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www.alsglobal.com

LABORATORY REPORT

August 13, 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 August 1, 2014. For your reference, these analyses have been assigned our service request number P1403094.

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 Sue Anderson at 1:47 pm, Aug 13, 2014

For Samantha Henningsen
Project Manager



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

Service Request No: P1403094

CASE NARRATIVE

The samples were received intact under chain of custody on August 1, 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.

The analyses for sample 731-B-GRAB (P1403094-003) were cancelled due to ambient air intrusion that occurred into the can from time of receipt to prior to the pressurization step.

Fixed Gases Analysis

The samples were analyzed for fixed gases (hydrogen, oxygen/argon, nitrogen, carbon monoxide, methane and carbon dioxide) according to modified EPA Method 3C (single injection) using a gas chromatograph equipped with a thermal conductivity detector (TCD). This procedure is described in laboratory SOP VOA-EPA3C. This method is not included on the laboratory's NELAP or AIHA-LAP scope of accreditation.

Sulfur Analysis

The samples were also analyzed for twenty sulfur compounds per ASTM D 5504-12 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

Volatile Organic Compound Analysis

The samples were also analyzed for volatile organic compounds and tentatively identified compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. The method was modified to include the use of helium as a diluent gas in place of zero-grade air for container pressurization. When necessary, analytical sample volumes were adjusted by a correction factor for containers pressurized with helium. A summary sheet has been included listing the affected samples. This method is not included on the laboratory's AIHA-LAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.



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Service Request No: P1403094

CASE NARRATIVE

The Summa canisters were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

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: P1403094

Date Received: 8/1/2014
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	ASTM D5504-08 - Sulfur Can	TO-15 - VOC Cans	3C Modified - Fxd Gases Can
731U1-Grab	P1403094-001	Air	7/31/2014	09:47	1SS00072	-0.74	7.58	X	X	
731D1-Grab	P1403094-002	Air	7/31/2014	09:36	1SS00078	-0.23	6.18	X	X	
731-B-GRAB	P1403094-003	Air	7/31/2014	12:00	1SS00126	-9.53	5.88	X	X	



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[illegible]

Please J-flag report

ALS Environmental **Sample Acceptance Check Form**

Client: Stantec Consulting Services, Inc.

Work order: P1403094

Project: Bridgeton / 182608020

Sample(s) received on: 8/1/14

Date opened: 8/1/14

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?	☐	☐	☒
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
P1403094-001.01	1.0 L Source Silonite Canister					
P1403094-002.01	1.0 L Source Silonite Canister					
P1403094-003.01	1.0 L Source Silonite Canister					

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Sample ID: 731U1-Grab
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094
 ALS Sample ID: P1403094-001

Test Code: EPA Method 3C Modified
Instrument ID: HP5890 II/GC1/TCD
Analyst: Nalini Lall
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:

Date Collected: 7/31/14
Date Received: 8/1/14
Date Analyzed: 8/5/14
Volume(s) Analyzed: 0.10 ml(s)

Initial Pressure (psig): -0.74 **Final Pressure (psig):** 7.58

Canister Dilution Factor: 1.60

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
1333-74-0	Hydrogen	ND	0.16	
7782-44-7	Oxygen +			
7440-37-1	Argon	21.9	0.16	
7727-37-9	Nitrogen	78.1	0.16	
630-08-0	Carbon Monoxide	ND	0.16	
74-82-8	Methane	ND	0.16	
124-38-9	Carbon Dioxide	ND	0.16	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Sample ID: 731D1-Grab
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094
 ALS Sample ID: P1403094-002

Test Code: EPA Method 3C Modified
Instrument ID: HP5890 II/GC1/TCD
Analyst: Nalini Lall
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:

Date Collected: 7/31/14
Date Received: 8/1/14
Date Analyzed: 8/5/14
Volume(s) Analyzed: 0.10 ml(s)

Initial Pressure (psig): -0.23 **Final Pressure (psig):** 6.18

Canister Dilution Factor: 1.44

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
1333-74-0	Hydrogen	ND	0.14	
7782-44-7	Oxygen +			
7440-37-1	Argon	21.9	0.14	
7727-37-9	Nitrogen	78.1	0.14	
630-08-0	Carbon Monoxide	ND	0.14	
74-82-8	Methane	ND	0.14	
124-38-9	Carbon Dioxide	ND	0.14	

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

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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: P1403094
ALS Sample ID: P140805-MB

Test Code: EPA Method 3C Modified
Instrument ID: HP5890 II/GC1/TCD
Analyst: Nalini Lall
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 8/05/14
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
1333-74-0	Hydrogen	ND	0.10	
7782-44-7	Oxygen +			
7440-37-1	Argon	ND	0.10	
7727-37-9	Nitrogen	ND	0.10	
630-08-0	Carbon Monoxide	ND	0.10	
74-82-8	Methane	ND	0.10	
124-38-9	Carbon Dioxide	ND	0.10	

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.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client: Stantec Consulting Services, Inc.

Client Sample ID: Lab Control Sample

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094

ALS Sample ID: P140805-LCS

Test Code: EPA Method 3C Modified

Instrument ID: HP5890 II/GC1/TCD

Analyst: Nalini Lall

Sample Type: 1.0 L Silonite Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 8/05/14

Volume(s) Analyzed: NA ml(s)

CAS #	Compound	Spike Amount ppmV	Result ppmV	% Recovery	ALS Acceptance Limits	Data Qualifier
1333-74-0	Hydrogen	40,000	37,300	93	84-110	
7782-44-7	Oxygen +					
7440-37-1	Argon	50,000	51,600	103	88-114	
7727-37-9	Nitrogen	50,000	53,100	106	88-114	
630-08-0	Carbon Monoxide	50,000	50,900	102	88-113	
74-82-8	Methane	40,000	39,900	100	87-110	
124-38-9	Carbon Dioxide	50,000	50,400	101	84-109	

Response Factor Report GC01

Method Path : J:\GC01\METHODS\
 Method File : 3C112513.M
 Title : EPA 3C GC/TCD Analysis for Fixed Gases
 Last Update : Tue Nov 26 15:07:44 2013
 Response Via : Initial Calibration

Calibration Files

1	=11251310.D	2	=11251311.D	3	=11251313.D
4	=11251315.D	5	=11251314.D	6	=11261307.D

	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Hydrogen	1.274	1.280	1.333	1.312	1.595		1.359	E1	9.88
2)	Oxygen	1.523	1.638	1.715	1.675	1.681		1.649	E1	4.03
3)	Nitrogen	1.787	1.986	1.934	1.892	1.940	1.779	1.886	E1	4.53
4)	Carbon Monoxide	1.565	1.757	1.928	1.884	1.915		1.810	E1	8.45
5)	Methane	1.270	1.436	1.460	1.418	1.440		1.397	E1	5.09
6)	Carbon Dioxide	1.919	2.150	2.219	2.181	2.183		2.120	E1	5.22

(#) = Out of Range ### Number of calibration levels exceeded format ###

Modified EPA Method 3C Daily QC Summary

Client : Stantec Consulting Services, Inc.
 Analyst : NL
 Method Name : EPA 3C, ASTM D 1946-90, VOA-EPA3C

Instrument : GC01
 Date Analyzed : 8/5/2014

RT Summaries and QC Check (minutes)

Sample ID	Hydrogen	Oxygen	Nitrogen	Carbon Monoxide	Methane	Carbon Dioxide	File ID	Time
ICAL Mean RT	0.708	2.188	2.368	3.076	5.045	6.707		
RT Windows (+/- min)	0.072	0.133	0.146	0.034	0.130	0.145		
std s30-07171401	0.708	2.224	2.401	3.087	5.076	6.735	08051401.D	09:28
+/- 0.33min of ICAL Mean RT	Pass	Pass	Pass	Pass	Pass	Pass		
mb							08051402.D	09:43
lab air		2.167 Pass	2.305 Pass			6.731 Pass	08051403.D	10:05
ics s30-06021406	0.706 Pass	2.217 Pass	2.394 Pass	3.081 Pass	5.071 Pass	6.730 Pass	08051405.D	11:04
3094-001		2.154 Pass	2.293 Pass			6.739 Pass	08051418.D	16:37
3094-002		2.170 Pass	2.310 Pass			6.746 Pass	08051419.D	16:57
3094-003		2.205 Pass	2.365 Pass				08051420.D	17:19
3094-003Dup		2.206 Pass	2.366 Pass				08051421.D	17:39
std s30-07171401	0.705 Pass	2.217 Pass	2.393 Pass	3.078 Pass	5.069 Pass	6.728 Pass	08051422.D	17:52

Continuing Calibration Standards Summary (ppm)

Sample ID	Hydrogen	Oxygen	Nitrogen	Carbon Monoxide	Methane	Carbon Dioxide	File ID	Time
ACTUAL	39990.0	40030.0	50000.0	50010.0	39970.0	50040.0		
CCV Criteria (+/- %D)	15.0%	10.0%	10.0%	10.0%	10.0%	10.0%		
std s30-07171401	37558.1 Pass	39577.8 Pass	50917.0 Pass	49541.6 Pass	38755.9 Pass	48852.3 Pass	08051401.D	09:28
std s30-07171401	37290.2 Pass	39008.3 Pass	50074.6 Pass	49045.2 Pass	38097.9 Pass	48664.4 Pass	08051422.D	17:52

Lab Dup Summary (ppm, without DF correction and normalization)

Sample ID	Hydrogen	Oxygen	Nitrogen	Carbon Monoxide	Methane	Carbon Dioxide	File ID	Time
Duplicate Criteria % RPD	10%	9%	10%	9%	9%	9%		
3094-003		65500.7	232760.3				08051420.D	17:19
3094-003Dup		65682.0	233394.9				08051421.D	17:39
Duplicate % RPD		0.3% Pass	0.3% Pass					

LCS / LCS Dup Summary (ppm, without DF correction)

Sample ID	Hydrogen	Oxygen	Nitrogen	Carbon Monoxide	Methane	Carbon Dioxide	File ID	Time
LCS Actual Conc. (ppm)	40000.0	50000.0	50000.0	50000.0	40000.0	50000.0		
LCS Criteria (% Range)	84%-110%	88%-114%	88%-114%	88%-113%	87%-110%	84%-109%		
ics s30-06021406	37326.8	51568.1	53086.0	50930.1	39935.5	50417.3	08051405.D	11:04
LCS % Recovery	93% Pass	103% Pass	106% Pass	102% Pass	100% Pass	101% Pass		

Lab Air QC Summary

Sample ID	Hydrogen	Oxygen	Nitrogen	Carbon Monoxid	Methane	Carbon Dioxide	Lab Air Criteria Total (90%-110%)
lab air		203983.8	734313.8			441.5	93.9% Pass
Lab Air Normalized (%)		21.73%	78.22%			0.05%	100.0%

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Sample ID: 731U1-Grab
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094
 ALS Sample ID: P1403094-001

Test Code: ASTM D 5504-12
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Mike Conejo
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:
Container ID: 1SS00072

Date Collected: 7/31/14
Time Collected: 09:47
Date Received: 8/1/14
Date Analyzed: 8/7/14
Time Analyzed: 08:24
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): -0.74 **Final Pressure (psig):** 7.58

Canister Dilution Factor: 1.60

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	11	ND	8.0	
463-58-1	Carbonyl Sulfide	ND	20	ND	8.0	
74-93-1	Methyl Mercaptan	ND	16	ND	8.0	
75-08-1	Ethyl Mercaptan	ND	20	ND	8.0	
75-18-3	Dimethyl Sulfide	ND	20	ND	8.0	
75-15-0	Carbon Disulfide	ND	12	ND	4.0	
75-33-2	Isopropyl Mercaptan	ND	25	ND	8.0	
75-66-1	tert-Butyl Mercaptan	ND	29	ND	8.0	
107-03-9	n-Propyl Mercaptan	ND	25	ND	8.0	
624-89-5	Ethyl Methyl Sulfide	ND	25	ND	8.0	
110-02-1	Thiophene	ND	28	ND	8.0	
513-44-0	Isobutyl Mercaptan	ND	29	ND	8.0	
352-93-2	Diethyl Sulfide	ND	29	ND	8.0	
109-79-5	n-Butyl Mercaptan	ND	29	ND	8.0	
624-92-0	Dimethyl Disulfide	ND	15	ND	4.0	
616-44-4	3-Methylthiophene	ND	32	ND	8.0	
110-01-0	Tetrahydrothiophene	ND	29	ND	8.0	
638-02-8	2,5-Dimethylthiophene	ND	37	ND	8.0	
872-55-9	2-Ethylthiophene	ND	37	ND	8.0	
110-81-6	Diethyl Disulfide	ND	20	ND	4.0	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.
Client Sample ID: 731D1-Grab
Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094
 ALS Sample ID: P1403094-002

Test Code: ASTM D 5504-12
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:
Container ID: 1SS00078

Date Collected: 7/31/14
Time Collected: 09:36
Date Received: 8/1/14
Date Analyzed: 8/7/14
Time Analyzed: 08:26
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): -0.23 **Final Pressure (psig):** 6.18

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	10	ND	7.2	
463-58-1	Carbonyl Sulfide	ND	18	ND	7.2	
74-93-1	Methyl Mercaptan	ND	14	ND	7.2	
75-08-1	Ethyl Mercaptan	ND	18	ND	7.2	
75-18-3	Dimethyl Sulfide	ND	18	ND	7.2	
75-15-0	Carbon Disulfide	ND	11	ND	3.6	
75-33-2	Isopropyl Mercaptan	ND	22	ND	7.2	
75-66-1	tert-Butyl Mercaptan	ND	27	ND	7.2	
107-03-9	n-Propyl Mercaptan	ND	22	ND	7.2	
624-89-5	Ethyl Methyl Sulfide	ND	22	ND	7.2	
110-02-1	Thiophene	ND	25	ND	7.2	
513-44-0	Isobutyl Mercaptan	ND	27	ND	7.2	
352-93-2	Diethyl Sulfide	ND	27	ND	7.2	
109-79-5	n-Butyl Mercaptan	ND	27	ND	7.2	
624-92-0	Dimethyl Disulfide	ND	14	ND	3.6	
616-44-4	3-Methylthiophene	ND	29	ND	7.2	
110-01-0	Tetrahydrothiophene	ND	26	ND	7.2	
638-02-8	2,5-Dimethylthiophene	ND	33	ND	7.2	
872-55-9	2-Ethylthiophene	ND	33	ND	7.2	
110-81-6	Diethyl Disulfide	ND	18	ND	3.6	

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.

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: P1403094
 ALS Sample ID: P140807-MB

Test Code: ASTM D 5504-12
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 8/07/14
Time Analyzed: 08:09
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

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.

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: P1403094
 ALS Sample ID: P140807-MB

Test Code: ASTM D 5504-12
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Mike Conejo
Sample Type: 1.0 L Silonite Summa Canister
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 8/07/14
Time Analyzed: 08:08
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

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.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client: Stantec Consulting Services, Inc.

Client Sample ID: Lab Control Sample

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094

ALS Sample ID: P140807-LCS

Test Code: ASTM D 5504-12

Instrument ID: Agilent 6890A/GC13/SCD

Analyst: Mike Conejo

Sample Type: 1.0 L Silonite Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 8/07/14

Volume(s) Analyzed: NA ml(s)

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS	Data Qualifier
					Acceptance Limits	
7783-06-4	Hydrogen Sulfide	2,050	1,960	96	66-131	
463-58-1	Carbonyl Sulfide	2,020	1,980	98	64-131	
74-93-1	Methyl Mercaptan	1,890	2,010	106	68-160	

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client: Stantec Consulting Services, Inc.

Client Sample ID: Lab Control Sample

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094

ALS Sample ID: P140807-LCS

Test Code: ASTM D 5504-12

Instrument ID: Agilent 7890A/GC22/SCD

Analyst: Mike Conejo

Sample Type: 1.0 L Silonite Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 8/07/14

Volume(s) Analyzed: NA ml(s)

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS	Data Qualifier
					Acceptance Limits	
7783-06-4	Hydrogen Sulfide	2,050	1,990	97	66-131	
463-58-1	Carbonyl Sulfide	2,020	1,990	99	64-131	
74-93-1	Methyl Mercaptan	1,890	1,940	103	68-160	

Method Path : J:\GC13\METHODS\
 Method File : GC13060914.M
 Title : 20 Sulfurs
 Last Update : Tue Jun 10 08:59:05 2014
 Response Via : Initial Calibration

Calibration Files

1 =06091443.D 2 =06091444.D 3 =06091445.D
 4 =06091446.D 5 =06091447.D 6 =06091448.D

	Compound	1	2	3	4	5	6	Avg		%RSD
1) Z	Hydrogen_Sulfide	2.336	1.893	2.371	2.846	2.611	2.902	2.493	E4	15.07
2) W	Carbonyl_Sulfide	2.626	2.301	2.596	2.909	2.906	2.864	2.700	E4	8.91
3) T	Methyl_Mercaptan	2.249	1.887	2.358	2.733	2.671	2.730	2.438	E4	13.87
4) T	Ethyl_Mercaptan	2.249	1.887	2.358	2.733	2.671	2.730	2.438	E4	13.87
5) T	Dimethyl_Sulfide	2.249	1.887	2.358	2.733	2.671	2.730	2.438	E4	13.87
6) T	Carbon_Disulfide	4.499	3.775	4.716	5.467	5.343	5.459	4.877	E4	13.87
7) T	2-Propyl_Merc...	2.249	1.887	2.358	2.733	2.671	2.730	2.438	E4	13.87
8) T	t-Butyl_Merca...	2.249	1.887	2.358	2.733	2.671	2.730	2.438	E4	13.87
9) T	Propyl_Mercaptan	2.249	1.887	2.358	2.733	2.671	2.730	2.438	E4	13.87
10) T	Ethyl_Methyl_...	2.249	1.887	2.358	2.733	2.671	2.730	2.438	E4	13.87
11) T	Thiophene	2.249	1.887	2.358	2.733	2.671	2.730	2.438	E4	13.87
12) T	i-Butyl_Merca...	2.249	1.887	2.358	2.733	2.671	2.730	2.438	E4	13.87
13) T	Diethyl_Sulfide	2.249	1.887	2.358	2.733	2.671	2.730	2.438	E4	13.87
14)	n-Butyl_Merca...	2.249	1.887	2.358	2.733	2.671	2.730	2.438	E4	13.87
15)	Dimethyl_Disu...	4.499	3.775	4.716	5.467	5.343	5.459	4.877	E4	13.87
16) T	2-Methyl_Thio...	2.249	1.887	2.358	2.733	2.671	2.730	2.438	E4	13.87
17)	3-Methyl_Thio...	2.249	1.887	2.358	2.733	2.671	2.730	2.438	E4	13.87
18) T	Tetrahydrothi...	2.249	1.887	2.358	2.733	2.671	2.730	2.438	E4	13.87
19)	2,5-Dimethyl_...	2.249	1.887	2.358	2.733	2.671	2.730	2.438	E4	13.87
20) T	2-Ethyl_Thiop...	2.249	1.887	2.358	2.733	2.671	2.730	2.438	E4	13.87
21) T	Diethyl_Disul...	4.499	3.775	4.716	5.467	5.343	5.459	4.877	E4	13.87
22) T	Methyltrisulfide	6.748	5.662	7.075	8.200	8.014	8.189	7.315	E4	13.87

(#) = Out of Range

GC13060914.M Tue Jun 10 08:59:12 2014

Method Path : J:\GC22\METHODS\
 Method File : GC22060914.M
 Title : 20 Sulfurs Initial Calibration
 Last Update : Tue Jun 10 08:39:05 2014
 Response Via : Initial Calibration

Calibration Files

1 =06091401.d 2 =06091402.d 3 =06091403.d
 4 =06091404.d 5 =06091405.d 6 =06091406.d

	Compound	1	2	3	4	5	6	Avg	%RSD
1) Z	Hydrogen_Sulfide	2.724	1.858	2.695	2.696	2.262	2.639	2.479	E4 14.11
2) W	Carbonyl_Sulfide	2.645	2.540	3.022	2.923	2.721	2.810	2.777	E4 6.43
3) T	Methyl_Mercaptan	2.537	2.016	2.745	2.717	2.397	2.746	2.526	E4 11.33
4) T	Ethyl_Mercaptan	2.537	2.016	2.745	2.717	2.397	2.746	2.526	E4 11.33
5) T	Dimethyl_Sulfide	2.537	2.016	2.745	2.717	2.397	2.746	2.526	E4 11.33
6) T	Carbon_Disulfide	5.073	4.032	5.489	5.433	4.794	5.491	5.052	E4 11.33
7) T	2-Propyl_Merca...	2.537	2.016	2.745	2.717	2.397	2.746	2.526	E4 11.33
8) T	t-Butyl_Merca...	2.537	2.016	2.745	2.717	2.397	2.746	2.526	E4 11.33
9) T	Propyl_Mercaptan	2.537	2.016	2.745	2.717	2.397	2.746	2.526	E4 11.33
10) T	Ethyl_Methyl_...	2.537	2.016	2.745	2.717	2.397	2.746	2.526	E4 11.33
11) T	Thiophene	2.537	2.016	2.745	2.717	2.397	2.746	2.526	E4 11.33
12) T	i-Butyl_Merca...	2.537	2.016	2.745	2.717	2.397	2.746	2.526	E4 11.33
13) T	Diethyl_Sulfide	2.537	2.016	2.745	2.717	2.397	2.746	2.526	E4 11.33
14) T	n-Butyl_Merca...	2.537	2.016	2.745	2.717	2.397	2.746	2.526	E4 11.33
15) T	Dimethyl_Disu...	5.073	4.032	5.489	5.433	4.794	5.491	5.052	E4 11.33
16) T	2-Methylthiop...	2.537	2.016	2.745	2.717	2.397	2.746	2.526	E4 11.33
17) T	3-Methylthiop...	2.537	2.016	2.745	2.717	2.397	2.746	2.526	E4 11.33
18) T	Tetrahydrothi...	2.537	2.016	2.745	2.717	2.397	2.746	2.526	E4 11.33
19) T	2,5-Dimethylt...	2.537	2.016	2.745	2.717	2.397	2.746	2.526	E4 11.33
20) T	2-Ethylthiophene	2.537	2.016	2.745	2.717	2.397	2.746	2.526	E4 11.33
21) T	Diethyl_Disul...	5.073	4.032	5.489	5.433	4.794	5.491	5.052	E4 11.33
22) T	Methyltrisulfide	7.610	6.048	8.234	8.150	7.191	8.237	7.578	E4 11.33

(#) = Out of Range

GC22060914.M Tue Jun 10 08:59:29 2014

ALS Environmental

REPORT SUMMARY

Method : 20 Sulfurs
Client : Stantec Consulting Services, Inc.
Analyst : MC

Service Request : P1403094
Instrument : GC13
Date Acquired : 8/7/14

Compounds		MDL	RL	MB QC	Dry Wall QC	Lab Dup		Continuing Calibration Standards Summary (ppbv)													
				MB		dup	%RSD	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff
Sample Information :		ppb	ppb	mb (ml)		0	0	sid 2000ppb s30- 07101401		sid 2000ppb s30- 07101401		ppbv		ppbv		ppbv		ppbv		ppbv	
Inj. Vol. (ml)		1.0	1.0	1.00	1.0	1.0		0.20		0.20		0.20		0.20		0.20		0.20		0.20	
Dilution		1.0	1.0	1.00	1.0	1.0															
Pi:		1.0	1.0	1.0	1.0	1.0															
Pi:		1.0	1.0	1.0	1.0	1.0															
PiPr DF:		1.0	1.0	1.0	1.0	1.0															
Hydrogen_Sulfide		1700	5000	ND	P			1681.84	15.6%	1945.987	2.3%										
Carbonyl_Sulfide		1900	5000	ND	P			1720.39	15.3%	1993.722	1.9%										
Methyl_Mercaptan		2200	5000	ND	P			1713.49	15.3%	1817.092	10.1%										
Ethyl_Mercaptan		2200	5000	ND	P																
Dimethyl_Sulfide		2200	5000	ND	P																
Carbon_Disulfide		1100	2500	ND	P			7:34 AM		8:49 AM											
2-Propyl_Mercaptan		2200	5000	ND	P			08071401.D		08071407.D											
t-Butyl_Mercaptan		2200	5000	ND	P																
Propyl_Mercaptan		2200	5000	ND	P																
Ethyl_Methyl_Sulfide		2200	5000	ND	P																
Thiophene		2200	5000	ND	P																
i-Butyl_Mercaptan		2200	5000	ND	P																
Diethyl_Sulfide		2200	5000	ND	P																
n-Butyl_Mercaptan		2200	5000	ND	P																
Dimethyl_Disulfide		2200	5000	ND	P																
2-Methylthiophene		2200	5000	ND	P																
3-Methylthiophene		2200	5000	ND	P																
Tetrahydrothiophene		2200	5000	ND	P																
2,5-Dimethylthiophene		2200	5000	ND	P																
2-Ethylthiophene		2200	5000	ND	P																
Diethyl_Disulfide		1100	2500	ND	P																
Methyltrisulfide		1100	2500	ND	P																
Acquisition Time				8:09 AM																	
DataFile				08071405.D																	
LCS / LCS Dup Summary (ppbv)																					
								ppbv	%R			ppbv	%R					%RPD		Actual	
Hydrogen_Sulfide								1957.74	95.7%											2045.54	
Carbonyl_Sulfide								1976.61	98.0%											2017.48	
Methyl_Mercaptan								2010.95	106.5%											1887.74	
Acquisition Time								7:38 AM													
DataFile								08071402.D													

MC
8/7/14

ALS Environmental

REPORT SUMMARY

Method : 20 Sulfurs Initial Calibration
Client : Stantec Consulting Services, Inc.
Analyst : MC

Service Request : P1403094
Instrument : GC #22
Date Acquired : 7 Aug 2014 8:24 am

Compounds	Continuing Calibration Standards Summary (ppbv)																		
	MDL	RL	MB QC	Dry Wall QC	Lab Dup		%RSD												
			MB			dup		ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff		
Sample Information :	ppb	ppb	mb 1ml		0	0		std 2000ppb s30- 07101401		std 2000ppb s30- 07101401									
Inj. Vol. (ml)	1.0	1.0	1.00	1.0	1.0	1.0		0.20		0.20		0.20		0.20		0.20			
Dilution	1.0	1.0	1.00	1.0	1.0	1.0													
PI:	1.0	1.0	1.0	1.0	1.0	1.0													
PI:	1.0	1.0	1.0	1.0	1.0	1.0													
PIPI DF:	1.0	1.0	1.0	1.0	1.0	1.0													
Hydrogen_Sulfide	1.700	5.000	ND	P				1733.67	13.0%	2002.090	0.5%								
Carbonyl_Sulfide	1.900	5.000	ND	P				1761.46	13.3%	1958.804	3.6%								
Methyl_Mercaptan	2.200	5.000	ND	P				1592.10	21.3%	1858.742	8.1%								
Ethyl_Mercaptan	2.200	5.000	ND	P															
Dimethyl_Sulfide	2.200	5.000	ND	P															
Carbon_Disulfide	1.100	2.500	ND	P				7 Aug 2014 7:32 am	7 Aug 2014 8:45 am	08071401 d	08071407 d								
2-Propyl_Mercaptan	2.200	5.000	ND	P															
t-Butyl_Mercaptan	2.200	5.000	ND	P															
Propyl_Mercaptan	2.200	5.000	ND	P															
Ethyl_Methyl_Sulfide	2.200	5.000	ND	P															
Thiophene	2.200	5.000	ND	P															
i-Butyl_Mercaptan	2.200	5.000	ND	P				Hydrogen_Sulfide								2045.54			
Diethyl_Sulfide	2.200	5.000	ND	P				Carbonyl_Sulfide								2017.48			
n-Butyl_Mercaptan	2.200	5.000	ND	P				Methyl_Mercaptan								1887.74			
Dimethyl_Disulfide	2.200	5.000	ND	P				Acquisition Time											
2-Methylthiophene	1.100	2.500	ND	P				DataFile											
3-Methylthiophene	2.200	5.000	ND	P				LCS / LCS Dup Summary (ppbv)											
Tetrahydrothiophene	2.200	5.000	ND	P															
2,5-Dimethylthiophene	2.200	5.000	ND	P															
2-Ethylthiophene	2.200	5.000	ND	P															
Diethyl_Disulfide	1.100	2.500	ND	P															
Methyltrisulfide	1.100	2.500	ND	P															
Acquisition Time			7 Aug 2014 8:08 am																
DataFile			08071405.d																

LCS / LCS Dup Summary (ppbv)

	ppbv	%R	ppbv	%R	%RPD	Actual
Hydrogen_Sulfide	1989.83	97.3%				2045.54
Carbonyl_Sulfide	1988.78	98.6%				2017.48
Methyl_Mercaptan	1937.06	102.6%				1887.74
Acquisition Time	7 Aug 2014 7:36 am					
DataFile	08071402.d					

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 4

Client: Stantec Consulting Services, Inc.

Client Sample ID: 731U1-Grab

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094

ALS Sample ID: P1403094-001

Test Code: EPA TO-15 Modified

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sample Type: 1.0 L Silonite Summa Canister

Test Notes:

Container ID: 1SS00072

Date Collected: 7/31/14

Date Received: 8/1/14

Date Analyzed: 8/8/14

Volume(s) Analyzed: 0.456 Liter(s)

Initial Pressure (psig): -0.74 Final Pressure (psig): 7.58

Canister Dilution Factor: 1.60

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	2.1	1.8	1.2	1.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	2.3	1.8	0.47	0.35	
74-87-3	Chloromethane	ND	1.8	ND	0.85	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	1.8	ND	0.25	
75-01-4	Vinyl Chloride	ND	1.8	ND	0.69	
106-99-0	1,3-Butadiene	ND	1.8	ND	0.79	
74-83-9	Bromomethane	ND	1.8	ND	0.45	
75-00-3	Chloroethane	ND	1.8	ND	0.67	
64-17-5	Ethanol	ND	18	ND	9.3	
75-05-8	Acetonitrile	ND	1.8	ND	1.0	
107-02-8	Acrolein	ND	7.0	ND	3.1	
67-64-1	Acetone	ND	18	ND	7.4	
75-69-4	Trichlorofluoromethane	ND	1.8	ND	0.31	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	18	ND	7.1	
107-13-1	Acrylonitrile	ND	1.8	ND	0.81	
75-35-4	1,1-Dichloroethene	ND	1.8	ND	0.44	
75-09-2	Methylene Chloride	ND	1.8	ND	0.51	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	1.8	ND	0.56	
76-13-1	Trichlorotrifluoroethane	ND	1.8	ND	0.23	
75-15-0	Carbon Disulfide	ND	18	ND	5.6	
156-60-5	trans-1,2-Dichloroethene	ND	1.8	ND	0.44	
75-34-3	1,1-Dichloroethane	ND	1.8	ND	0.43	
1634-04-4	Methyl tert-Butyl Ether	ND	1.8	ND	0.49	
108-05-4	Vinyl Acetate	ND	18	ND	5.0	
78-93-3	2-Butanone (MEK)	ND	18	ND	6.0	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 4

Client: Stantec Consulting Services, Inc.

Client Sample ID: 731U1-Grab

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094

ALS Sample ID: P1403094-001

Test Code: EPA TO-15 Modified

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sample Type: 1.0 L Silonite Summa Canister

Test Notes:

Container ID: 1SS00072

Date Collected: 7/31/14

Date Received: 8/1/14

Date Analyzed: 8/8/14

Volume(s) Analyzed: 0.456 Liter(s)

Initial Pressure (psig): -0.74 Final Pressure (psig): 7.58

Canister Dilution Factor: 1.60

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	1.8	ND	0.44	
141-78-6	Ethyl Acetate	ND	3.5	ND	0.97	
110-54-3	n-Hexane	ND	1.8	ND	0.50	
67-66-3	Chloroform	ND	1.8	ND	0.36	
109-99-9	Tetrahydrofuran (THF)	ND	1.8	ND	0.60	
107-06-2	1,2-Dichloroethane	ND	1.8	ND	0.43	
71-55-6	1,1,1-Trichloroethane	ND	1.8	ND	0.32	
71-43-2	Benzene	ND	1.8	ND	0.55	
56-23-5	Carbon Tetrachloride	ND	1.8	ND	0.28	
110-82-7	Cyclohexane	ND	3.5	ND	1.0	
78-87-5	1,2-Dichloropropane	ND	1.8	ND	0.38	
75-27-4	Bromodichloromethane	ND	1.8	ND	0.26	
79-01-6	Trichloroethene	ND	1.8	ND	0.33	
123-91-1	1,4-Dioxane	ND	1.8	ND	0.49	
80-62-6	Methyl Methacrylate	ND	3.5	ND	0.86	
142-82-5	n-Heptane	ND	1.8	ND	0.43	
10061-01-5	cis-1,3-Dichloropropene	ND	1.8	ND	0.39	
108-10-1	4-Methyl-2-pentanone	ND	1.8	ND	0.43	
10061-02-6	trans-1,3-Dichloropropene	ND	1.8	ND	0.39	
79-00-5	1,1,2-Trichloroethane	ND	1.8	ND	0.32	
108-88-3	Toluene	1.8	1.8	0.48	0.47	
591-78-6	2-Hexanone	ND	1.8	ND	0.43	
124-48-1	Dibromochloromethane	ND	1.8	ND	0.21	
106-93-4	1,2-Dibromoethane	ND	1.8	ND	0.23	
123-86-4	n-Butyl Acetate	ND	1.8	ND	0.37	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.

Client Sample ID: 731U1-Grab

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094

ALS Sample ID: P1403094-001

Test Code: EPA TO-15 Modified

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sample Type: 1.0 L Silonite Summa Canister

Test Notes:

Container ID: 1SS00072

Date Collected: 7/31/14

Date Received: 8/1/14

Date Analyzed: 8/8/14

Volume(s) Analyzed: 0.456 Liter(s)

Initial Pressure (psig): -0.74 Final Pressure (psig): 7.58

Canister Dilution Factor: 1.60

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	1.8	ND	0.38	
127-18-4	Tetrachloroethene	ND	1.8	ND	0.26	
108-90-7	Chlorobenzene	ND	1.8	ND	0.38	
100-41-4	Ethylbenzene	ND	1.8	ND	0.40	
179601-23-1	m,p-Xylenes	ND	3.5	ND	0.81	
75-25-2	Bromoform	ND	1.8	ND	0.17	
100-42-5	Styrene	ND	1.8	ND	0.41	
95-47-6	o-Xylene	ND	1.8	ND	0.40	
111-84-2	n-Nonane	ND	1.8	ND	0.33	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.8	ND	0.26	
98-82-8	Cumene	ND	1.8	ND	0.36	
80-56-8	alpha-Pinene	ND	1.8	ND	0.31	
103-65-1	n-Propylbenzene	ND	1.8	ND	0.36	
622-96-8	4-Ethyltoluene	ND	1.8	ND	0.36	
108-67-8	1,3,5-Trimethylbenzene	ND	1.8	ND	0.36	
95-63-6	1,2,4-Trimethylbenzene	ND	1.8	ND	0.36	
100-44-7	Benzyl Chloride	ND	1.8	ND	0.34	
541-73-1	1,3-Dichlorobenzene	ND	1.8	ND	0.29	
106-46-7	1,4-Dichlorobenzene	ND	1.8	ND	0.29	
95-50-1	1,2-Dichlorobenzene	ND	1.8	ND	0.29	
5989-27-5	d-Limonene	ND	1.8	ND	0.31	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.8	ND	0.18	
120-82-1	1,2,4-Trichlorobenzene	ND	1.8	ND	0.24	
91-20-3	Naphthalene	ND	1.8	ND	0.33	
87-68-3	Hexachlorobutadiene	ND	1.8	ND	0.16	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 4 of 4

Client: Stantec Consulting Services, Inc.

Client Sample ID: 731U1-Grab

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094

ALS Sample ID: P1403094-001

Tentatively Identified Compounds

Test Code: EPA TO-15 Modified

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sample Type: 1.0 L Silonite Summa Canister

Test Notes:

Container ID: 1SS00072

Date Collected: 7/31/14

Date Received: 8/1/14

Date Analyzed: 8/8/14

Volume(s) Analyzed: 0.456 Liter(s)

Initial Pressure (psig): -0.74

Final Pressure (psig): 7.58

Canister Dilution Factor: 1.60

GC/MS Retention Time	Compound Identification	Concentration $\mu\text{g}/\text{m}^3$	Data Qualifier
No Compounds Detected			

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 4

Client: Stantec Consulting Services, Inc.

Client Sample ID: 731D1-Grab

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094

ALS Sample ID: P1403094-002

Test Code: EPA TO-15 Modified

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sample Type: 1.0 L Silonite Summa Canister

Test Notes:

Container ID: 1SS00078

Date Collected: 7/31/14

Date Received: 8/1/14

Date Analyzed: 8/8/14

Volume(s) Analyzed: 0.448 Liter(s)

Initial Pressure (psig): -0.23 Final Pressure (psig): 6.18

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	2.6	1.6	1.5	0.93	
75-71-8	Dichlorodifluoromethane (CFC 12)	2.2	1.6	0.45	0.33	
74-87-3	Chloromethane	ND	1.6	ND	0.78	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	1.6	ND	0.23	
75-01-4	Vinyl Chloride	ND	1.6	ND	0.63	
106-99-0	1,3-Butadiene	ND	1.6	ND	0.73	
74-83-9	Bromomethane	ND	1.6	ND	0.41	
75-00-3	Chloroethane	ND	1.6	ND	0.61	
64-17-5	Ethanol	ND	16	ND	8.5	
75-05-8	Acetonitrile	ND	1.6	ND	0.96	
107-02-8	Acrolein	ND	6.4	ND	2.8	
67-64-1	Acetone	ND	16	ND	6.8	
75-69-4	Trichlorofluoromethane	ND	1.6	ND	0.29	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	16	ND	6.5	
107-13-1	Acrylonitrile	ND	1.6	ND	0.74	
75-35-4	1,1-Dichloroethene	ND	1.6	ND	0.41	
75-09-2	Methylene Chloride	ND	1.6	ND	0.46	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	1.6	ND	0.51	
76-13-1	Trichlorotrifluoroethane	ND	1.6	ND	0.21	
75-15-0	Carbon Disulfide	ND	16	ND	5.2	
156-60-5	trans-1,2-Dichloroethene	ND	1.6	ND	0.41	
75-34-3	1,1-Dichloroethane	ND	1.6	ND	0.40	
1634-04-4	Methyl tert-Butyl Ether	ND	1.6	ND	0.45	
108-05-4	Vinyl Acetate	ND	16	ND	4.6	
78-93-3	2-Butanone (MEK)	ND	16	ND	5.5	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.

Client Sample ID: 731D1-Grab

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094

ALS Sample ID: P1403094-002

Test Code: EPA TO-15 Modified

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sample Type: 1.0 L Silonite Summa Canister

Test Notes:

Container ID: 1SS00078

Date Collected: 7/31/14

Date Received: 8/1/14

Date Analyzed: 8/8/14

Volume(s) Analyzed: 0.448 Liter(s)

Initial Pressure (psig): -0.23 Final Pressure (psig): 6.18

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	1.6	ND	0.41	
141-78-6	Ethyl Acetate	ND	3.2	ND	0.89	
110-54-3	n-Hexane	ND	1.6	ND	0.46	
67-66-3	Chloroform	ND	1.6	ND	0.33	
109-99-9	Tetrahydrofuran (THF)	ND	1.6	ND	0.55	
107-06-2	1,2-Dichloroethane	ND	1.6	ND	0.40	
71-55-6	1,1,1-Trichloroethane	ND	1.6	ND	0.29	
71-43-2	Benzene	ND	1.6	ND	0.50	
56-23-5	Carbon Tetrachloride	ND	1.6	ND	0.26	
110-82-7	Cyclohexane	ND	3.2	ND	0.93	
78-87-5	1,2-Dichloropropane	ND	1.6	ND	0.35	
75-27-4	Bromodichloromethane	ND	1.6	ND	0.24	
79-01-6	Trichloroethene	ND	1.6	ND	0.30	
123-91-1	1,4-Dioxane	ND	1.6	ND	0.45	
80-62-6	Methyl Methacrylate	ND	3.2	ND	0.79	
142-82-5	n-Heptane	ND	1.6	ND	0.39	
10061-01-5	cis-1,3-Dichloropropene	ND	1.6	ND	0.35	
108-10-1	4-Methyl-2-pentanone	ND	1.6	ND	0.39	
10061-02-6	trans-1,3-Dichloropropene	ND	1.6	ND	0.35	
79-00-5	1,1,2-Trichloroethane	ND	1.6	ND	0.29	
108-88-3	Toluene	1.9	1.6	0.50	0.43	
591-78-6	2-Hexanone	ND	1.6	ND	0.39	
124-48-1	Dibromochloromethane	ND	1.6	ND	0.19	
106-93-4	1,2-Dibromoethane	ND	1.6	ND	0.21	
123-86-4	n-Butyl Acetate	ND	1.6	ND	0.34	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.

Client Sample ID: 731D1-Grab

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094

ALS Sample ID: P1403094-002

Test Code: EPA TO-15 Modified

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sample Type: 1.0 L Silonite Summa Canister

Test Notes:

Container ID: 1SS00078

Date Collected: 7/31/14

Date Received: 8/1/14

Date Analyzed: 8/8/14

Volume(s) Analyzed: 0.448 Liter(s)

Initial Pressure (psig): -0.23 Final Pressure (psig): 6.18

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	1.6	ND	0.34	
127-18-4	Tetrachloroethene	ND	1.6	ND	0.24	
108-90-7	Chlorobenzene	ND	1.6	ND	0.35	
100-41-4	Ethylbenzene	ND	1.6	ND	0.37	
179601-23-1	m,p-Xylenes	ND	3.2	ND	0.74	
75-25-2	Bromoform	ND	1.6	ND	0.16	
100-42-5	Styrene	ND	1.6	ND	0.38	
95-47-6	o-Xylene	ND	1.6	ND	0.37	
111-84-2	n-Nonane	ND	1.6	ND	0.31	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.6	ND	0.23	
98-82-8	Cumene	ND	1.6	ND	0.33	
80-56-8	alpha-Pinene	ND	1.6	ND	0.29	
103-65-1	n-Propylbenzene	ND	1.6	ND	0.33	
622-96-8	4-Ethyltoluene	ND	1.6	ND	0.33	
108-67-8	1,3,5-Trimethylbenzene	ND	1.6	ND	0.33	
95-63-6	1,2,4-Trimethylbenzene	ND	1.6	ND	0.33	
100-44-7	Benzyl Chloride	ND	1.6	ND	0.31	
541-73-1	1,3-Dichlorobenzene	ND	1.6	ND	0.27	
106-46-7	1,4-Dichlorobenzene	ND	1.6	ND	0.27	
95-50-1	1,2-Dichlorobenzene	ND	1.6	ND	0.27	
5989-27-5	d-Limonene	ND	1.6	ND	0.29	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.6	ND	0.17	
120-82-1	1,2,4-Trichlorobenzene	ND	1.6	ND	0.22	
91-20-3	Naphthalene	ND	1.6	ND	0.31	
87-68-3	Hexachlorobutadiene	ND	1.6	ND	0.15	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: Stantec Consulting Services, Inc.

Client Sample ID: 731D1-Grab

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094

ALS Sample ID: P1403094-002

Tentatively Identified Compounds

Test Code: EPA TO-15 Modified

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sample Type: 1.0 L Silonite Summa Canister

Test Notes:

Container ID: 1SS00078

Date Collected: 7/31/14

Date Received: 8/1/14

Date Analyzed: 8/8/14

Volume(s) Analyzed: 0.448 Liter(s)

Initial Pressure (psig): -0.23

Final Pressure (psig): 6.18

Canister Dilution Factor: 1.44

GC/MS Retention Time	Compound Identification	Concentration $\mu\text{g}/\text{m}^3$	Data Qualifier
No Compounds Detected			

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: P1403094

ALS Sample ID: P140808-MB

Test Code: EPA TO-15 Modified

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sample Type: 1.0 L Silonite Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 8/8/14

Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

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.

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: P1403094

ALS Sample ID: P140808-MB

Test Code: EPA TO-15 Modified

Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Date Received: NA

Analyst: Simon Cao

Date Analyzed: 8/8/14

Sample Type: 1.0 L Silonite Summa Canister

Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

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.

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: P1403094

ALS Sample ID: P140808-MB

Test Code: EPA TO-15 Modified

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sample Type: 1.0 L Silonite Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 8/8/14

Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	0.50	ND	0.097	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 4 of 4

Client: Stantec Consulting Services, Inc.

Client Sample ID: Method Blank

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094

ALS Sample ID: P140808-MB

Tentatively Identified Compounds

Test Code: EPA TO-15 Modified

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sample Type: 1.0 L Silonite Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 8/8/14

Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

GC/MS Retention Time	Compound Identification	Concentration µg/m ³	Data Qualifier
No Compounds Detected			

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

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

ALS Project ID: P1403094

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Simon Cao
Sample Type: 1.0 L Silonite Summa Canister(s)
Test Notes:

Date(s) Collected: 7/31/14
Date(s) Received: 8/1/14
Date(s) Analyzed: 8/8/14

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4	Toluene-d8	Bromofluorobenzene	Acceptance Limits	Data Qualifier
		Percent Recovered	Percent Recovered	Percent Recovered		
Method Blank	P140808-MB	110	100	93	70-130	
Lab Control Sample	P140808-LCS	107	99	100	70-130	
731U1-Grab	P1403094-001	109	95	99	70-130	
731D1-Grab	P1403094-002	110	93	103	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

Client: Stantec Consulting Services, Inc.

Client Sample ID: Lab Control Sample

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094

ALS Sample ID: P140808-LCS

Test Code: EPA TO-15 Modified

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sample Type: 1.0 L Silonite Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 8/8/14

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
115-07-1	Propene	208	204	98	58-139	
75-71-8	Dichlorodifluoromethane (CFC 12)	204	183	90	63-115	
74-87-3	Chloromethane	198	185	93	58-122	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	210	177	84	65-115	
75-01-4	Vinyl Chloride	200	193	97	64-122	
106-99-0	1,3-Butadiene	244	229	94	57-141	
74-83-9	Bromomethane	200	181	91	68-122	
75-00-3	Chloroethane	200	187	94	66-120	
64-17-5	Ethanol	942	986	105	58-126	
75-05-8	Acetonitrile	224	199	89	64-136	
107-02-8	Acrolein	208	184	88	58-129	
67-64-1	Acetone	1,080	1070	99	60-114	
75-69-4	Trichlorofluoromethane	204	207	101	62-107	
67-63-0	2-Propanol (Isopropyl Alcohol)	378	379	100	54-118	
107-13-1	Acrylonitrile	224	202	90	72-143	
75-35-4	1,1-Dichloroethene	218	191	88	69-119	
75-09-2	Methylene Chloride	214	200	93	64-113	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	195	90	59-131	
76-13-1	Trichlorotrifluoroethane	214	174	81	69-117	
75-15-0	Carbon Disulfide	208	207	100	65-115	
156-60-5	trans-1,2-Dichloroethene	210	202	96	70-126	
75-34-3	1,1-Dichloroethane	208	185	89	68-116	
1634-04-4	Methyl tert-Butyl Ether	212	189	89	69-120	
108-05-4	Vinyl Acetate	984	870	88	58-160	
78-93-3	2-Butanone (MEK)	220	210	95	70-127	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

Client: Stantec Consulting Services, Inc.

Client Sample ID: Lab Control Sample

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094

ALS Sample ID: P140808-LCS

Test Code: EPA TO-15 Modified

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sample Type: 1.0 L Silonite Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 8/8/14

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	216	199	92	70-119	
141-78-6	Ethyl Acetate	428	407	95	72-129	
110-54-3	n-Hexane	210	187	89	63-115	
67-66-3	Chloroform	216	190	88	68-110	
109-99-9	Tetrahydrofuran (THF)	218	204	94	60-126	
107-06-2	1,2-Dichloroethane	210	195	93	69-118	
71-55-6	1,1,1-Trichloroethane	206	176	85	68-120	
71-43-2	Benzene	220	175	80	69-117	
56-23-5	Carbon Tetrachloride	220	189	86	65-134	
110-82-7	Cyclohexane	416	384	92	69-114	
78-87-5	1,2-Dichloropropane	206	191	93	70-116	
75-27-4	Bromodichloromethane	212	187	88	71-126	
79-01-6	Trichloroethene	206	171	83	71-119	
123-91-1	1,4-Dioxane	216	177	82	72-126	
80-62-6	Methyl Methacrylate	420	351	84	75-136	
142-82-5	n-Heptane	210	167	80	70-117	
10061-01-5	cis-1,3-Dichloropropene	198	177	89	75-132	
108-10-1	4-Methyl-2-pentanone	218	189	87	70-133	
10061-02-6	trans-1,3-Dichloropropene	222	202	91	78-136	
79-00-5	1,1,2-Trichloroethane	204	168	82	72-119	
108-88-3	Toluene	212	173	82	65-116	
591-78-6	2-Hexanone	240	193	80	62-132	
124-48-1	Dibromochloromethane	226	196	87	66-140	
106-93-4	1,2-Dibromoethane	210	183	87	69-130	
123-86-4	n-Butyl Acetate	238	207	87	63-136	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

Client: Stantec Consulting Services, Inc.

Client Sample ID: Lab Control Sample

Client Project ID: Bridgeton / 182608020

ALS Project ID: P1403094

ALS Sample ID: P140808-LCS

Test Code: EPA TO-15 Modified

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sample Type: 1.0 L Silonite Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 8/8/14

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
111-65-9	n-Octane	210	183	87	66-118	
127-18-4	Tetrachloroethene	192	155	81	63-123	
108-90-7	Chlorobenzene	212	174	82	66-118	
100-41-4	Ethylbenzene	208	172	83	66-119	
179601-23-1	m,p-Xylenes	408	332	81	64-118	
75-25-2	Bromoform	212	213	100	64-140	
100-42-5	Styrene	212	183	86	68-132	
95-47-6	o-Xylene	202	172	85	65-120	
111-84-2	n-Nonane	206	177	86	64-117	
79-34-5	1,1,2,2-Tetrachloroethane	196	188	96	63-128	
98-82-8	Cumene	202	173	86	65-121	
80-56-8	alpha-Pinene	196	174	89	66-123	
103-65-1	n-Propylbenzene	202	178	88	65-121	
622-96-8	4-Ethyltoluene	212	186	88	64-122	
108-67-8	1,3,5-Trimethylbenzene	214	174	81	64-125	
95-63-6	1,2,4-Trimethylbenzene	210	173	82	64-131	
100-44-7	Benzyl Chloride	214	215	100	67-146	
541-73-1	1,3-Dichlorobenzene	214	183	86	64-130	
106-46-7	1,4-Dichlorobenzene	214	172	80	61-124	
95-50-1	1,2-Dichlorobenzene	208	173	83	63-126	
5989-27-5	d-Limonene	212	184	87	62-133	
96-12-8	1,2-Dibromo-3-chloropropane	210	204	97	62-155	
120-82-1	1,2,4-Trichlorobenzene	212	191	90	59-146	
91-20-3	Naphthalene	190	200	105	56-143	
87-68-3	Hexachlorobutadiene	212	181	85	58-133	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Response Factor Report GCMS-16

Method Path : I:\MS16\METHODS\
Method File : R16071814.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Jul 21 20:04:57 2014
Response Via : Initial Calibration

Calibration Files

0.08=07181405.D 0.10=07181406.D 0.20=07181407.D 0.40=07181408.D 1.0 =07181409.D 5.0 =07181410.D
25 =07181411.D 50 =07181412.D 100 =07181413.D

Compound	0.08	0.10	0.20	0.40	1.0	5.0	25	50	100	Avg	%RSD
1) IR Bromochloromethane...											
2) T Propene	1.870	1.881	1.693	1.532	1.391	1.260	1.085	1.530	1.085	1.530	19.89
3) T Dichlorodifluo...	3.516	4.423	3.469	3.416	3.127	2.921	2.893	2.548	2.197	3.168	20.31
4) T Chloromethane	2.708	3.235	2.727	2.692	2.247	2.142	2.052	1.932	1.537	2.363	21.91
5) T 1,2-Dichloro-1...	1.752	2.132	1.790	1.932	1.591	1.600	1.416	1.461	1.283	1.662	16.09
6) T Vinyl Chloride	2.411	2.851	2.408	2.564	2.130	2.171	1.925	1.907	1.726	2.233	16.04
7) T 1,3-Butadiene	2.003	2.377	1.861	1.941	1.538	1.557	1.396	1.447	1.176	1.700	21.93
8) T Bromomethane	1.674	1.947	1.738	1.789	1.393	1.404	1.425	1.464	1.214	1.561	15.13
9) T Chloroethane	1.409	1.637	1.533	1.327	1.177	1.209	1.054	1.062	0.923	1.259	18.79
10) T Ethanol	1.402	1.386	1.224	1.145	0.991	0.900	0.991	0.900	0.780	1.118	21.37
11) T Acetonitrile	4.117	3.707	3.074	2.780	2.542	2.440	2.182	2.977	2.371	2.977	23.71
12) T Acrolein	1.438	1.279	1.063	1.003	0.888	0.844	0.826	0.797	0.717	0.984	24.36
13) T Acetone	1.282	1.254	1.112	1.064	0.917	0.845	0.845	0.674	1.021	1.021	21.72
14) T Trichlorofluor...	2.454	2.966	2.776	2.496	2.137	2.090	1.963	1.986	1.785	2.295	17.43
15) T 2-Propanol (Is...	4.370	5.266	4.614	4.737	3.975	3.728	3.344	3.234	2.338	3.956	22.77
16) T Acrylonitrile	2.445	2.530	2.158	2.276	2.088	1.977	1.873	1.783	1.605	2.082	14.68
17) T 1,1-Dichloroet...	1.716	1.914	1.696	1.679	1.363	1.386	1.411	1.288	1.182	1.515	16.04
18) T 2-Methyl-2-Pro...	4.507	5.145	4.508	4.509	3.943	3.491	3.286	3.006	1.830	3.803	26.63
19) T Methylene Chlo...	2.039	1.823	1.519	1.393	1.295	1.285	1.285	1.134	1.497	21.66	21.66
20) T 3-Chloro-1-pro...	2.490	2.384	2.035	1.993	1.867	1.772	1.625	2.272	2.502	2.272	25.02
21) T Trichlorotrifl...	1.412	1.624	1.452	1.472	1.258	1.234	1.110	1.073	0.991	1.292	16.40
22) T Carbon Disulfide	7.671	6.420	6.032	5.181	5.082	5.146	4.731	4.124	5.548	20.10	20.10
23) T trans-1,2-Dich...	2.252	2.622	2.334	2.315	2.086	2.013	1.893	1.914	1.728	2.129	13.01
24) T 1,1-Dichloroet...	2.954	3.380	2.980	2.942	2.448	2.429	2.202	2.293	2.062	2.632	16.88
25) T Methyl tert-Bu...	4.857	5.864	4.617	4.912	4.552	4.002	3.704	3.753	3.223	4.387	18.25
26) T Vinyl Acetate	0.360	0.381	0.332	0.371	0.346	0.307	0.296	0.278	0.228	0.322	15.36
27) T 2-Butanone (MEK)	0.911	1.145	0.994	1.038	0.973	0.940	0.834	0.782	0.754	0.930	13.51
28) T cis-1,2-Dichlo...	2.197	2.536	2.346	2.182	1.952	1.870	1.745	1.730	1.554	2.012	16.04
29) T Diisopropyl Ether	1.495	1.905	1.544	1.537	1.413	1.293	1.181	1.117	0.903	1.377	21.27
30) T Ethyl Acetate	0.520	0.684	0.582	0.594	0.550	0.519	0.443	0.387	0.315	0.510	22.13
31) T n-Hexane	2.773	2.550	2.088	1.861	1.548	1.501	1.355	1.501	1.355	1.954	27.89
32) T Chloroform	2.703	3.212	2.744	2.609	2.481	2.267	2.157	2.006	1.854	2.448	17.26
33) S 1,2-Dichloroet...	1.520	1.430	1.382	1.493	1.469	1.507	1.446	1.389	1.435	1.452	3.38
34) T Tetrahydrofura...	1.131	1.061	0.954	0.906	0.845	0.823	0.766	0.927	14.22	14.22	14.22
35) T Ethyl tert-But...	1.896	2.192	1.855	1.892	1.734	1.622	1.544	1.482	1.322	1.726	15.27
36) T 1,2-Dichloroet...	1.873	2.163	1.838	1.884	1.710	1.662	1.543	1.438	1.404	1.724	14.12
37) IR 1,4-Difluorobenzen...											
38) T 1,1,1-Trichlor...	0.453	0.624	0.566	0.471	0.434	0.400	0.417	0.410	0.348	0.458	18.79

Method Path : I:\MS16\METHODS\

Method File : R16071814.M

Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

39) T	Isopropyl Acetate				0.239	0.229	0.195	0.167	0.160	0.144	0.116	0.179	25.11
40) T	1-Butanol				0.419	0.374	0.339	0.274	0.283	0.244	0.183	0.302	26.68
41) T	Benzene	1.412	1.671		1.463	1.270	1.175	1.000	0.968	0.880	0.641	1.164	27.80
42) T	Carbon Tetrach...	0.346	0.471		0.441	0.379	0.345	0.326	0.342	0.342	0.289	0.365	15.77
43) T	Cyclohexane				0.574	0.509	0.436	0.403	0.405	0.391	0.292	0.430	21.01
44) T	tert-Amyl Meth...	0.972	1.267		1.112	1.049	0.905	0.829	0.837	0.753	0.642	0.929	20.71
45) T	1,2-Dichloropr...	0.320	0.411		0.352	0.328	0.302	0.279	0.274	0.259	0.233	0.306	17.59
46) T	Bromodichlorom...	0.392	0.540		0.462	0.423	0.391	0.363	0.374	0.358	0.314	0.402	16.52
47) T	Trichloroethene	0.352	0.446		0.399	0.357	0.332	0.305	0.306	0.287	0.253	0.338	17.48
48) T	1,4-Dioxane	0.260	0.324		0.329	0.308	0.269	0.239	0.237	0.237	0.186	0.266	17.87
49) T	2,2,4-Trimethy...	1.541	1.823		1.535	1.438	1.322	1.159	1.163	1.103	0.857	1.327	21.87
50) T	Methyl Methacr...	0.118	0.151		0.151	0.145	0.128	0.117	0.116	0.111	0.091	0.126	16.30
51) T	n-Heptane	0.323	0.390		0.327	0.313	0.278	0.239	0.226	0.226	0.188	0.279	23.10
52) T	cis-1,3-Dichlo...	0.453	0.631		0.540	0.531	0.467	0.433	0.446	0.431	0.377	0.479	15.87
53) T	4-Methyl-2-pen...	0.298	0.398		0.362	0.316	0.301	0.251	0.262	0.260	0.198	0.294	20.55
54) T	trans-1,3-Dich...	0.396	0.512		0.478	0.457	0.404	0.396	0.407	0.418	0.351	0.424	11.59
55) T	1,1,2-Trichlor...	0.300	0.427		0.390	0.352	0.294	0.275	0.274	0.283	0.227	0.313	20.24

56) IR	Chlorobenzene-d5	2.341	2.439	2.197	2.374	2.370	2.323	2.301	2.150	2.304	2.311	3.87
57) S	Toluene-d8 (SS2)	3.923	4.585	3.573	3.564	3.257	2.957	2.756	2.366	2.169	3.239	23.70
58) T	Toluene	0.925	1.040	0.945	0.925	0.852	0.841	0.850	0.807	0.731	0.879	22.83
59) T	2-Hexanone	0.949	1.062	0.962	0.966	0.878	0.853	0.822	0.781	0.714	0.888	10.23
60) T	Dibromochlorom...	2.616	2.799	2.275	2.216	2.073	1.691	1.704	1.512	1.346	2.026	12.15
61) T	1,2-Dibromoethane	0.851	0.896	0.764	0.741	0.673	0.614	0.580	0.499	0.461	0.676	24.61
62) T	n-Butyl Acetate	1.159	1.363	1.090	1.177	1.043	0.981	0.949	0.841	0.797	1.044	22.33
63) T	n-Octane	2.320	2.747	2.444	2.322	2.140	1.986	1.922	1.780	1.549	2.135	16.94
64) T	Tetrachloroethene	3.910	4.897	4.293	3.986	3.643	3.381	3.208	2.851	2.396	3.618	17.19
65) T	Chlorobenzene	3.241	3.864	3.358	3.195	2.952	2.671	2.529	2.178	1.802	2.866	22.25
66) T	Ethylbenzene	0.729	0.896	0.766	0.750	0.742	0.752	0.816	0.690	0.673	0.757	8.79
67) T	m- & p-Xylenes	2.410	2.946	2.517	2.401	2.363	2.157	2.106	1.759	1.584	2.249	18.14
68) T	Bromoform	3.344	3.927	3.377	3.248	3.074	2.821	2.672	2.222	1.915	2.956	21.03
69) T	Styrene	2.252	2.249	1.877	1.708	1.640	1.461	1.353	1.128	0.935	1.623	28.22
70) T	o-Xylene	1.664	1.924	1.668	1.606	1.534	1.427	1.358	1.160	0.954	1.477	19.77
71) T	n-Nonane	0.959	0.953	0.940	0.921	0.961	0.974	1.053	0.957	1.033	0.972	4.40
72) T	1,1,2,2-Tetrac...	4.358	5.073	4.452	4.058	3.929	3.625	3.582	2.841	2.492	3.823	20.97
73) S	Bromofluoroben...	1.906	2.298	2.058	1.981	1.893	1.759	1.755	1.473	1.295	1.824	16.53
74) T	Cumene	5.373	6.341	5.390	5.130	4.883	4.444	4.261	3.433	2.871	4.681	22.72
75) T	alpha-Pinene	4.155	4.937	4.146	4.095	3.878	3.527	3.531	2.855	2.286	3.712	21.07
76) T	n-Propylbenzene	4.017	4.941	4.122	3.992	3.823	3.470	3.056	2.599	2.230	3.583	23.43
77) T	3-Ethyltoluene	3.589	4.198	3.502	3.481	3.256	2.950	2.772	2.345	1.957	3.117	22.06
78) T	4-Ethyltoluene	1.768	2.180	1.871	1.839	1.776	1.550	1.563	1.322	1.104	1.664	19.21
79) T	1,3,5-Trimethy...	4.085	4.870	4.046	4.022	3.813	3.425	3.160	2.644	2.181	3.583	22.97
80) T	alpha-Methylst...	3.488	4.186	3.514	3.468	3.292	2.954	2.644	2.088	1.586	3.025	26.57
81) T	2-Ethyltoluene	2.068	2.416	2.002	1.922	1.785	1.605	1.463	1.193	0.932	1.709	27.02
82) T	1,2,4-Trimethy...	2.621	2.954	2.543	2.604	2.512	2.486	2.412	1.954	1.603	2.410	16.54
83) T	n-Decane	2.102	2.497	2.124	2.066	1.993	1.818	1.669	1.383	1.137	1.865	22.29
84) T	Benzyl Chloride	2.294	2.633	2.266	2.223	2.113	1.951	1.811	1.529	1.296	2.013	20.59
85) T	1,3-Dichlorobe...											
86) T	1,4-Dichlorobe...											

Response Factor Report GCMS-16

Method Path : I:\MS16\METHODS\

Method File : R16071814.M

Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

87) T	sec-Butylbenzene	4.662	5.634	4.675	4.564	4.356	3.898	3.600	2.973	2.387	4.083	24.15
88) T	4-Isopropyltol...	4.283	5.459	4.629	4.452	4.164	3.656	3.292	2.441	1.788	3.796	30.04
89) T	1,2,3-Trimethy...	3.765	4.546	3.861	3.721	3.533	3.124	2.850	2.175	1.634	3.245	27.91
90) T	1,2-Dichlorobe...	2.027	2.497	2.178	2.095	1.955	1.778	1.619	1.263	0.964	1.819	26.13
91) T	d-Limonene	1.362	1.652	1.360	1.336	1.282	1.085	1.067	0.827	0.610	1.176	26.81
92) T	1,2-Dibromo-3-...	0.673	0.801	0.754	0.738	0.722	0.676	0.646	0.574	0.511	0.677	13.43
93) T	n-Undecane	2.282	2.686	2.220	2.091	1.983	1.744	1.599	1.310	1.035	1.883	27.33
94) T	1,2,4-Trichlor...	1.569	2.000	1.737	1.699	1.629	1.444	1.260	1.092	0.977	1.490	22.11
95) T	Naphthalene			5.481	5.431	5.245	4.396	3.604	2.829	2.157	4.163	32.05
96) T	n-Dodecane	2.041	2.324	2.031	1.932	1.870	1.615	1.490	1.137	0.843	1.698	27.94
97) T	Hexachlorobuta...	0.938	1.165	1.048	1.004	0.961	0.874	0.882	0.767	0.672	0.923	15.96
98) T	Cyclohexanone			1.503	1.394	1.277	0.961	1.020	0.850	0.767	1.110	25.44
99) T	tert-Butylbenzene	3.405	4.130	3.498	3.351	3.173	2.862	2.557	2.005	1.519	2.944	27.42
100) T	n-Butylbenzene	3.798	4.680	3.978	3.747	3.560	3.125	2.878	2.288	1.874	3.325	26.35

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File: I:\MS16\DATA\2014_08\08\08081402.D

Acq On : 8 Aug 2014 15:42

Operator: SC

Sample : 25ng TO15 CCV Std (125ml)

Misc : S29-07011401/S29-07251401 (8/23)

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Aug 08 16:14:12 2014

Quant Method : I:\MS16\METHODS\R16071814.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Mon Jul 21 20:04:57 2014

Response via : Initial Calibration

DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 IR	Bromochloromethane (IS1)	1.000	1.000	0.0	108	0.00
2 T	Propene	1.530	1.589	-3.9	123	0.00
3 T	Dichlorodifluoromethane (CF	3.168	2.903	8.4	108	0.00
4 T	Chloromethane	2.363	2.435	-3.0	128	0.00
5 T	1,2-Dichloro-1,1,2,2-tetra	1.662	1.461	12.1	111	0.00
6 T	Vinyl Chloride	2.233	2.369	-6.1	132	0.00
7 T	1,3-Butadiene	1.700	1.665	2.1	128	0.00
8 T	Bromomethane	1.561	1.471	5.8	111	0.00
9 T	Chloroethane	1.259	1.226	2.6	125	0.00
10 T	Ethanol	1.118	1.181	-5.6	128	0.01
11 T	Acetonitrile	2.977	3.053	-2.6	129	0.00
12 T	Acrolein	0.984	0.936	4.9	122	0.00
13 T	Acetone	1.021	1.076	-5.4	126	0.00
14 T	Trichlorofluoromethane	2.295	2.154	6.1	118	0.00
15 T	2-Propanol (Isopropanol)	3.956	3.919	0.9	126	0.01
16 T	Acrylonitrile	2.082	2.145	-3.0	123	0.00
17 T	1,1-Dichloroethene	1.515	1.387	8.4	106	0.00
18 T	2-Methyl-2-Propanol (tert-B	3.803	3.735	1.8	122	0.00
19 T	Methylene Chloride	1.497	1.430	4.5	119	0.00
20 T	3-Chloro-1-propene (Allyl C	2.272	2.170	4.5	125	0.00
21 T	Trichlorotrifluoroethane	1.292	1.131	12.5	110	0.00
22 T	Carbon Disulfide	5.548	5.396	2.7	113	0.00
23 T	trans-1,2-Dichloroethene	2.129	2.140	-0.5	122	0.00
24 T	1,1-Dichloroethane	2.632	2.506	4.8	122	0.00
25 T	Methyl tert-Butyl Ether	4.387	4.071	7.2	118	0.00
26 T	Vinyl Acetate	0.322	0.325	-0.9	118	0.00
27 T	2-Butanone (MEK)	0.930	0.937	-0.8	121	0.00
28 T	cis-1,2-Dichloroethene	2.012	1.967	2.2	121	0.00
29 T	Diisopropyl Ether	1.377	1.270	7.8	116	0.00
30 T	Ethyl Acetate	0.510	0.514	-0.8	125	0.00
31 T	n-Hexane	1.954	1.814	7.2	126	0.00
32 T	Chloroform	2.448	2.333	4.7	116	0.00
33 S	1,2-Dichloroethane-d4 (SS1)	1.452	1.569	-8.1	117	0.00
34 T	Tetrahydrofuran (THF)	0.927	0.924	0.3	118	0.00
35 T	Ethyl tert-Butyl Ether	1.726	1.620	6.1	113	0.00
36 T	1,2-Dichloroethane	1.724	1.695	1.7	118	0.00
37 IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	114	0.00
38 T	1,1,1-Trichloroethane	0.458	0.418	8.7	115	0.00
39 T	Isopropyl Acetate	0.179	0.173	3.4	124	0.00
40 T	1-Butanol	0.302	0.296	2.0	120	0.00
41 T	Benzene	1.164	1.002	13.9	118	0.00
42 T	Carbon Tetrachloride	0.365	0.344	5.8	115	0.00
43 T	Cyclohexane	0.430	0.416	3.3	118	0.00
44 T	tert-Amyl Methyl Ether	0.929	0.856	7.9	117	0.00
45 T	1,2-Dichloropropane	0.306	0.295	3.6	124	0.00
46 T	Bromodichloromethane	0.402	0.379	5.7	116	0.00
47 T	Trichloroethene	0.338	0.297	12.1	111	0.00
48 T	1,4-Dioxane	0.266	0.240	9.8	116	0.00
49 T	2,2,4-Trimethylpentane (Iso	1.327	1.249	5.9	123	0.00
50 T	Methyl Methacrylate	0.126	0.111	11.9	110	0.00

Evaluate Continuing Calibration Report

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Acq On : 8 Aug 2014 15:42

Operator: SC

Sample : 25ng TO15 CCV Std (125ml)

Misc : S29-07011401/S29-07251401 (8/23)

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Aug 08 16:14:12 2014

Quant Method : I:\MS16\METHODS\R16071814.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Mon Jul 21 20:04:57 2014

Response via : Initial Calibration

DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51 T	n-Heptane	0.279	0.237	15.1	120	0.00
52 T	cis-1,3-Dichloropropene	0.479	0.446	6.9	114	0.00
53 T	4-Methyl-2-pentanone	0.294	0.281	4.4	123	0.00
54 T	trans-1,3-Dichloropropene	0.424	0.419	1.2	118	0.00
55 T	1,1,2-Trichloroethane	0.313	0.281	10.2	117	0.00
56 IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	120	0.00
57 S	Toluene-d8 (SS2)	2.311	2.172	6.0	113	0.00
58 T	Toluene	3.239	2.625	19.0	114	0.00
59 T	2-Hexanone	1.737	1.674	3.6	130	0.00
60 T	Dibromochloromethane	0.879	0.832	5.3	117	0.00
61 T	1,2-Dibromoethane	0.888	0.797	10.2	116	0.00
62 T	n-Butyl Acetate	2.026	1.838	9.3	129	0.00
63 T	n-Octane	0.676	0.588	13.0	121	0.00
64 T	Tetrachloroethene	1.044	0.838	19.7	106	0.00
65 T	Chlorobenzene	2.135	1.855	13.1	115	0.00
66 T	Ethylbenzene	3.618	3.183	12.0	119	0.00
67 T	m- & p-Xylenes	2.866	2.512	12.4	119	0.00
68 T	Bromoform	0.757	0.756	0.1	111	0.00
69 T	Styrene	2.249	1.954	13.1	111	0.00
70 T	o-Xylene	2.956	2.597	12.1	116	0.00
71 T	n-Nonane	1.623	1.454	10.4	129	0.00
72 T	1,1,2,2-Tetrachloroethane	1.477	1.385	6.2	122	0.00
73 S	Bromofluorobenzene (SS3)	0.972	0.960	1.2	109	0.00
74 T	Cumene	3.823	3.374	11.7	113	0.00
75 T	alpha-Pinene	1.824	1.626	10.9	111	0.00
76 T	n-Propylbenzene	4.681	4.177	10.8	117	0.00
77 T	3-Ethyltoluene	3.712	3.173	14.5	107	0.00
78 T	4-Ethyltoluene	3.583	3.175	11.4	124	0.00
79 T	1,3,5-Trimethylbenzene	3.117	2.634	15.5	114	0.00
80 T	alpha-Methylstyrene	1.664	1.324	20.4	101	0.00
81 T	2-Ethyltoluene	3.583	3.035	15.3	115	0.00
82 T	1,2,4-Trimethylbenzene	3.025	2.532	16.3	114	0.00
83 T	n-Decane	1.709	1.494	12.6	122	0.00
84 T	Benzyl Chloride	2.410	2.462	-2.2	122	0.00
85 T	1,3-Dichlorobenzene	1.865	1.595	14.5	114	0.00
86 T	1,4-Dichlorobenzene	2.013	1.727	14.2	114	0.00
87 T	sec-Butylbenzene	4.083	3.456	15.4	115	0.00
88 T	4-Isopropyltoluene (p-Cymen	3.796	3.093	18.5	112	0.00
89 T	1,2,3-Trimethylbenzene	3.245	2.734	15.7	115	0.00
90 T	1,2-Dichlorobenzene	1.819	1.570	13.7	116	0.00
91 T	d-Limonene	1.176	0.979	16.8	110	0.00
92 T	1,2-Dibromo-3-Chloropropane	0.677	0.640	5.5	118	0.00
93 T	n-Undecane	1.883	1.627	13.6	122	0.00
94 T	1,2,4-Trichlorobenzene	1.490	1.314	11.8	125	0.00
95 T	Naphthalene	4.163	3.801	8.7	126	0.00
96 T	n-Dodecane	1.698	1.483	12.7	119	0.00
97 T	Hexachlorobutadiene	0.923	0.788	14.6	107	0.00
98 T	Cyclohexanone	1.110	1.022	7.9	120	0.00
99 T	tert-Butylbenzene	2.944	2.393	18.7	112	0.00
100 T	n-Butylbenzene	3.325	2.822	15.1	117	0.00

Evaluate Continuing Calibration Report

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Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev Area%	Dev(min)

(#) = Out of Range

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