: GC/NPD

Instrument ID: Agilent 6890N/GC14/NPD

Analyst: Zheng Wang

Sampling Media: Treated Alumina Tube

Test Notes: BC, DE

Date Collected: 7/30/14

Date Received: 7/31/14

Date Analyzed: 8/5/14

Desorption Volume: 2.0 ml

Volume Sampled: 0.208 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.0	ND	5,000	ND	2,700	
75-04-7	Ethylamine	< 1.1	ND	5,300	ND	2,900	
75-50-3	Trimethylamine	< 1.0	ND	4,800	ND	2,000	
75-31-0	Isopropylamine	< 1.0	ND	5,000	ND	2,100	
75-64-9	tert-Butylamine	< 1.0	ND	5,000	ND	1,700	
107-10-8	n-Propylamine	< 1.1	ND	5,200	ND	2,200	
109-89-7	Diethylamine	< 1.0	ND	5,000	ND	1,700	
13952-84-6	sec-Butylamine	< 1.1	ND	5,100	ND	1,700	
78-81-9	Isobutylamine	< 1.1	ND	5,200	ND	1,700	
109-73-9	n-Butylamine	< 1.1	ND	5,300	ND	1,800	L
108-18-9	Diisopropylamine	< 1.0	ND	5,000	ND	1,200	
121-44-8	Triethylamine	< 1.0	ND	5,000	ND	1,200	
142-84-7	Dipropylamine	< 1.0	ND	5,000	ND	1,200	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

DE = Results reported are corrected for desorption efficiency.

L = Laboratory control sample recovery outside the specified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.

Client Sample ID: 730-BAMine

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090

ALS Sample ID: P1403090-050

Test Code: GC/NPD

Instrument ID: Agilent 6890N/GC14/NPD

Analyst: Zheng Wang

Sampling Media: Treated Alumina Tube

Test Notes: BC, DE

Date Collected: 7/30/14

Date Received: 7/31/14

Date Analyzed: 8/5/14

Desorption Volume: 2.0 ml

Volume Sampled: NA Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.0	NA	NA	NA	NA	
75-04-7	Ethylamine	< 1.1	NA	NA	NA	NA	
75-50-3	Trimethylamine	< 1.0	NA	NA	NA	NA	
75-31-0	Isopropylamine	< 1.0	NA	NA	NA	NA	
75-64-9	tert-Butylamine	< 1.0	NA	NA	NA	NA	
107-10-8	n-Propylamine	< 1.1	NA	NA	NA	NA	
109-89-7	Diethylamine	< 1.0	NA	NA	NA	NA	
13952-84-6	sec-Butylamine	< 1.1	NA	NA	NA	NA	
78-81-9	Isobutylamine	< 1.1	NA	NA	NA	NA	
109-73-9	n-Butylamine	< 1.1	NA	NA	NA	NA	L
108-18-9	Diisopropylamine	< 1.0	NA	NA	NA	NA	
121-44-8	Triethylamine	< 1.0	NA	NA	NA	NA	
142-84-7	Dipropylamine	< 1.0	NA	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

DE = Results reported are corrected for desorption efficiency.

L = Laboratory control sample recovery outside the specified limits.

NA = Not applicable.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.

Client Sample ID: Method Blank

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090

ALS Sample ID: P140805-MB

Test Code: GC/NPD

Instrument ID: Agilent 6890N/GC14/NPD

Analyst: Zheng Wang

Sampling Media: Treated Alumina Tube

Test Notes: BC, DE

Date Collected: NA

Date Received: NA

Date Analyzed: 8/5/14

Desorption Volume: 2.0 ml

Volume Sampled: NA Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
124-40-3	Dimethylamine	< 1.0	NA	NA	NA	NA	
75-04-7	Ethylamine	< 1.1	NA	NA	NA	NA	
75-50-3	Trimethylamine	< 1.0	NA	NA	NA	NA	
75-31-0	Isopropylamine	< 1.0	NA	NA	NA	NA	
75-64-9	tert-Butylamine	< 1.0	NA	NA	NA	NA	
107-10-8	n-Propylamine	< 1.1	NA	NA	NA	NA	
109-89-7	Diethylamine	< 1.0	NA	NA	NA	NA	
13952-84-6	sec-Butylamine	< 1.1	NA	NA	NA	NA	
78-81-9	Isobutylamine	< 1.1	NA	NA	NA	NA	
109-73-9	n-Butylamine	< 1.1	NA	NA	NA	NA	L
108-18-9	Diisopropylamine	< 1.0	NA	NA	NA	NA	
121-44-8	Triethylamine	< 1.0	NA	NA	NA	NA	
142-84-7	Dipropylamine	< 1.0	NA	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

NA = Not applicable.

BC = Results reported are not blank corrected.

DE = Results reported are corrected for desorption efficiency.

L = Laboratory control sample recovery outside the specified limits.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client: Stantec Consulting Services, Inc.

Client Sample ID: Duplicate Lab Control Sample

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090

ALS Sample ID: P140805-DLCS

Test Code: GC/NPD

Instrument ID: Agilent 6890N/GC14/NPD

Analyst: Zheng Wang

Sampling Media: Treated Alumina Tube

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 8/05/14

Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		ALS	RPD	RPD	Data
		LCS / DLCS µg/ml	LCS µg/ml	DLCS µg/ml	LCS	DLCS	Acceptance Limits			
124-40-3	Dimethylamine	9.20	8.27	8.33	90	91	59-126	1	24	
75-04-7	Ethylamine	11.1	7.93	7.97	71	72	60-118	1	21	
75-50-3	Trimethylamine	7.15	7.54	7.67	105	107	48-145	2	38	
75-31-0	Isopropylamine	10.7	9.78	9.40	91	88	68-121	3	18	
75-64-9	tert-Butylamine	10.6	10.2	10.0	96	94	70-120	2	16	
107-10-8	n-Propylamine	11.5	8.75	8.63	76	75	67-114	1	15	
109-89-7	Diethylamine	10.8	11.6	11.5	107	106	72-120	0.9	15	
13952-84-6	sec-Butylamine	11.4	10.4	10.5	91	92	76-114	1	12	
78-81-9	Isobutylamine	11.8	9.46	9.60	80	81	75-111	1	12	
109-73-9	n-Butylamine	12.4	9.10	9.13	73	74	77-108	1	12	L
108-18-9	Diisopropylamine	11.0	11.5	11.6	105	105	67-124	0	21	
121-44-8	Triethylamine	10.5	11.1	11.3	106	108	64-129	2	21	
142-84-7	Dipropylamine	10.8	11.0	11.2	102	104	79-115	2	11	

L = Laboratory control sample recovery outside the specified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090

Ammonia

Test Code: OSHA ID-188/ID-164
Instrument ID: PH01/Thermo Orion 920A+/Ammonia ISE
Analyst: Sue Anderson
Sampling Media: Anasorb 747 Tube(s) (Sulfuric Treated)
Test Notes: BC, DE

Date(s) Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/6/14
Desorption Volume: 0.10 Liter(s)

Client Sample ID	ALS Sample ID	Sample		Result mg/Tube	Result mg/m ³	MRL mg/m ³	Result ppmV	MRL ppmV	Data Qualifier
		Volume Liter(s)	Dilution Factor						
730U1-6 NH3	P1403090-003	117.540	1.0	< 0.011	ND	0.090	ND	0.13	
730D1-6 NH3	P1403090-007	123.528	1.0	< 0.011	ND	0.086	ND	0.12	
730D2- 6 NH3	P1403090-011	117.360	1.0	< 0.011	ND	0.090	ND	0.13	
730LFN-6 NH3	P1403090-017	119.040	1.0	< 0.011	ND	0.089	ND	0.13	
730LFNQ-6 NH3	P1403090-022	116.136	1.0	< 0.011	ND	0.091	ND	0.13	
730N-sNH3	P1403090-028	1.976	1.0	< 0.011	ND	5.4	ND	7.7	
730NQ-sNH3	P1403090-034	1.978	1.0	< 0.011	ND	5.4	ND	7.7	
730SQ-sNH3	P1403090-040	1.952	1.0	< 0.011	ND	5.4	ND	7.8	
730F-sNH3	P1403090-046	0.971	1.0	< 0.011	ND	11	ND	16	
730-BNH3	P1403090-052	NA	1.0	< 0.011	NA	NA	NA	NA	
Method Blank	P140806-MB	NA	1.0	< 0.011	NA	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

NA = Not applicable.

BC = Results reported are not blank corrected.

DE = Results reported are corrected for desorption efficiency.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Sample ID: Duplicate Lab Control Sample
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
ALS Sample ID: P140806-LCS,
P140806-DLCS

Laboratory Control Sample/Duplicate Laboratory Control Sample Summary

Test Code: OSHA ID-188/ID-164
Instrument ID: PH01/Thermo Orion 920A+/Ammonia ISE
Analyst: Sue Anderson
Sampling Media: Anasorb 747 Tube(s) (Sulfuric Treated)
Test Notes:

Date Sampled: N/A
Date Received: N/A
Date Analyzed: 8/06/14
Volume(s) Analyzed: N/A

Compound	Spike Amount	Result		% Recovery		ALS Acceptance Limits	Relative Percent Difference	RPD Limit	Data Qualifier
	LCS / DLCS mg/L	LCS mg/L	DLCS mg/L	LCS	DLCS				
Ammonia	1.00	0.958	0.969	96	97	88-112	1	4	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Sample ID: 730U1-7 CARBOX
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-004

Test Code: GC/MS
Instrument ID: Agilent 5973/Agilent 6890/MS14
Analyst: Madeleine Dangazyan
Sampling Media: Silica Gel Tube
Test Notes: BC, DE

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/7 - 8/8/14
Desorption Volume: 1.0 ml
Volume Sampled: 95.052 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	< 2.0	ND	21	ND	8.7	
79-09-4	Propionic Acid (Propanoic)	< 0.27	ND	2.8	ND	0.92	
79-31-2	2-Methylpropanoic Acid (Isobutyric)	< 0.25	ND	2.7	ND	0.74	
107-92-6	Butanoic Acid (Butyric)	< 0.26	ND	2.7	ND	0.75	
116-53-0	2-Methylbutanoic Acid	< 0.25	ND	2.7	ND	0.64	
503-74-2	3-Methylbutanoic Acid (Isovaleric)	< 0.25	ND	2.6	ND	0.63	
109-52-4	Pentanoic Acid (Valeric)	< 0.26	ND	2.7	ND	0.64	
97-61-0	2-Methylpentanoic Acid	< 0.25	ND	2.7	ND	0.56	
105-43-1	3-Methylpentanoic Acid	< 0.25	ND	2.7	ND	0.56	
646-07-1	4-Methylpentanoic Acid (Isocaproic)	< 0.25	ND	2.7	ND	0.56	
142-62-1	Hexanoic Acid (Caproic)	< 0.25	ND	2.7	ND	0.56	
111-14-8	Heptanoic Acid (Enanthoic)	< 0.25	ND	2.6	ND	0.50	
149-57-5	2-Ethylhexanoic Acid	< 0.28	ND	2.9	ND	0.50	
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	ND	2.6	ND	0.50	
124-07-2	Octanoic Acid (Caprylic)	< 0.25	ND	2.7	ND	0.45	
65-85-0	Benzoic Acid	< 0.31	ND	3.2	ND	0.65	
112-05-0	Nonanoic Acid (Pelargonic)	< 0.25	ND	2.7	ND	0.41	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

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ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Sample ID: 730D1-7 CARBOX
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-008

Test Code: GC/MS
Instrument ID: Agilent 5973/Agilent 6890/MS14
Analyst: Madeleine Dangazyan
Sampling Media: Silica Gel Tube
Test Notes: BC, DE

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/7 - 8/8/14
Desorption Volume: 1.0 ml
Volume Sampled: 93.552 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	< 2.0	ND	22	ND	8.9	
79-09-4	Propionic Acid (Propanoic)	< 0.27	ND	2.8	ND	0.94	
79-31-2	2-Methylpropanoic Acid (Isobutyric)	< 0.25	ND	2.7	ND	0.76	
107-92-6	Butanoic Acid (Butyric)	< 0.26	ND	2.7	ND	0.76	
116-53-0	2-Methylbutanoic Acid	< 0.25	ND	2.7	ND	0.65	
503-74-2	3-Methylbutanoic Acid (Isovaleric)	< 0.25	ND	2.7	ND	0.64	
109-52-4	Pentanoic Acid (Valeric)	< 0.26	ND	2.7	ND	0.65	
97-61-0	2-Methylpentanoic Acid	< 0.25	ND	2.7	ND	0.57	
105-43-1	3-Methylpentanoic Acid	< 0.25	ND	2.7	ND	0.57	
646-07-1	4-Methylpentanoic Acid (Isocaproic)	< 0.25	ND	2.7	ND	0.57	
142-62-1	Hexanoic Acid (Caproic)	< 0.25	ND	2.7	ND	0.57	
111-14-8	Heptanoic Acid (Enanthoic)	< 0.25	ND	2.7	ND	0.51	
149-57-5	2-Ethylhexanoic Acid	< 0.28	ND	3.0	ND	0.50	
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	ND	2.7	ND	0.51	
124-07-2	Octanoic Acid (Caprylic)	< 0.25	ND	2.7	ND	0.46	
65-85-0	Benzoic Acid	< 0.31	ND	3.3	ND	0.66	
112-05-0	Nonanoic Acid (Pelargonic)	< 0.25	ND	2.7	ND	0.42	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

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ALS ENVIRONMENTAL

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Client: Stantec Consulting Services, Inc.
Client Sample ID: 730D2- 7 CARBOX
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-012

Test Code: GC/MS
Instrument ID: Agilent 5973/Agilent 6890/MS14
Analyst: Madeleine Dangazyan
Sampling Media: Silica Gel Tube
Test Notes: BC, DE

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/7 - 8/8/14
Desorption Volume: 1.0 ml
Volume Sampled: 93.96 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	< 2.0	ND	22	ND	8.8	
79-09-4	Propionic Acid (Propanoic)	< 0.27	ND	2.8	ND	0.94	
79-31-2	2-Methylpropanoic Acid (Isobutyric)	< 0.25	ND	2.7	ND	0.75	
107-92-6	Butanoic Acid (Butyric)	< 0.26	ND	2.7	ND	0.76	
116-53-0	2-Methylbutanoic Acid	< 0.25	ND	2.7	ND	0.64	
503-74-2	3-Methylbutanoic Acid (Isovaleric)	< 0.25	ND	2.7	ND	0.64	
109-52-4	Pentanoic Acid (Valeric)	< 0.26	ND	2.7	ND	0.65	
97-61-0	2-Methylpentanoic Acid	< 0.25	ND	2.7	ND	0.57	
105-43-1	3-Methylpentanoic Acid	< 0.25	ND	2.7	ND	0.57	
646-07-1	4-Methylpentanoic Acid (Isocaproic)	< 0.25	ND	2.7	ND	0.57	
142-62-1	Hexanoic Acid (Caproic)	< 0.25	ND	2.7	ND	0.57	
111-14-8	Heptanoic Acid (Enanthoic)	< 0.25	ND	2.7	ND	0.50	
149-57-5	2-Ethylhexanoic Acid	< 0.28	ND	3.0	ND	0.50	
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	ND	2.7	ND	0.51	
124-07-2	Octanoic Acid (Caprylic)	< 0.25	ND	2.7	ND	0.46	
65-85-0	Benzoic Acid	< 0.31	ND	3.3	ND	0.65	
112-05-0	Nonanoic Acid (Pelargonic)	< 0.25	ND	2.7	ND	0.42	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

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ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Sample ID: 730LFN-7 CARBOX
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-018

Test Code: GC/MS
Instrument ID: Agilent 5973/Agilent 6890/MS14
Analyst: Madeleine Dangazyan
Sampling Media: Silica Gel Tube
Test Notes: BC, DE

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/7 - 8/8/14
Desorption Volume: 1.0 ml
Volume Sampled: 95.64 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	< 2.0	ND	21	ND	8.7	
79-09-4	Propionic Acid (Propanoic)	< 0.27	ND	2.8	ND	0.92	
79-31-2	2-Methylpropanoic Acid (Isobutyric)	< 0.25	ND	2.7	ND	0.74	
107-92-6	Butanoic Acid (Butyric)	< 0.26	ND	2.7	ND	0.74	
116-53-0	2-Methylbutanoic Acid	< 0.25	ND	2.6	ND	0.63	
503-74-2	3-Methylbutanoic Acid (Isovaleric)	< 0.25	ND	2.6	ND	0.63	
109-52-4	Pentanoic Acid (Valeric)	< 0.26	ND	2.7	ND	0.64	
97-61-0	2-Methylpentanoic Acid	< 0.25	ND	2.6	ND	0.56	
105-43-1	3-Methylpentanoic Acid	< 0.25	ND	2.6	ND	0.56	
646-07-1	4-Methylpentanoic Acid (Isocaproic)	< 0.25	ND	2.7	ND	0.56	
142-62-1	Hexanoic Acid (Caproic)	< 0.25	ND	2.7	ND	0.56	
111-14-8	Heptanoic Acid (Enanthoic)	< 0.25	ND	2.6	ND	0.49	
149-57-5	2-Ethylhexanoic Acid	< 0.28	ND	2.9	ND	0.49	
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	ND	2.6	ND	0.50	
124-07-2	Octanoic Acid (Caprylic)	< 0.25	ND	2.6	ND	0.45	
65-85-0	Benzoic Acid	< 0.31	ND	3.2	ND	0.64	
112-05-0	Nonanoic Acid (Pelargonic)	< 0.25	ND	2.6	ND	0.41	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

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ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Sample ID: 730LFNQ-7 CARBOX
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-023

Test Code: GC/MS
Instrument ID: Agilent 5973/Agilent 6890/MS14
Analyst: Madeleine Dangazyan
Sampling Media: Silica Gel Tube
Test Notes: BC, DE

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/7 - 8/8/14
Desorption Volume: 1.0 ml
Volume Sampled: 93.12 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	< 2.0	ND	22	ND	8.9	
79-09-4	Propionic Acid (Propanoic)	< 0.27	ND	2.9	ND	0.94	
79-31-2	2-Methylpropanoic Acid (Isobutyric)	< 0.25	ND	2.7	ND	0.76	
107-92-6	Butanoic Acid (Butyric)	< 0.26	ND	2.8	ND	0.76	
116-53-0	2-Methylbutanoic Acid	< 0.25	ND	2.7	ND	0.65	
503-74-2	3-Methylbutanoic Acid (Isovaleric)	< 0.25	ND	2.7	ND	0.65	
109-52-4	Pentanoic Acid (Valeric)	< 0.26	ND	2.7	ND	0.66	
97-61-0	2-Methylpentanoic Acid	< 0.25	ND	2.7	ND	0.57	
105-43-1	3-Methylpentanoic Acid	< 0.25	ND	2.7	ND	0.57	
646-07-1	4-Methylpentanoic Acid (Isocaproic)	< 0.25	ND	2.7	ND	0.57	
142-62-1	Hexanoic Acid (Caproic)	< 0.25	ND	2.7	ND	0.57	
111-14-8	Heptanoic Acid (Enanthoic)	< 0.25	ND	2.7	ND	0.51	
149-57-5	2-Ethylhexanoic Acid	< 0.28	ND	3.0	ND	0.51	
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	ND	2.7	ND	0.51	
124-07-2	Octanoic Acid (Caprylic)	< 0.25	ND	2.7	ND	0.46	
65-85-0	Benzoic Acid	< 0.31	ND	3.3	ND	0.66	
112-05-0	Nonanoic Acid (Pelargonic)	< 0.25	ND	2.7	ND	0.42	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

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DE = Results reported are corrected for desorption efficiency.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Sample ID: 730N-sCARBOX
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-029

Test Code: GC/MS
Instrument ID: Agilent 5973/Agilent 6890/MS14
Analyst: Madeleine Dangazyan
Sampling Media: Silica Gel Tube
Test Notes: BC, DE

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/7 - 8/8/14
Desorption Volume: 1.0 ml
Volume Sampled: 2.797 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	< 2.0	ND	730	ND	300	
79-09-4	Propionic Acid (Propanoic)	< 0.27	ND	95	ND	31	
79-31-2	2-Methylpropanoic Acid (Isobutyric)	< 0.25	ND	91	ND	25	
107-92-6	Butanoic Acid (Butyric)	< 0.26	ND	92	ND	25	
116-53-0	2-Methylbutanoic Acid	< 0.25	ND	90	ND	22	
503-74-2	3-Methylbutanoic Acid (Isovaleric)	< 0.25	ND	90	ND	21	
109-52-4	Pentanoic Acid (Valeric)	< 0.26	ND	91	ND	22	
97-61-0	2-Methylpentanoic Acid	< 0.25	ND	90	ND	19	
105-43-1	3-Methylpentanoic Acid	< 0.25	ND	91	ND	19	
646-07-1	4-Methylpentanoic Acid (Isocaproic)	< 0.25	ND	91	ND	19	
142-62-1	Hexanoic Acid (Caproic)	< 0.25	ND	91	ND	19	
111-14-8	Heptanoic Acid (Enanthoic)	< 0.25	ND	90	ND	17	
149-57-5	2-Ethylhexanoic Acid	< 0.28	ND	99	ND	17	
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	ND	90	ND	17	
124-07-2	Octanoic Acid (Caprylic)	< 0.25	ND	90	ND	15	
65-85-0	Benzoic Acid	< 0.31	ND	110	ND	22	
112-05-0	Nonanoic Acid (Pelargonic)	< 0.25	ND	90	ND	14	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

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ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Sample ID: 730NQ-sCARBOX
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-035

Test Code: GC/MS
Instrument ID: Agilent 5973/Agilent 6890/MS14
Analyst: Madeleine Dangazyan
Sampling Media: Silica Gel Tube
Test Notes: BC, DE

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/7 - 8/8/14
Desorption Volume: 1.0 ml
Volume Sampled: 2.854 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	< 2.0	ND	710	ND	290	
79-09-4	Propionic Acid (Propanoic)	< 0.27	ND	93	ND	31	
79-31-2	2-Methylpropanoic Acid (Isobutyric)	< 0.25	ND	89	ND	25	
107-92-6	Butanoic Acid (Butyric)	< 0.26	ND	90	ND	25	
116-53-0	2-Methylbutanoic Acid	< 0.25	ND	88	ND	21	
503-74-2	3-Methylbutanoic Acid (Isovaleric)	< 0.25	ND	88	ND	21	
109-52-4	Pentanoic Acid (Valeric)	< 0.26	ND	89	ND	21	
97-61-0	2-Methylpentanoic Acid	< 0.25	ND	88	ND	19	
105-43-1	3-Methylpentanoic Acid	< 0.25	ND	89	ND	19	
646-07-1	4-Methylpentanoic Acid (Isocaproic)	< 0.25	ND	89	ND	19	
142-62-1	Hexanoic Acid (Caproic)	< 0.25	ND	89	ND	19	
111-14-8	Heptanoic Acid (Enanthoic)	< 0.25	ND	88	ND	17	
149-57-5	2-Ethylhexanoic Acid	< 0.28	ND	97	ND	17	
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	ND	88	ND	17	
124-07-2	Octanoic Acid (Caprylic)	< 0.25	ND	88	ND	15	
65-85-0	Benzoic Acid	< 0.31	ND	110	ND	22	
112-05-0	Nonanoic Acid (Pelargonic)	< 0.25	ND	89	ND	14	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

DE = Results reported are corrected for desorption efficiency.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Sample ID: 730SQ-sCARBOX
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-041

Test Code: GC/MS
Instrument ID: Agilent 5973/Agilent 6890/MS14
Analyst: Madeleine Dangazyan
Sampling Media: Silica Gel Tube
Test Notes: BC, DE

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/7 - 8/8/14
Desorption Volume: 1.0 ml
Volume Sampled: 2.785 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	98	35,000	730	14,000	300	BT
79-09-4	Propionic Acid (Propanoic)	110	41,000	96	14,000	32	BT
79-31-2	2-Methylpropanoic Acid (Isobutyric)	110	40,000	91	11,000	25	BT
107-92-6	Butanoic Acid (Butyric)	540	200,000	92	54,000	26	BT
116-53-0	2-Methylbutanoic Acid	33	12,000	91	2,800	22	BT
503-74-2	3-Methylbutanoic Acid (Isovaleric)	54	20,000	90	4,700	22	BT
109-52-4	Pentanoic Acid (Valeric)	77	28,000	92	6,600	22	BT
97-61-0	2-Methylpentanoic Acid	4.7	1,700	91	350	19	BT
105-43-1	3-Methylpentanoic Acid	0.96	340	91	72	19	BT
646-07-1	4-Methylpentanoic Acid (Isocaproic)	2.2	800	91	170	19	BT
142-62-1	Hexanoic Acid (Caproic)	29	10,000	91	2,200	19	BT
111-14-8	Heptanoic Acid (Enanthoic)	< 0.25	ND	90	ND	17	
149-57-5	2-Ethylhexanoic Acid	0.73	260	100	45	17	
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	ND	90	ND	17	
124-07-2	Octanoic Acid (Caprylic)	< 0.25	ND	91	ND	15	
65-85-0	Benzoic Acid	0.41	150	110	29	22	
112-05-0	Nonanoic Acid (Pelargonic)	< 0.25	ND	91	ND	14	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

DE = Results reported are corrected for desorption efficiency.

BT = Results indicated possible breakthrough; back section > 10% front section.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Stantec Consulting Services, Inc.
Client Sample ID: 730F-sCARBOX
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-047

Test Code: GC/MS
Instrument ID: Agilent 5973/Agilent 6890/MS14
Analyst: Madeleine Dangazyan
Sampling Media: Silica Gel Tube
Test Notes: BC, DE

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/7 - 8/8/14
Desorption Volume: 1.0 ml
Volume Sampled: 1.36 Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	140	100,000	1,500	42,000	610	BT
79-09-4	Propionic Acid (Propanoic)	200	150,000	200	48,000	65	BT
79-31-2	2-Methylpropanoic Acid (Isobutyric)	120	88,000	190	24,000	52	BT
107-92-6	Butanoic Acid (Butyric)	1,000	750,000	190	210,000	52	BT
116-53-0	2-Methylbutanoic Acid	34	25,000	190	6,000	44	BT
503-74-2	3-Methylbutanoic Acid (Isovaleric)	56	41,000	180	9,800	44	BT
109-52-4	Pentanoic Acid (Valeric)	290	220,000	190	51,000	45	BT
97-61-0	2-Methylpentanoic Acid	6.4	4,700	190	990	39	BT
105-43-1	3-Methylpentanoic Acid	3.9	2,900	190	600	39	BT
646-07-1	4-Methylpentanoic Acid (Isocaproic)	9.3	6,800	190	1,400	39	BT
142-62-1	Hexanoic Acid (Caproic)	600	440,000	190	93,000	39	BT
111-14-8	Heptanoic Acid (Enanthoic)	35	25,000	190	4,800	35	BT
149-57-5	2-Ethylhexanoic Acid	24	18,000	200	3,000	35	BT
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	ND	180	ND	35	
124-07-2	Octanoic Acid (Caprylic)	20	15,000	190	2,500	31	
65-85-0	Benzoic Acid	1.7	1,200	230	250	45	
112-05-0	Nonanoic Acid (Pelargonic)	1.4	1,000	190	160	29	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

DE = Results reported are corrected for desorption efficiency.

BT = Results indicated possible breakthrough; back section > 10% front section.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Stantec Consulting Services, Inc.
Client Sample ID: 730-BCARBOX
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P1403090-053

Test Code: GC/MS
Instrument ID: Agilent 5973/Agilent 6890/MS14
Analyst: Madeleine Dangazyan
Sampling Media: Silica Gel Tube
Test Notes: BC, DE

Date Collected: 7/30/14
Date Received: 7/31/14
Date Analyzed: 8/7 - 8/8/14
Desorption Volume: 1.0 ml
Volume Sampled: NA Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	< 2.0	NA	NA	NA	NA	
79-09-4	Propionic Acid (Propanoic)	< 0.27	NA	NA	NA	NA	
79-31-2	2-Methylpropanoic Acid (Isobutyric)	< 0.25	NA	NA	NA	NA	
107-92-6	Butanoic Acid (Butyric)	< 0.26	NA	NA	NA	NA	
116-53-0	2-Methylbutanoic Acid	< 0.25	NA	NA	NA	NA	
503-74-2	3-Methylbutanoic Acid (Isovaleric)	< 0.25	NA	NA	NA	NA	
109-52-4	Pentanoic Acid (Valeric)	< 0.26	NA	NA	NA	NA	
97-61-0	2-Methylpentanoic Acid	< 0.25	NA	NA	NA	NA	
105-43-1	3-Methylpentanoic Acid	< 0.25	NA	NA	NA	NA	
646-07-1	4-Methylpentanoic Acid (Isocaproic)	< 0.25	NA	NA	NA	NA	
142-62-1	Hexanoic Acid (Caproic)	< 0.25	NA	NA	NA	NA	
111-14-8	Heptanoic Acid (Enanthoic)	< 0.25	NA	NA	NA	NA	
149-57-5	2-Ethylhexanoic Acid	< 0.28	NA	NA	NA	NA	
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	NA	NA	NA	NA	
124-07-2	Octanoic Acid (Caprylic)	< 0.25	NA	NA	NA	NA	
65-85-0	Benzoic Acid	< 0.31	NA	NA	NA	NA	
112-05-0	Nonanoic Acid (Pelargonic)	< 0.25	NA	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

DE = Results reported are corrected for desorption efficiency.

NA = Not applicable.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Stantec Consulting Services, Inc.
Client Sample ID: Method Blank
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P140807-MB

Test Code: GC/MS
Instrument ID: Agilent 5973/Agilent 6890/MS14
Analyst: Madeleine Dangazyan
Sampling Media: Silica Gel Tube
Test Notes: BC, DE

Date Collected: NA
Date Received: NA
Date Analyzed: 8/7/14
Desorption Volume: 1.0 ml
Volume Sampled: NA Liter(s)

CAS #	Compound	Result µg/Tube	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
64-19-7	Acetic Acid	< 2.0	NA	NA	NA	NA	
79-09-4	Propionic Acid (Propanoic)	< 0.27	NA	NA	NA	NA	
79-31-2	2-Methylpropanoic Acid (Isobutyric)	< 0.25	NA	NA	NA	NA	
107-92-6	Butanoic Acid (Butyric)	< 0.26	NA	NA	NA	NA	
116-53-0	2-Methylbutanoic Acid	< 0.25	NA	NA	NA	NA	
503-74-2	3-Methylbutanoic Acid (Isovaleric)	< 0.25	NA	NA	NA	NA	
109-52-4	Pentanoic Acid (Valeric)	< 0.26	NA	NA	NA	NA	
97-61-0	2-Methylpentanoic Acid	< 0.25	NA	NA	NA	NA	
105-43-1	3-Methylpentanoic Acid	< 0.25	NA	NA	NA	NA	
646-07-1	4-Methylpentanoic Acid (Isocaproic)	< 0.25	NA	NA	NA	NA	
142-62-1	Hexanoic Acid (Caproic)	< 0.25	NA	NA	NA	NA	
111-14-8	Heptanoic Acid (Enanthoic)	< 0.25	NA	NA	NA	NA	
149-57-5	2-Ethylhexanoic Acid	< 0.28	NA	NA	NA	NA	
98-89-5	Cyclohexanecarboxylic Acid	< 0.25	NA	NA	NA	NA	
124-07-2	Octanoic Acid (Caprylic)	< 0.25	NA	NA	NA	NA	
65-85-0	Benzoic Acid	< 0.31	NA	NA	NA	NA	
112-05-0	Nonanoic Acid (Pelargonic)	< 0.25	NA	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

NA = Not applicable.

BC = Results reported are not blank corrected.

DE = Results reported are corrected for desorption efficiency.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client: Stantec Consulting Services, Inc.
Client Sample ID: Duplicate Lab Control Sample
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403090
 ALS Sample ID: P140807-DLCS

Test Code: GC/MS
Instrument ID: Agilent 5973/Agilent 6890/MS14
Analyst: Madeleine Dangazyan
Sampling Media: Silica Gel Tube
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 8/07/14
Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Spike Amount	Result		ALS		Acceptance		RPD	RPD	Data
		LCS / DLCS	LCS	DLCS	% Recovery		Limits				
		µg/ml	µg/ml	µg/ml	LCS	DLCS			Limit	Qualifier	
64-19-7	Acetic Acid	20.7	22.5	18.5	109	89	56-135	20	31		
79-09-4	Propionic Acid (Propanoic)	10.1	10.3	9.59	102	95	73-119	7	15		
79-31-2	2-Methylpropanoic Acid (Isobutyric)	10.5	10.5	10.6	100	101	81-114	1	13		
107-92-6	Butanoic Acid (Butyric)	10.4	10.6	10.6	102	102	85-110	0	10		
116-53-0	2-Methylbutanoic Acid	11.1	11.0	11.2	99	101	89-109	2	8		
503-74-2	3-Methylbutanoic Acid (Isovaleric)	11.0	10.7	11.1	97	101	89-109	4	8		
109-52-4	Pentanoic Acid (Valeric)	10.9	10.5	10.9	96	100	91-107	4	7		
97-61-0	2-Methylpentanoic Acid	11.2	10.7	11.2	96	100	93-106	4	4		
105-43-1	3-Methylpentanoic Acid	11.4	11.0	11.3	96	99	93-106	3	4		
646-07-1	4-Methylpentanoic Acid (Isocaproic)	11.3	10.9	11.2	96	99	92-107	3	5		
142-62-1	Hexanoic Acid (Caproic)	11.2	10.9	11.0	97	98	93-105	1	4		
111-14-8	Heptanoic Acid (Enanthoic)	8.38	7.84	8.46	94	101	92-107	7	7		
149-57-5	2-Ethylhexanoic Acid	8.69	7.94	8.70	91	100	81-107	9	10		
98-89-5	Cyclohexanecarboxylic Acid	8.04	7.39	8.03	92	100	91-108	8	6		R
124-07-2	Octanoic Acid (Caprylic)	8.41	7.94	8.58	94	102	92-107	8	6		R
65-85-0	Benzoic Acid	7.71	6.91	7.28	90	94	68-106	4	15		
112-05-0	Nonanoic Acid (Pelargonic)	9.68	9.20	9.93	95	103	90-107	8	8		

R = Duplicate precision not met



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Ammonia in Air
OSHA ID-188/ID-164Filling solution changed
prior to analysis:Yes ☒ No ☐

Prep. Run# 214972 Run # 405362

Stds.	Conc.	millivolts	Slope:
	mg/L	mV	Range [-54~-60]
Std 1:	0.10	177.6	-58.8
Std 2:	1.00	118.0	
Std 3:	5.00	76.7	
Std 4:	10.00	58.1	
Std 5:	100.00	3.3	

	Ref#	Exp. Date	Prep
Stock 1000 ppm	524-07211402	10/19/14	—
ICV/CCV 1214 ppm	524-05301402	01/16	$\frac{10 \cdot 0.05}{50} \Rightarrow 0.121 \text{ mg/L}$
pH Buffer; ISA	524-01211401	1/21/15	--
Filling Soln	524-05301403	5/30/15	--

DE = 0.944

				DE Corrected			
Sample I.D.	Volume mL	Millivolts mV	Conc. mg/L	Conc. mg/L	mg	Final Value mg/m ³	ppmV
ICB	50	177.6	0.0253	10.1			
ICV 0.121 mg/L	50	171.0	0.127	105.2			
MB		200.0	0.0416	0.0441	10.011		
LCS 1.00 mg/L		120.7	0.904	0.958	0.0958	10% 59.2	
DLS		120.4	0.915	0.969	0.0969	PPM 97%	
P1403090-3.01 BACK		201.1	0.0397	0.0421	10.011	10.091	10.13
-3.01 FRONT		198.5	0.0441	0.0467			
-7.01 BACK		193.1	0.0544	0.0576		10.086	
-7.01 FRONT		197.0	0.0467	0.0495			
-11.01 BACK		198.1	0.0446	0.0472		10.091	
-11.01 FRONT		196.9	0.0469	0.0497		10.089	
-17.01 BACK		189.2	0.0632	0.0669		10.089	
CCV1 0.121 mg/L		171.7	0.125	103.0			
CCV1		213.0	0.0280	10.1			
P1403090-17.01 FRONT		197.4	0.0460	0.0487	10.011	10.089	10.13
-22.01 BACK		192.1	0.0563	0.0596		10.092	10.14
-22.01 FRONT		197.8	0.0453	0.0480			
-28.01 BACK		193.8	0.0529	0.0560		10.37	10.70
-28.01 FRONT		200.4	0.0411	0.0435			
-34.01 BACK		203.4	0.0364	0.0386		10.36	
-34.01 FRONT		185.8	0.0722	0.0765			
-40.01 BACK		195.7	0.0491	0.0520		10.43	10.80
-40.01 FRONT		190.9	0.0592	0.0627			

Comments:

Analyst:

Date/Time:

Reviewer:

Date:



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Ammonia in Air
OSHA ID-188/ID-164

Filling solution changed
prior to analysis:

Yes ☒ No ☐

Prep. Run# 214972 Run # 405362

Stds.	Conc.	millivolts	Slope:
	mg/L	mV	Range [-54~-60]
Std 1:	0.10	177.6	-48.8
Std 2:	1.00	118.0	
Std 3:	5.00	76.7	
Std 4:	10.00	68.1	
Std 5:	100.00	3.6	

	Ref#	Exp. Date	Prep
Stock 1000 ppm	524-07211402	10/19/14	
ICV/CCV 1214 ppm	524-05301402	11/16	$\frac{10 \cdot 0.05}{50} = 0.121 \text{ mg/L}$
pH Buffer; ISA	524-01211401	11/21/15	--
Filling Soln	524-05301403	5/30/15	--

DE = 0.944

				DE Corrected			
Sample I.D.	Volume mL	Millivolts mV	Conc. mg/L	Conc. mg/L	mg	Final Value mg/m ³	ppmV
ICB P1403090-46.01	50	197.1	0.0465	0.0493	20.011	411.0	415.7
ICV CCV2 0.121 mg/L		171.5	0.126	104%			
MB CCB2		213.0	0.0250	20.1			
LCSP1403090-46.01		200.7	0.0405	0.0429	20.011	411.0	415.7
↓ -52.01		199.2	0.0429	0.0454			
↓ -52.51		206.0	0.0329	0.0349			
CCV3 0.121 mg/L		171.1	0.127	105%			
CCB3		213.2	0.0247	20.1			
space not used							

Comments:

Analyst: [Signature]

Date/Time: 8/6/14

Reviewer: [Signature]

Date: 8/7/14

ALS Environmental
ISE Method for Ammonia in Air

Printed: 8/6/14

Client: Stantec Consulting Group, Inc.

Analyst: SMA

CAS Job: P1403090

Method: OSHA ID-188/ ID-164

Instrument: pH01

Date Analyzed: 8/6/14

Sample Amt: 0.100 L

Solvent: 0.1 N H2SO4

Matrix: Anasorb 747 (sulfuric treated)

SAMPLE RESULTS

Sample	Ammonia (mg/L)	Desorption Vol (L)	Dilution	Sample Vol (L)	Ammonia (mg/tube)*	Ammonia mg/m3	Ammonia ppm	*Samples are DE corrected Desorption Efficiency (DE):
MW	17.03							0.944
MRL	0.100	0.1	1.0	NA	0.01			
RB	0.0253	NA	NA	NA	ND	ND	ND	
MB	0.0416	0.100	1.0	NA	ND	ND	ND	
P1403090-003.01	0.0397	0.050	1.0	117.540	ND	ND	ND	
P1403090-007.01	0.0544	0.050	1.0	123.528	ND	ND	ND	
P1403090-011.01	0.0446	0.050	1.0	117.360	ND	ND	ND	
P1403090-017.01	0.0632	0.050	1.0	119.040	ND	ND	ND	
P1403090-022.01	0.0563	0.050	1.0	116.136	ND	ND	ND	
P1403090-028.01	0.0529	0.050	1.0	1.976	ND	ND	ND	
P1403090-034.01	0.0364	0.050	1.0	1.978	ND	ND	ND	
P1403090-040.01	0.0491	0.050	1.0	1.952	ND	ND	ND	
P1403090-046.01	0.0465	0.050	1.0	0.971	ND	ND	ND	
P1403090-052.01	0.0429	0.050	1.0	NA	ND	ND	ND	
P1403090-003.01	0.0441	0.100	1.0	117.540	ND	ND	ND	
P1403090-007.01	0.0467	0.100	1.0	123.528	ND	ND	ND	
P1403090-011.01	0.0469	0.100	1.0	117.360	ND	ND	ND	
P1403090-017.01	0.0460	0.100	1.0	119.040	ND	ND	ND	
P1403090-022.01	0.0453	0.100	1.0	116.136	ND	ND	ND	
P1403090-028.01	0.0411	0.100	1.0	1.976	ND	ND	ND	
P1403090-034.01	0.0722	0.100	1.0	1.978	ND	ND	ND	
P1403090-040.01	0.0592	0.100	1.0	1.952	ND	ND	ND	
P1403090-046.01	0.0405	0.100	1.0	0.971	ND	ND	ND	
P1403090-052.01	0.0329	0.100	1.0	NA	ND	ND	ND	

QC RESULTS

0.121 mg/L NH3 ICV S24-05301402 (01/16)	0.121	LCS	1.00	
ACTUAL	0.127	SPIKE STD	0.958	
% RECOVERY	105.0%	% RECOVERY	95.8%	
0.121 mg/L NH3 CCV1 S24-05301402 (01/16)	0.121	LCSD	1.00	
ACTUAL	0.125	SPIKE STD	0.969	
% RECOVERY	103.3%	% RECOVERY	96.9%	
0.121 mg/L NH3 CCV2 S24-05301402 (01/16)	0.121	%RPD:	1.1%	
ACTUAL	0.126	0.121 mg/L NH3 CCV3 S24-05301402 (01/16)	0.121	
% RECOVERY	104.1%	ACTUAL	0.127	
		% RECOVERY	105.0%	

Method Path : J:\GC14\Methods\
 Method File : AMINE080414E.M
 Title : GC #15/ NPD Method For Volatile Amines
 Last Update : Tue Aug 05 09:20:53 2014
 Response Via : Initial Calibration

Calibration Files
 0.5 =08041407.D 1.0 =08041408.D 5.0 =08041409.D 10 =08041410.
 D 20 =08041411.D 50 =08041412.D

Compound	0.5	1.0	5.0	10	20	50	Avg	%RSD

1) I3-Chloropyridine -----ISTD-----								
2) Dimethylamine	3.244	3.344	4.849	3.692	5.254	5.711	4.349	24.31 *
3) Ethylamine	2.265	2.593	3.347	2.574	3.469	3.704	2.992	19.62
4) Trimethylamine	3.398	3.186	3.346	2.435	3.158	3.178	3.117	11.17
5) Isopropylamine	1.663	1.655	1.794	1.340	1.719	1.781	1.659	10.03
6) t-Butylamine	0.760	0.750	0.741	0.566	0.705	0.735	0.709	10.28
7) Propylamine	1.695	1.857	2.098	1.677	2.088	2.239	1.943	12.01
8) Diethylamine	1.815	1.749	1.889	1.426	1.789	1.870	1.756	9.68
9) s-Butylamine	1.178	1.138	1.276	0.994	1.211	1.272	1.178	8.91
10) Isobutylamine	1.387	1.515	1.586	1.291	1.559	1.656	1.499	9.03
11) Butylamine	1.098	1.182	1.345	1.151	1.403	1.496	1.279	12.39
12) Diisopropylamine	1.049	1.045	1.075	0.898	1.021	1.069	1.026	6.41
13) Triethylamine	1.281	1.211	1.241	1.032	1.209	1.273	1.208	7.55
14) Pyridine	1.214	1.190	1.196	1.349	1.166	1.207	1.220	5.34
15) Dipropylamine	1.297	1.153	1.203	1.363	1.159	1.222	1.233	6.66

(#) = Out of Range

* Linear Regr. Force (0.0).

Method : GC #15/ NPD Method For Volatile Amines
 Client & Job# : Stantec Consulting Services, Inc. P1403090
 Analyst : ZW

Printed : 08/06/14
 Instrument : GC14
 Date Acquired : 8/5/2014

QC SAMPLE REPORT SUMMARY

Compounds	ug/ml	% Diff	Control Limits (%)	ug/ml	ug/ml	ug/ml	ug/ml	% Diff	ug/ml	% Diff	ug/ml	% Diff
Sample Information	10ug/ml Amine Std	10		RB 0.01N NaOH/MeOH	MB	10ug/ml Amine Std	10		10ug/ml Amine Std	10		
Desorption Volume (mL)			2.0	2.0	2.0	2.0	2.0		2.0		2.0	
Dilution			1.0	1.0	1.0	1.0	1.0		1.0		1.0	
3-Chloropyridine IS	45076			47726	29680	46623			42380			
% Relative to CCV	100.0%			105.9%	65.8%	103.4%			94.0%			
Dimethylamine	9.189	8.1%	Pass	ND	ND	8.322	16.8%	9.938	0.6%			
Ethylamine	11.847	18.5%	Pass	ND	ND	10.962	9.6%	12.790	Fail!			
Trimethylamine	11.268	12.7%	Pass	ND	ND	9.916	0.8%	11.229	12.3%			
Isopropylamine	11.120	11.2%	Pass	ND	ND	10.542	5.4%	11.648	16.5%			
t-Butylamine	11.088	10.9%	Pass	ND	ND	10.428	4.3%	11.651	16.5%			
Propylamine	11.760	17.6%	Pass	ND	ND	11.247	12.5%	12.002	Fail!			
Diethylamine	11.290	12.9%	Pass	ND	ND	10.690	6.9%	11.389	13.9%			
s-Butylamine	11.520	15.2%	Pass	ND	ND	11.350	13.5%	11.840	18.4%			
Isobutylamine	11.691	16.9%	Pass	ND	ND	11.514	15.1%	11.904	19.0%			
Butylamine	11.623	16.2%	Pass	ND	ND	11.898	19.0%	12.073	Fail!			
Diisopropylamine	11.641	16.4%	Pass	0	ND	10.752	7.5%	11.136	11.4%			
Triethylamine	11.630	16.3%	Pass	ND	ND	10.777	7.8%	10.809	8.1%			
Dipropylamine	10.502	5.0%	Pass	ND	ND	10.526	5.3%	10.269	2.7%			
Acquisition Time	9:56			10:10	12:43	14:34		17:35				
Analyst	ZW		ZW	ZW	ZW	ZW		ZW				

MRL CHECK & LCS/ LCSD RESULT SUMMARIES

0	ug / sample	%	ug / sample	ug / sample	ug / sample	ug / sample	%	%	recovery	Average Recovery	RPD	RPD (Control Limits)
0	0.5ug/ml Amine MRL Check Std	recovery	Control Limits (%)	SS 10ug/ml	LCS 10ug/ml	LCSD 10ug/ml	%	%				
Desorption Volume (mL)	2.0			2.0	2.0	2.0						
Dilution	1.0			1.0	1.0	1.0						
3-Chloropyridine IS	40347			36314	33940	32237						
% Relative to CCV	89.5%			80.6%	75.3%	71.5%						
Dimethylamine	0.216	43.2%	P 22-139%	9.202	8.272	8.332	89.9%	90.5%	Pass	90.2%	0.7%	Pass
Ethylamine	0.324	64.8%	P 19-114%	11.054	7.928	7.966	71.7%	72.1%	Pass	71.9%	0.5%	Pass
Trimethylamine	0.475	95.0%	P 42-177%	7.150	7.538	7.667	105.4%	107.2%	Pass	106.3%	1.7%	Pass
Isopropylamine	0.492	98.4%	P 42-141%	10.720	9.777	9.398	91.2%	87.7%	Pass	89.4%	4.0%	Pass
t-Butylamine	0.499	99.8%	P 53-148%	10.565	10.217	10.023	96.7%	94.9%	Pass	95.8%	1.9%	Pass
Propylamine	0.375	75.0%	P 41-126%	11.455	8.750	8.630	76.4%	75.3%	Pass	75.9%	1.4%	Pass
Diethylamine	0.499	99.8%	P 57-139%	10.836	11.577	11.461	106.8%	105.8%	Pass	106.3%	1.0%	Pass
s-Butylamine	0.486	97.2%	P 54-153%	11.375	10.405	10.489	91.5%	92.2%	Pass	91.8%	0.8%	Pass
Isobutylamine	0.495	99.0%	P 48-154%	11.790	9.456	9.601	80.2%	81.4%	Pass	80.8%	1.5%	Pass
Butylamine	0.461	92.2%	P 28-175%	12.420	9.095	9.132	73.2%	73.5%	Fail	73.4%	0.4%	Pass
Diisopropylamine	0.544	108.8%	P 54-166%	10.990	11.476	11.593	104.4%	105.5%	Pass	105.0%	1.0%	Pass
Triethylamine	0.545	109.0%	P 62-154%	10.524	11.122	11.262	105.7%	107.0%	Pass	106.3%	1.3%	Pass
Dipropylamine	0.456	91.2%	P 55-162%	10.798	10.983	11.176	101.7%	103.5%	Pass	102.6%	1.7%	Pass
Acquisition Time	10:25			10:43	11:12	11:27						
Analyst	ZW			ZW	ZW	ZW						

Method Path : J:\LC03\METHODS\
 Method File : TO11A071714E.M
 Title : TO-11A Method for Aldehydes/Ketones by HPLC
 Last Update : Fri Jul 18 09:18:21 2014
 Response Via : Initial Calibration

Calibration Files

50 =071714000005.D 100 =071714000008.D 500 =071714000011.D
 1500 =071714000014.D 5000 =071714000017.D 10 =071714000020.D

	Compound	50	100	500	1500	5000	10	Avg		%RSD
1)	Formaldehyde	2.170	2.221	2.246	2.277	2.248	2.264	2.238	E4	1.71
2)	Acetaldehyde	1.666	1.653	1.650	1.677	1.658	1.675	1.663	E4	0.69
3)	Acetone	1.285	1.227	1.203	1.219	1.204	1.216	1.226	E4	2.47
4)	Acrolein	1.495	1.471	1.461	1.477	1.457	1.473	1.472	E4	0.90
5)	Propionaldehyde	1.303	1.276	1.274	1.293	1.276	1.289	1.285	E4	0.90
6)	Crotonaldehyde	1.002	1.056	1.055	1.062	1.058	1.071	1.051	E4	2.32
7)	Butyraldehyde	1.025	1.029	1.019	1.030	1.027	1.038	1.028	E4	0.62
8)	Benzaldehyde	6.724	6.837	7.049	7.137	7.089	7.170	7.001	E3	2.56
9)	Isovaleraldehyde	8.572	8.621	8.721	8.796	8.744	8.833	8.715	E3	1.16
10)	Valeraldehyde	8.052	8.531	8.613	8.690	8.664	8.754	8.551	E3	2.99
11)	o-Tolualdehyde	5.555	5.506	5.644	5.761	5.799	5.904	5.695	E3	2.68
12)	m,p-Tolualdehyde	5.801	6.001	6.089	6.176	6.148	6.206	6.070	E3	2.48
13)	Hexaldehyde	7.796	7.567	7.554	7.472	7.381	7.563	7.556	E3	1.83
14)	2,5-Dimethylb...	4.178	4.636	4.960	5.182	5.266	5.445	4.945	E3	9.45

(#) = Out of Range

ALS Environmental

TO11A Aldehyde & Ketone DNPH Analysis by HPLC

Instrument : LC 03
 Detector : UV-VIS 360
 Analyst : MD
 Client & Job# : Stantec Consulting Services, Inc. P1403090

Printed : 8/8/2014

Date Acquired : 8/5/2014

Sample Amount : 3.0uL

QC

Sample Information	MRL	TO-11A 1500ng/ml S28-07171405	% Diff	ACN blank lot DJ138	MB-2 back 1.0ml lot 9096/8980	MB-2 front 1.0ml lot 9096/8980					TO-11A 1500ng/ml S28-07171405	% Diff	TO-11A 1500ng/ml S28-07171405	% Diff
Dilution	1.0			1.0	1.0	1.0	1.0	1.0	1.0					
Sample Volume (L)	NA			NA	NA	NA	NA	NA	NA					
Final Vol.(mL)	1.0			1.0	1.0	1.0	1.0	1.0	1.0					
Data File		0805140000 055.D		080514000005 6.D	080514000006 4.D	080514000006 3.D	0.0	0.0	0.0	0805140000 067.D		0805140000 078.D		0805140000 088.D
ng/sample		ng/sample		ng/sample	ng/sample	ng/sample	ng/sample	ng/sample	ng/sample	ng/sample		ng/sample		ng/sample
Formaldehyde	100.00	1515.7	1.0%	ND	ND	ND				1506.0	0.4%	1490.7	0.6%	1502.5
Acetaldehyde	100.00	1518.2	1.2%	ND	ND	ND				1506.4	0.4%	1493.5	0.4%	1511.5
Propionaldehyde	100.00	1507.4	0.5%	ND	ND	ND				1499.4	0.0%	1484.9	1.0%	1498.5
Crotonaldehyde	100.00	1532.0	2.1%	ND	ND	ND				1536.7	2.4%	1506.8	0.5%	1525.8
Butyraldehyde	100.00	1513.1	0.9%	ND	ND	ND				1506.8	0.5%	1492.0	0.5%	1498.2
Benzaldehyde	100.00	1554.8	3.7%	ND	ND	ND				1549.0	3.3%	1527.9	1.9%	1532.3
Isovaleraldehyde	100.00	1520.0	1.3%	ND	ND	ND				1519.0	1.3%	1497.8	0.1%	1505.5
Valeraldehyde	100.00	1530.4	2.0%	ND	ND	ND				1526.5	1.8%	1512.4	0.8%	1516.6
o-Tolualdehyde	100.00	1557.8	3.9%	ND	ND	ND				1548.4	3.2%	1524.8	1.7%	1549.2
m,p-Tolualdehyde	200.00	3068.6	2.3%	ND	ND	ND				3084.5	2.8%	3017.9	0.6%	3060.6
Hexaldehyde	100.00	1497.2	0.2%	ND	ND	ND				1484.2	1.1%	1499.1	0.1%	1460.9
2,5-Dimethylbenzaldehyde	100.00	1615.7	7.7%	ND	ND	ND				1615.4	7.7%	1618.5	7.9%	1655.7

Method Path : J:\MS14\METHODS\
 Method File : CA042314E.M
 Title : Short Chain Carboxylic Acids in Air
 Last Update : Thu Apr 24 11:01:56 2014
 Response Via : Initial Calibration

Calibration Files

0.25=04231404.D 1 =04231405.D 5 =04231406.D 10 =04231407.D
 25 =04231408.D 50 =04231409.D

Compound		0.25	1	5	10	25	50	Avg	%RSD

1)	I IS1 Bromofluoroben...	-----ISTD-----							
2)	T Acetic acid		0.090	0.088	0.079	0.067	0.045	0.074	25.15
3)	T Propanoic acid	0.876	0.757	0.792	0.717	0.633	0.713	0.748	10.99
4)	T 2-Methylpropan...	0.534	0.538	0.550	0.501	0.453	0.491	0.511	7.15
5)	T Butanoic acid	0.932	0.907	0.918	0.832	0.775	0.818	0.864	7.38
6)	T 2-Methylbutano...	1.309	1.246	1.260	1.164	1.087	1.141	1.201	6.98
7)	T 3-Methylbutano...	1.845	1.666	1.725	1.602	1.496	1.532	1.644	7.87
8)	T Pentanoic acid	1.720	1.651	1.709	1.579	1.486	1.503	1.608	6.31
9)	T 2-Methylpentan...	2.165	2.083	2.128	1.977	1.884	1.915	2.026	5.76
10)	T 3-Methylpentan...	2.613	2.527	2.529	2.343	2.206	2.193	2.402	7.49
11)	T 4-Methylpentan...	1.333	1.320	1.304	1.203	1.156	1.159	1.246	6.61
12)	T Hexanoic acid	2.396	2.211	2.258	2.107	1.986	1.982	2.157	7.54

13)	I IS2 1,4-Dibromoben...	-----ISTD-----							
14)	T Heptanoic acid	4.795	4.695	4.879	4.579	4.300	4.159	4.568	6.22
15)	T 2-Ethylhexanoi...	3.566	3.391	3.442	3.230	3.060	3.025	3.285	6.61
16)	T Cyclohexanecar...	2.403	2.288	2.310	2.139	2.021	1.921	2.180	8.52
17)	T Octanoic acid	5.656	5.271	5.331	4.996	4.676	4.520	5.075	8.43
18)	T Benzoic acid	4.006	3.764	3.749	3.602	3.474	3.530	3.687	5.27

19)	I IS3 Biphenyl	-----ISTD-----							
20)	T Nonanoic acid	1.173	1.148	1.191	1.144	1.101	1.011	1.128	5.76
21)	T Decanoic Acid	0.975	1.002	1.111	1.036	0.999	0.966	1.015	5.22

(#) = Out of Range									

Evaluate Continuing Calibration Report

Data Path : J:\MS14\DATA\ACIDS\2014_08\07\
 Data File : 08071402.D
 Acq On : 7 Aug 2014 10:18 am
 Operator : MD
 Sample : 10/20 ug/ml Carboxylic acids
 Misc : S28-07291413
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 08 15:52:21 2014
 Quant Method : J:\MS14\METHODS\CA042314E.M
 Quant Title : Short Chain Carboxylic Acids in Air
 QLast Update : Thu Apr 24 11:01:56 2014
 Response via : Initial Calibration
 DataAcq Meth:FAME

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev (min)
1 I	IS1 Bromofluorobenzene (BFB	1.000	1.000	0.0	166	0.00
2 T	Acetic acid	0.074	0.074	0.0	156	0.00
3 T	Propanoic acid	0.748	0.720	3.7	167	0.00
4 T	2-Methylpropanoic acid	0.511	0.507	0.8	168	0.00
5 T	Butanoic acid	0.864	0.852	1.4	170	0.00
6	2-Methylbutanoic acid	1.201	1.266	-5.4	181	-0.01
7 T	3-Methylbutanoic acid	1.644	1.712	-4.1	178	-0.01
8 T	Pentanoic acid	1.608	1.621	-0.8	171	0.00
9 T	2-Methylpentanoic acid	2.026	2.143	-5.8	180	-0.01
10 T	3-Methylpentanoic acid	2.402	2.590	-7.8	184	0.00
11 T	4-Methylpentanoic acid	1.246	1.321	-6.0	183	-0.01
12 T	Hexanoic acid	2.157	2.277	-5.6	180	-0.01
13 I	IS2 1,4-Dibromobenzene	1.000	1.000	0.0	224#	0.00
14 T	Heptanoic acid	4.568	3.603	21.1	176	-0.01
15 T	2-Ethylhexanoic acid	3.285	2.724	17.1	189	-0.01
16 T	Cyclohexanecarboxylic acid	2.180	1.662	23.8	174	-0.01
17 T	Octanoic acid	5.075	4.027	20.7	181	-0.01
18 T	Benzoic acid	3.687	2.775	24.7	173	0.00
19 I	IS3 Biphenyl	1.000	1.000	0.0	196	0.00
20 T	Nonanoic acid	1.128	1.032	8.5	177	-0.01
21 T	Decanoic Acid	1.015	0.937	7.7	177	0.00

(#) = Out of Range

SPCC's out = 0 CCC's out = 0



ANALYTICAL REPORT

Amended-20140815

Report Date: August 15, 2014

Deborah Grey
Stantec Consulting Services
1500 Lake Shore Dr. Suite 100
Columbus, OH 43204

Phone: (614) 486-4383

E-mail: deb.gray@stantec.com

Workorder: **34-1422058**

Client Project ID: P1403090 080414

Purchase Order: P1403090

Project Manager: Paul Pope

Analytical Results

Sample ID: 730LFN-3 HCN			Collected: 07/30/2014	
Lab ID: 1422058001		Sampling Location: P1403090		Received: 08/04/2014
Method: NIOSH 6010 Mod.		Media: SKC 226-28, Soda Lime-200/600		Analyzed: 08/11/2014
Sampling Parameter: Air Volume 12.197 L				
Analyte	ug/sample	mg/m³	ppm	RL (ug/sample)
Hydrogen Cyanide	<0.21	<0.017	<0.016	0.21

Sample ID: 730LFN-5 Hg				Collected: 07/30/2014
Lab ID: 1422058002		Sampling Location: P1403090		Received: 08/04/2014
Method: NIOSH 6009 Mod.		Media: SKC 226-17-1A, Hopcalite Tube		Analyzed: 08/12/2014
Sampling Parameter: Air Volume 48.984 L				
Analyte	ug/sample	mg/m³	ppm	RL (ug/sample)
Mercury	<0.010	<0.00020	<0.000025	0.010

Sample ID: 730LFNQ-5 Hg			Collected: 07/30/2014	
Lab ID: 1422058003		Sampling Location: P1403090		Received: 08/04/2014
Method: NIOSH 6009 Mod.		Media: SKC 226-17-1A, Hopcalite Tube		Analyzed: 08/12/2014
Sampling Parameter: Air Volume 47.82 L				
Analyte	ug/sample	mg/m³	ppm	RL (ug/sample)
Mercury	<0.010	<0.00021	<0.000025	0.010

Sample ID: 730N-sHCN				Collected: 07/30/2014
Lab ID: 1422058004		Sampling Location: P1403090		Received: 08/04/2014
Method: NIOSH 6010 Mod.		Media: SKC 226-28, Soda Lime-200/600		Analyzed: 08/11/2014
Sampling Parameter: Air Volume 0.322 L				
Analyte	ug/sample	mg/m³	ppm	RL (ug/sample)
Hydrogen Cyanide	<0.21	<0.65	<0.59	0.21

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ANALYTICAL REPORT

Amended-20140815

Workorder: **34-1422058**

Client Project ID: P1403090 080414

Purchase Order: P1403090

Project Manager: Paul Pope

Analytical Results

Sample ID: 730N-sHg		Collected: 07/30/2014	
Lab ID: 1422058005	Sampling Location: P1403090	Received: 08/04/2014	
Method: NIOSH 6009 Mod.		Media: SKC 226-17-1A, Hopcalite Tube	Analyzed: 08/12/2014
Sampling Parameter: Air Volume 1.695 L			
Analyte	ug/sample	mg/m ³	ppm RL (ug/sample)
Mercury	<0.010	<0.0059	<0.00072 0.010

Sample ID: 730NQ-sHCN		Collected: 07/30/2014	
Lab ID: 1422058006	Sampling Location: P1403090	Received: 08/04/2014	
Method: NIOSH 6010 Mod.		Media: SKC 226-28, Soda Lime-200/600	Analyzed: 08/11/2014
Sampling Parameter: Air Volume 0.342 L			
Analyte	ug/sample	mg/m ³	ppm RL (ug/sample)
Hydrogen Cyanide	<0.21	<0.61	<0.56 0.21

Sample ID: 730NQ-sHg		Collected: 07/30/2014	
Lab ID: 1422058007	Sampling Location: P1403090	Received: 08/04/2014	
Method: NIOSH 6009 Mod.		Media: SKC 226-17-1A, Hopcalite Tube	Analyzed: 08/12/2014
Sampling Parameter: Air Volume 1.442 L			
Analyte	ug/sample	mg/m ³	ppm RL (ug/sample)
Mercury	<0.010	<0.0069	<0.00085 0.010

Sample ID: 730SQ-sHCN		Collected: 07/30/2014	
Lab ID: 1422058008	Sampling Location: P1403090	Received: 08/04/2014	
Method: NIOSH 6010 Mod.		Media: SKC 226-28, Soda Lime-200/600	Analyzed: 08/11/2014
Sampling Parameter: Air Volume 0.328 L			
Analyte	ug/sample	mg/m ³	ppm RL (ug/sample)
Hydrogen Cyanide	<0.21	<0.64	<0.58 0.21

Sample ID: 730SQ-sHg		Collected: 07/30/2014	
Lab ID: 1422058009	Sampling Location: P1403090	Received: 08/04/2014	
Method: NIOSH 6009 Mod.		Media: SKC 226-17-1A, Hopcalite Tube	Analyzed: 08/12/2014
Sampling Parameter: Air Volume 1.689 L			
Analyte	ug/sample	mg/m ³	ppm RL (ug/sample)
Mercury	<0.010	<0.0059	<0.00072 0.010



ANALYTICAL REPORT

Amended-20140815

Workorder: **34-1422058**

Client Project ID: P1403090 080414

Purchase Order: P1403090

Project Manager: Paul Pope

Analytical Results

Sample ID: 730F-sHCN			Collected: 07/30/2014	
Lab ID: 1422058010		Sampling Location: P1403090		Received: 08/04/2014
Method: NIOSH 6010 Mod.		Media: SKC 226-28, Soda Lime-200/600		Analyzed: 08/11/2014
Sampling Parameter: Air Volume 0.159 L				
Analyte	ug/sample	mg/m³	ppm	RL (ug/sample)
Hydrogen Cyanide	<0.21	<1.3	<1.2	0.21

Sample ID: 730F-sHg			Collected: 07/30/2014	
Lab ID: 1422058011		Sampling Location: P1403090		Received: 08/04/2014
Method: NIOSH 6009 Mod.		Media: SKC 226-17-1A, Hopcalite Tube		Analyzed: 08/12/2014
Sampling Parameter: Air Volume 0.617 L				
Analyte	ug/sample	mg/m³	ppm	RL (ug/sample)
Mercury	0.043	0.070	0.0086	0.010

Sample ID: 730-HCN			Collected: 07/30/2014	
Lab ID: 1422058012		Sampling Location: P1403090		Received: 08/04/2014
Method: NIOSH 6010 Mod.		Media: SKC 226-28, Soda Lime-200/600		Analyzed: 08/11/2014
Sampling Parameter: Air Volume Not Provided				
Analyte	ug/sample	mg/m³	ppm	RL (ug/sample)
Hydrogen Cyanide	<0.21	NA	NA	0.21

Sample ID: 730-BHg			Collected: 07/30/2014	
Lab ID: 1422058013		Sampling Location: P1403090		Received: 08/04/2014
Method: NIOSH 6009 Mod.		Media: SKC 226-17-1A, Hopcalite Tube		Analyzed: 08/12/2014
Sampling Parameter: Air Volume Not Provided				
Analyte	ug/sample	mg/m³	ppm	RL (ug/sample)
Mercury	<0.010	NA	NA	0.010

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
NIOSH 6009 Mod.	/S/ Christopher R. Hansen 08/12/2014 18:08	/S/ Kristie F. Bitner 08/13/2014 08:08
NIOSH 6010 Mod.	/S/ Brittney Austin 08/11/2014 16:08	/S/ Christopher R. Hansen 08/11/2014 18:08

Laboratory Contact Information

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ANALYTICAL REPORT

Amended-20140815

Workorder: **34-1422058**

Client Project ID: P1403090 080414

Purchase Order: P1403090

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.aiclasscorp.com
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdwl/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.aiclasscorp.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.aiclasscorp.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.

NA = Not Applicable.

** 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: 1422058

Limits: Historical/Performance

Basis: ALS Laboratory Group

Preparation: NA

Batch: NA

Prepared By: NA

Analysis: NIOSH 6009 Mod.

Batch: IHG/2673 (HBN: 132537)

Analyzed By: Christopher R. Hansen

Blank

LRB: 405464

Analyzed: 08/12/2014 16:12

Units: ug/sample

Analyte	Result	MDL	RL
Mercury	ND	NA	0.0100

LMB: 405465

Analyzed: 08/12/2014 16:15

Units: ug/sample

Analyte	Result	MDL	RL
Mercury	ND	NA	0.0100

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 405466

Analyzed: 08/12/2014 16:16

Dilution: 1

Units: ug/sample

LCSD: 405467

Analyzed: 08/12/2014 16:17

Dilution: 1

Units: ug/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Mercury	0.515	0.500	103	80.3	128.9	0.520	104	1.01	0.0	15.0

QC Data Approved and Reviewed by

Christopher R. Hansen

Analyst

Kristie F. Bitner

Peer Review

8/13/2014

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)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable



Quality Control Sample Batch Report

Analysis Information

Workorder: 1422058

Limits: Historical/Performance

Basis: ALS Laboratory Group

Preparation: NA

Batch: NA

Prepared By: NA

Analysis: NIOSH 6010 Mod.

Batch: IWC/2102 (HBN: 132447)

Analyzed By: Brittney Austin

Blank

LMB: 405156

Analyzed: 08/11/2014 14:55

Units: ug/sample

Analyte	Result	MDL	RL
Cyanide	ND	NA	0.200

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 405157

Analyzed: 08/11/2014 14:55

Dilution: 1

Units: ug/sample

LCSD: 405158

Analyzed: 08/11/2014 14:58

Dilution: 1

Units: ug/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Cyanide	4.19	4.00	105	42.9	120.4	3.96	99.0	5.78	0.0	20.0

QC Data Approved and Reviewed by

Brittney Austin

Analyst

Christopher R. Hansen

Peer Review

8/11/2014

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)

NA - Not Applicable

QC results are not adjusted for moisture correction, where applicable