2655 Park Center Dr., Suite A
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www.alsglobal.com

LABORATORY REPORT

October 28, 2016

Dennis Tabor
US Environmental Protection Agency (E-343-03)
Office of Research and Development
National Risk Management Research Laboratory
109 T.W. Alexander Drive
Research Traingle Park, NC 27711

Dear Dennis:

Enclosed are the results of the samples submitted to our laboratory on October 12, 2016. For your reference, these analyses have been assigned our service request numbeP1604824.

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.

By Sue Anderson at 10:37 am, Oct 28, 2016

Sue Anderson
Project Manager

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Client: US Environmental Protection Agency (E-343-03) Service Request No: P1604824
Project:

CASE NARRATIVE

The samples were received intact under chain of custody on October 12, 2016 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.

Volatile Organic Compound Analysis

The samples were analyzed for volatile organic compounds in accordance with the methodology outlined in EPA Method TO-17. This procedure is described in laboratory SOP VOA-TO17. The analyses were performed by thermal desorption/gas chromatography/mass spectrometry. This analysis is included on the laboratory's NELAP and DoD-ELAP scope of accreditation, however it is not part of the AIHA-LAP, LLC accreditation.

The spike recovery of multiple analytes for the Laboratory Control Sample (LCS) and Duplicate Laboratory Control Sample (DLCS) analyzed on October 13, 2016 were outside the laboratory generated control criteria. The recovery errors equate to a potential high bias. However, the spike recovery of the analytes in question were within the method criteria; therefore, the data quality has not been significantly affected. No corrective action was taken.

The toluene result is estimated for sample PS-SW-VOC-100616-01 (P1604824-003) because the concentration exceeded the instrument calibration range by 140%. Insufficient sample remained for additional analysis.

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-LAP, LLC	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
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	2014025
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	977273
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	4068-003
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	T104704413-16-7
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272016-6
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.

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DETAIL SUMMARY REPORT

Client: US Environmental Protection Agency (E-343-03) Service Request: P1604824

Date Received: 10/12/2016
Time Received: 10:05

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	TO-17 - VOC Sorbent
PS-SW-VOC-093016-01	P1604824-001	Air	9/30/2016	00:00	X
PS-SW-VOC-093016-02	P1604824-002	Air	9/30/2016	00:00	X
PS-SW-VOC-100616-01	P1604824-003	Air	10/6/2016	00:00	X
PS-SW-VOC-100616-02	P1604824-004	Air	10/6/2016	00:00	X
BS-VOC-100616	P1604824-005	Air	10/6/2016	00:00	X
TS-VOC-101116	P1604824-006	Air	10/11/2016	00:00	X

ALS Environmental

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Chain of Custody Record & Analytical Service Request

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. P1604824

Company Name & Address (Reporting Information): US EPA, 4930 Old Page Road, Durham NC 27703

Project Name:

ALS Contact:

Project Number:

Project Manager: Dennis Tabor

P.O. # / Billing Information:

Phone: 919-541-2686

Fax:

Email Address for Result Reporting: tabor.dennis@epa.gov

Sampler (Print & Sign): Johanna Avrell

Analysis Method/Analytes: TO-17

Client Sample ID	Laboratory ID #	Tube ID	Date Collected	Sampling Pump Flow (mL/min)	Sampling Start Time	Sampling End Time	Sample Volume	TO-17		Comments e.g. Actual Preservative or specific instructions
PS-SW-VOC-093016-01	1	M1176407	093016	250				X		
PS-SW-VOC-093016-02	2	M1176404	093016	150			2.5 L	X		
PS-SW-VOC-100616-01	3	M1176403	100616	0.2			2.1 L	X		
PS-SW-VOC-100616-02	4	M181524	100616	0.2			2.0 L	X		
BS-VOC-100616	5	M180767	100616	0.2			5.8 L	X		
TS-VOC-101116	6	M172447						X		Trip blank

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: _____

Project Requirements (MRLs, QAPP): 3 gal

Reliquished by: (Signature)	Date	Time	Received by: (Signature)	Time
	10/11/16	9:40	10/12/16	1085

Cooler / Blank Temperature _____ °C

ALS Environmental
Sample Acceptance Check Form

Client: US Environmental Protection Agency (E-343-03) Work order: P1604824
Project:
Sample(s) received on: 10/12/16 Date opened: 10/12/16 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	Did **sample containers** arrive in good condition?	☐	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☐	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☐	☐	☐
5	Was **sample volume** received adequate for analysis?	☐	☐	☐
6	Are samples within specified holding times?	☐	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☐
	Cooler Temperature: 3° C Blank Temperature: ° C **Gel Packs**			
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☐	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☐
	Were signature and date included?	☐	☐	☐
	Were seals intact?	☐	☐	☐
9	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 if necessary alter it?	☐	☐	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☐
11	**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
P1604824-001.01	Tube, TD					
P1604824-002.01	Tube, TD					
P1604824-003.01	Tube, TD					
P1604824-004.01	Tube, TD					
P1604824-005.01	Tube, TD					
P1604824-006.01	Tube, TD					

Explain any discrepancies: (include lab sample ID numbers):
Collection times were not listed on the chain of custody or the sample bags.

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **US Environmental Protection Agency (E-343-03)**
Client Sample ID: **PS-SW-VOC-093016-01**

ALS Project ID: P1604824
ALS Sample ID: P1604824-001

Test Code: EPA TO-17
Instrument ID: Markes ATD/Agilent 5975Cinert/7890A/MS18
Analyst: Rui Malinowski
Sampling Media: TD Carbo 300 Sorbent Tube
Test Notes:

Date Collected: 9/30/16
Date Received: 10/12/16
Date Analyzed: 10/13/16
Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Result ng/Tube	MRL ng/Tube	MDL ng/Tube	Result µg/m³	MRL µg/m³	MDL µg/m³	Data Qualifier
75-71-8	Dichlorodifluoromethane(CFC 12)	**8.8**	1.0	0.12	NA	NA	NA	
74-87-3	Chloromethane	**3.8**	1.0	0.27	NA	NA	NA	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	**0.26**	1.0	0.16	NA	NA	NA	**J**
75-01-4	Vinyl Chloride	ND	1.0	0.14	NA	NA	NA	
106-99-0	1,3-Butadiene	**15**	1.1	0.28	NA	NA	NA	
75-00-3	Chloroethane	**2.4**	1.0	0.20	NA	NA	NA	
64-17-5	Ethanol	**13**	5.2	0.73	NA	NA	NA	
75-05-8	Acetonitrile	**31**	2.1	0.23	NA	NA	NA	
67-64-1	Acetone	**38**	5.3	1.9	NA	NA	NA	
75-69-4	Trichlorofluoromethane	**3.4**	1.0	0.079	NA	NA	NA	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	0.52	NA	NA	NA	
75-35-4	1,1-Dichloroethene	ND	1.1	0.17	NA	NA	NA	
75-09-2	Methylene Chloride	**2.9**	1.1	0.13	NA	NA	NA	
76-13-1	Trichlorotrifluoroethane	**1.8**	1.0	0.14	NA	NA	NA	
75-15-0	Carbon Disulfide	ND	5.3	0.80	NA	NA	NA	
156-60-5	trans-1,2-Dichloroethene	ND	1.1	0.12	NA	NA	NA	
75-34-3	1,1-Dichloroethane	ND	1.0	0.059	NA	NA	NA	
1634-04-4	Methyl tert-Butyl Ether	ND	1.1	0.070	NA	NA	NA	
78-93-3	2-Butanone (MEK)	**7.6**	1.0	0.20	NA	NA	NA	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	0.093	NA	NA	NA	
110-54-3	n-Hexane	**1.6**	1.1	0.12	NA	NA	NA	
67-66-3	Chloroform	**0.14**	1.1	0.11	NA	NA	NA	**J**
109-99-9	Tetrahydrofuran (THF)	**0.54**	1.1	0.25	NA	NA	NA	**J**
107-06-2	1,2-Dichloroethane	ND	1.1	0.15	NA	NA	NA	
71-55-6	1,1,1-Trichloroethane	ND	1.1	0.12	NA	NA	NA	
71-43-2	Benzene	**170**	2.1	0.94	NA	NA	NA	
56-23-5	Carbon Tetrachloride	**1.7**	1.1	0.098	NA	NA	NA	
110-82-7	Cyclohexane	ND	2.1	0.18	NA	NA	NA	
78-87-5	1,2-Dichloropropane	ND	1.1	0.20	NA	NA	NA	
75-27-4	Bromodichloromethane	ND	1.1	0.095	NA	NA	NA	
79-01-6	Trichloroethene	ND	1.1	0.13	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **US Environmental Protection Agency (E-343-03)**

Client Sample ID: **PS-SW-VOC-093016-01**

ALS Project ID: P1604824
ALS Sample ID: P1604824-001

Test Code: EPA TO-17
Instrument ID: Markes ATD/Agilent 5975Cinert/7890A/MS18
Analyst: Rui Malinowski
Sampling Media: TD Carbo 300 Sorbent Tube
Test Notes:

Date Collected: 9/30/16
Date Received: 10/12/16
Date Analyzed: 10/13/16
Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Result ng/Tube	MRL ng/Tube	MDL ng/Tube	Result µg/m³	MRL µg/m³	MDL µg/m³	Data Qualifier
123-91-1	1,4-Dioxane	ND	1.1	0.20	NA	NA	NA	
540-84-1	2,2,4-Trimethylpentane (Isooctane)	**0.54**	1.1	0.13	NA	NA	NA	**J**
142-82-5	n-Heptane	**4.0**	1.1	0.14	NA	NA	NA	
10061-01-5	cis-1,3-Dichloropropene	ND	1.1	0.11	NA	NA	NA	
108-10-1	4-Methyl-2-pentanone	**0.77**	2.1	0.16	NA	NA	NA	**J**
10061-02-6	trans-1,3-Dichloropropene	ND	1.1	0.11	NA	NA	NA	
79-00-5	1,1,2-Trichloroethane	ND	1.1	0.20	NA	NA	NA	
108-88-3	Toluene	**57**	1.1	0.47	NA	NA	NA	
591-78-6	2-Hexanone	ND	1.1	0.23	NA	NA	NA	
124-48-1	Dibromochloromethane	ND	1.1	0.068	NA	NA	NA	
106-93-4	1,2-Dibromoethane	ND	1.1	0.098	NA	NA	NA	
111-65-9	n-Octane	**11**	1.1	0.21	NA	NA	NA	
127-18-4	Tetrachloroethene	ND	1.1	0.12	NA	NA	NA	
108-90-7	Chlorobenzene	ND	1.1	0.084	NA	NA	NA	
100-41-4	Ethylbenzene	**13**	1.1	0.11	NA	NA	NA	
179601-23-1	m,p-Xylenes	**28**	2.1	0.17	NA	NA	NA	
75-25-2	Bromoform	ND	1.1	0.14	NA	NA	NA	
100-42-5	Styrene	**28**	1.1	0.078	NA	NA	NA	
95-47-6	o-Xylene	**12**	1.1	0.071	NA	NA	NA	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.1	0.14	NA	NA	NA	
98-82-8	Cumene	**2.7**	1.1	0.28	NA	NA	NA	
108-67-8	1,3,5-Trimethylbenzene	**6.4**	1.0	0.27	NA	NA	NA	
95-63-6	1,2,4-Trimethylbenzene	**23**	1.1	0.14	NA	NA	NA	
541-73-1	1,3-Dichlorobenzene	ND	1.1	0.15	NA	NA	NA	
106-46-7	1,4-Dichlorobenzene	ND	1.1	0.14	NA	NA	NA	
95-50-1	1,2-Dichlorobenzene	ND	1.1	0.17	NA	NA	NA	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.1	0.21	NA	NA	NA	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.41	NA	NA	NA	
91-20-3	Naphthalene	**80**	1.1	0.37	NA	NA	NA	
87-68-3	Hexachlorobutadiene	ND	1.1	0.30	NA	NA	NA	

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ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **US Environmental Protection Agency (E-343-03)**
Client Sample ID: **PS-SW-VOC-093016-02**

ALS Project ID: P1604824
ALS Sample ID: P1604824-002

Test Code: EPA TO-17
Instrument ID: Markes ATD/Agilent 5975Cinert/7890A/MS18
Analyst: Rui Malinowski
Sampling Media: TD Carbo 300 Sorbent Tube
Test Notes:

Date Collected: 9/30/16
Date Received: 10/12/16
Date Analyzed: 10/13/16
Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Result ng/Tube	MRL ng/Tube	MDL ng/Tube	Result µg/m³	MRL µg/m³	MDL µg/m³	Data Qualifier
75-71-8	Dichlorodifluoromethane(CFC 12)	**5.1**	1.0	0.12	NA	NA	NA	
74-87-3	Chloromethane	**3.6**	1.0	0.27	NA	NA	NA	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	**0.18**	1.0	0.16	NA	NA	NA	**J**
75-01-4	Vinyl Chloride	ND	1.0	0.14	NA	NA	NA	
106-99-0	1,3-Butadiene	**4.6**	1.1	0.28	NA	NA	NA	
75-00-3	Chloroethane	**0.44**	1.0	0.20	NA	NA	NA	**J**
64-17-5	Ethanol	**3.2**	5.2	0.73	NA	NA	NA	**J**
75-05-8	Acetonitrile	**11**	2.1	0.23	NA	NA	NA	
67-64-1	Acetone	**18**	5.3	1.9	NA	NA	NA	
75-69-4	Trichlorofluoromethane	**1.4**	1.0	0.079	NA	NA	NA	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	0.52	NA	NA	NA	
75-35-4	1,1-Dichloroethene	ND	1.1	0.17	NA	NA	NA	
75-09-2	Methylene Chloride	**3.2**	1.1	0.13	NA	NA	NA	
76-13-1	Trichlorotrifluoroethane	**1.1**	1.0	0.14	NA	NA	NA	
75-15-0	Carbon Disulfide	ND	5.3	0.80	NA	NA	NA	
156-60-5	trans-1,2-Dichloroethene	ND	1.1	0.12	NA	NA	NA	
75-34-3	1,1-Dichloroethane	ND	1.0	0.059	NA	NA	NA	
1634-04-4	Methyl tert-Butyl Ether	ND	1.1	0.070	NA	NA	NA	
78-93-3	2-Butanone (MEK)	**4.1**	1.0	0.20	NA	NA	NA	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	0.093	NA	NA	NA	
110-54-3	n-Hexane	**0.86**	1.1	0.12	NA	NA	NA	**J**
67-66-3	Chloroform	ND	1.1	0.11	NA	NA	NA	
109-99-9	Tetrahydrofuran (THF)	ND	1.1	0.25	NA	NA	NA	
107-06-2	1,2-Dichloroethane	ND	1.1	0.15	NA	NA	NA	
71-55-6	1,1,1-Trichloroethane	ND	1.1	0.12	NA	NA	NA	
71-43-2	Benzene	**120**	2.1	0.94	NA	NA	NA	
56-23-5	Carbon Tetrachloride	**1.1**	1.1	0.098	NA	NA	NA	
110-82-7	Cyclohexane	ND	2.1	0.18	NA	NA	NA	
78-87-5	1,2-Dichloropropane	ND	1.1	0.20	NA	NA	NA	
75-27-4	Bromodichloromethane	ND	1.1	0.095	NA	NA	NA	
79-01-6	Trichloroethene	ND	1.1	0.13	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
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ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **US Environmental Protection Agency (E-343-03)**
Client Sample ID: **PS-SW-VOC-093016-02**

ALS Project ID: P1604824
ALS Sample ID: P1604824-002

Test Code: EPA TO-17
Instrument ID: Markes ATD/Agilent 5975Cinert/7890A/MS18
Analyst: Rui Malinowski
Sampling Media: TD Carbo 300 Sorbent Tube
Test Notes:

Date Collected: 9/30/16
Date Received: 10/12/16
Date Analyzed: 10/13/16
Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Result ng/Tube	MRL ng/Tube	MDL ng/Tube	Result µg/m³	MRL µg/m³	MDL µg/m³	Data Qualifier
123-91-1	1,4-Dioxane	ND	1.1	0.20	NA	NA	NA	
540-84-1	2,2,4-Trimethylpentane (Isooctane)	**0.29**	1.1	0.13	NA	NA	NA	**J**
142-82-5	n-Heptane	**1.3**	1.1	0.14	NA	NA	NA	
10061-01-5	cis-1,3-Dichloropropene	ND	1.1	0.11	NA	NA	NA	
108-10-1	4-Methyl-2-pentanone	**0.91**	2.1	0.16	NA	NA	NA	**J**
10061-02-6	trans-1,3-Dichloropropene	ND	1.1	0.11	NA	NA	NA	
79-00-5	1,1,2-Trichloroethane	**0.23**	1.1	0.20	NA	NA	NA	**J**
108-88-3	Toluene	**47**	1.1	0.47	NA	NA	NA	
591-78-6	2-Hexanone	**1.4**	1.1	0.23	NA	NA	NA	
124-48-1	Dibromochloromethane	ND	1.1	0.068	NA	NA	NA	
106-93-4	1,2-Dibromoethane	ND	1.1	0.098	NA	NA	NA	
111-65-9	n-Octane	**3.8**	1.1	0.21	NA	NA	NA	
127-18-4	Tetrachloroethene	ND	1.1	0.12	NA	NA	NA	
108-90-7	Chlorobenzene	ND	1.1	0.084	NA	NA	NA	
100-41-4	Ethylbenzene	**7.3**	1.1	0.11	NA	NA	NA	
179601-23-1	m,p-Xylenes	**14**	2.1	0.17	NA	NA	NA	
75-25-2	Bromoform	ND	1.1	0.14	NA	NA	NA	
100-42-5	Styrene	**20**	1.1	0.078	NA	NA	NA	
95-47-6	o-Xylene	**5.6**	1.1	0.071	NA	NA	NA	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.1	0.14	NA	NA	NA	
98-82-8	Cumene	**1.4**	1.1	0.28	NA	NA	NA	
108-67-8	1,3,5-Trimethylbenzene	**2.2**	1.0	0.27	NA	NA	NA	
95-63-6	1,2,4-Trimethylbenzene	**8.8**	1.1	0.14	NA	NA	NA	
541-73-1	1,3-Dichlorobenzene	ND	1.1	0.15	NA	NA	NA	
106-46-7	1,4-Dichlorobenzene	ND	1.1	0.14	NA	NA	NA	
95-50-1	1,2-Dichlorobenzene	ND	1.1	0.17	NA	NA	NA	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.1	0.21	NA	NA	NA	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.41	NA	NA	NA	
91-20-3	Naphthalene	**55**	1.1	0.37	NA	NA	NA	
87-68-3	Hexachlorobutadiene	ND	1.1	0.30	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **US Environmental Protection Agency (E-343-03)**
Client Sample ID: **PS-SW-VOC-100616-01**

ALS Project ID: P1604824
ALS Sample ID: P1604824-003

Test Code: EPA TO-17
Instrument ID: Markes ATD/Agilent 5975Cinert/7890A/MS18
Analyst: Rui Malinowski
Sampling Media: TD Carbo 300 Sorbent Tube
Test Notes:

Date Collected: 10/6/16
Date Received: 10/12/16
Date Analyzed: 10/13/16
Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Result ng/Tube	MRL ng/Tube	MDL ng/Tube	Result µg/m³	MRL µg/m³	MDL µg/m³	Data Qualifier
75-71-8	Dichlorodifluoromethane(CFC 12)	**9.2**	1.0	0.12	NA	NA	NA	
74-87-3	Chloromethane	**8.1**	1.0	0.27	NA	NA	NA	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	**0.42**	1.0	0.16	NA	NA	NA	**J**
75-01-4	Vinyl Chloride	ND	1.0	0.14	NA	NA	NA	
106-99-0	1,3-Butadiene	**21**	1.1	0.28	NA	NA	NA	
75-00-3	Chloroethane	**1.2**	1.0	0.20	NA	NA	NA	
64-17-5	Ethanol	**23**	5.2	0.73	NA	NA	NA	
75-05-8	Acetonitrile	**26**	2.1	0.23	NA	NA	NA	
67-64-1	Acetone	**100**	5.3	1.9	NA	NA	NA	
75-69-4	Trichlorofluoromethane	**3.8**	1.0	0.079	NA	NA	NA	
67-63-0	2-Propanol (Isopropyl Alcohol)	**5.9**	2.1	0.52	NA	NA	NA	
75-35-4	1,1-Dichloroethene	ND	1.1	0.17	NA	NA	NA	
75-09-2	Methylene Chloride	**720**	1.1	0.13	NA	NA	NA	
76-13-1	Trichlorotrifluoroethane	**2.0**	1.0	0.14	NA	NA	NA	
75-15-0	Carbon Disulfide	**1.6**	5.3	0.80	NA	NA	NA	**J, B**
156-60-5	trans-1,2-Dichloroethene	ND	1.1	0.12	NA	NA	NA	
75-34-3	1,1-Dichloroethane	ND	1.0	0.059	NA	NA	NA	
1634-04-4	Methyl tert-Butyl Ether	ND	1.1	0.070	NA	NA	NA	
78-93-3	2-Butanone (MEK)	**7.9**	1.0	0.20	NA	NA	NA	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	0.093	NA	NA	NA	
110-54-3	n-Hexane	**91**	1.1	0.12	NA	NA	NA	
67-66-3	Chloroform	**0.68**	1.1	0.11	NA	NA	NA	
109-99-9	Tetrahydrofuran (THF)	**1.1**	1.1	0.25	NA	NA	NA	
107-06-2	1,2-Dichloroethane	**0.15**	1.1	0.15	NA	NA	NA	**J**
71-55-6	1,1,1-Trichloroethane	ND	1.1	0.12	NA	NA	NA	
71-43-2	Benzene	**240**	2.1	0.94	NA	NA	NA	
56-23-5	Carbon Tetrachloride	**2.4**	1.1	0.098	NA	NA	NA	
110-82-7	Cyclohexane	**13**	2.1	0.18	NA	NA	NA	
78-87-5	1,2-Dichloropropane	**2.0**	1.1	0.20	NA	NA	NA	
75-27-4	Bromodichloromethane	ND	1.1	0.095	NA	NA	NA	
79-01-6	Trichloroethene	**0.42**	1.1	0.13	NA	NA	NA	**J**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **US Environmental Protection Agency (E-343-03)**
Client Sample ID: **PS-SW-VOC-100616-01**

ALS Project ID: P1604824
ALS Sample ID: P1604824-003

Test Code: EPA TO-17
Instrument ID: Markes ATD/Agilent 5975Cinert/7890A/MS18
Analyst: Rui Malinowski
Sampling Media: TD Carbo 300 Sorbent Tube
Test Notes:

Date Collected: 10/6/16
Date Received: 10/12/16
Date Analyzed: 10/13/16
Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Result ng/Tube	MRL ng/Tube	MDL ng/Tube	Result µg/m³	MRL µg/m³	MDL µg/m³	Data Qualifier
123-91-1	1,4-Dioxane	**1.4**	1.1	0.20	NA	NA	NA	
540-84-1	2,2,4-Trimethylpentane (Isooctane)	**3.1**	1.1	0.13	NA	NA	NA	
142-82-5	n-Heptane	**7.6**	1.1	0.14	NA	NA	NA	
10061-01-5	cis-1,3-Dichloropropene	ND	1.1	0.11	NA	NA	NA	
108-10-1	4-Methyl-2-pentanone	**1.8**	2.1	0.16	NA	NA	NA	
10061-02-6	trans-1,3-Dichloropropene	ND	1.1	0.11	NA	NA	NA	
79-00-5	1,1,2-Trichloroethane	ND	1.1	0.20	NA	NA	NA	
108-88-3	Toluene	**1,400**	1.1	0.47	NA	NA	NA	**E**
591-78-6	2-Hexanone	ND	1.1	0.23	NA	NA	NA	
124-48-1	Dibromochloromethane	ND	1.1	0.068	NA	NA	NA	
106-93-4	1,2-Dibromoethane	ND	1.1	0.098	NA	NA	NA	
111-65-9	n-Octane	**30**	1.1	0.21	NA	NA	NA	
127-18-4	Tetrachloroethene	**1.9**	1.1	0.12	NA	NA	NA	
108-90-7	Chlorobenzene	**2.6**	1.1	0.084	NA	NA	NA	
100-41-4	Ethylbenzene	**22**	1.1	0.11	NA	NA	NA	
179601-23-1	m,p-Xylenes	**44**	2.1	0.17	NA	NA	NA	
75-25-2	Bromoform	ND	1.1	0.14	NA	NA	NA	
100-42-5	Styrene	**42**	1.1	0.078	NA	NA	NA	
95-47-6	o-Xylene	**13**	1.1	0.071	NA	NA	NA	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.1	0.14	NA	NA	NA	
98-82-8	Cumene	**2.4**	1.1	0.28	NA	NA	NA	
108-67-8	1,3,5-Trimethylbenzene	**4.4**	1.0	0.27	NA	NA	NA	
95-63-6	1,2,4-Trimethylbenzene	**18**	1.1	0.14	NA	NA	NA	
541-73-1	1,3-Dichlorobenzene	**0.17**	1.1	0.15	NA	NA	NA	**J**
106-46-7	1,4-Dichlorobenzene	**0.35**	1.1	0.14	NA	NA	NA	**J**
95-50-1	1,2-Dichlorobenzene	ND	1.1	0.17	NA	NA	NA	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.1	0.21	NA	NA	NA	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.41	NA	NA	NA	
91-20-3	Naphthalene	**120**	1.1	0.37	NA	NA	NA	
87-68-3	Hexachlorobutadiene	ND	1.1	0.30	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E = Estimated; concentration exceeded calibration range.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **US Environmental Protection Agency (E-343-03)**
Client Sample ID: **PS-SW-VOC-100616-02**

ALS Project ID: P1604824
ALS Sample ID: P1604824-004

Test Code: EPA TO-17
Instrument ID: Markes ATD/Agilent 5975Cinert/7890A/MS18
Analyst: Rui Malinowski
Sampling Media: TD Carbo 300 Sorbent Tube
Test Notes:

Date Collected: 10/6/16
Date Received: 10/12/16
Date Analyzed: 10/13/16
Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Result ng/Tube	MRL ng/Tube	MDL ng/Tube	Result µg/m³	MRL µg/m³	MDL µg/m³	Data Qualifier
75-71-8	Dichlorodifluoromethane(CFC 12)	**4.3**	1.0	0.12	NA	NA	NA	
74-87-3	Chloromethane	**2.0**	1.0	0.27	NA	NA	NA	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	1.0	0.16	NA	NA	NA	
75-01-4	Vinyl Chloride	ND	1.0	0.14	NA	NA	NA	
106-99-0	1,3-Butadiene	**20**	1.1	0.28	NA	NA	NA	
75-00-3	Chloroethane	ND	1.0	0.20	NA	NA	NA	
64-17-5	Ethanol	**3.1**	5.2	0.73	NA	NA	NA	**J**
75-05-8	Acetonitrile	**23**	2.1	0.23	NA	NA	NA	
67-64-1	Acetone	**37**	5.3	1.9	NA	NA	NA	
75-69-4	Trichlorofluoromethane	**1.3**	1.0	0.079	NA	NA	NA	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	0.52	NA	NA	NA	
75-35-4	1,1-Dichloroethene	ND	1.1	0.17	NA	NA	NA	
75-09-2	Methylene Chloride	**4.8**	1.1	0.13	NA	NA	NA	
76-13-1	Trichlorotrifluoroethane	**1.2**	1.0	0.14	NA	NA	NA	
75-15-0	Carbon Disulfide	ND	5.3	0.80	NA	NA	NA	
156-60-5	trans-1,2-Dichloroethene	ND	1.1	0.12	NA	NA	NA	
75-34-3	1,1-Dichloroethane	ND	1.0	0.059	NA	NA	NA	
1634-04-4	Methyl tert-Butyl Ether	ND	1.1	0.070	NA	NA	NA	
78-93-3	2-Butanone (MEK)	**8.5**	1.0	0.20	NA	NA	NA	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	0.093	NA	NA	NA	
110-54-3	n-Hexane	**1.3**	1.1	0.12	NA	NA	NA	
67-66-3	Chloroform	**0.19**	1.1	0.11	NA	NA	NA	**J**
109-99-9	Tetrahydrofuran (THF)	**0.63**	1.1	0.25	NA	NA	NA	**J**
107-06-2	1,2-Dichloroethane	ND	1.1	0.15	NA	NA	NA	
71-55-6	1,1,1-Trichloroethane	ND	1.1	0.12	NA	NA	NA	
71-43-2	Benzene	**260**	2.1	0.94	NA	NA	NA	
56-23-5	Carbon Tetrachloride	**1.0**	1.1	0.098	NA	NA	NA	**J**
110-82-7	Cyclohexane	ND	2.1	0.18	NA	NA	NA	
78-87-5	1,2-Dichloropropane	ND	1.1	0.20	NA	NA	NA	
75-27-4	Bromodichloromethane	ND	1.1	0.095	NA	NA	NA	
79-01-6	Trichloroethene	ND	1.1	0.13	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **US Environmental Protection Agency (E-343-03)**
Client Sample ID: **PS-SW-VOC-100616-02**

ALS Project ID: P1604824
ALS Sample ID: P1604824-004

Test Code: EPA TO-17
Instrument ID: Markes ATD/Agilent 5975Cinert/7890A/MS18
Analyst: Rui Malinowski
Sampling Media: TD Carbo 300 Sorbent Tube
Test Notes:

Date Collected: 10/6/16
Date Received: 10/12/16
Date Analyzed: 10/13/16
Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Result ng/Tube	MRL ng/Tube	MDL ng/Tube	Result µg/m³	MRL µg/m³	MDL µg/m³	Data Qualifier
123-91-1	1,4-Dioxane	**0.54**	1.1	0.20	NA	NA	NA	**J**
540-84-1	2,2,4-Trimethylpentane (Isooctane)	**0.47**	1.1	0.13	NA	NA	NA	**J**
142-82-5	n-Heptane	**2.8**	1.1	0.14	NA	NA	NA	
10061-01-5	cis-1,3-Dichloropropene	ND	1.1	0.11	NA	NA	NA	
108-10-1	4-Methyl-2-pentanone	**0.42**	2.1	0.16	NA	NA	NA	**J**
10061-02-6	trans-1,3-Dichloropropene	ND	1.1	0.11	NA	NA	NA	
79-00-5	1,1,2-Trichloroethane	ND	1.1	0.20	NA	NA	NA	
108-88-3	Toluene	**85**	1.1	0.47	NA	NA	NA	
591-78-6	2-Hexanone	ND	1.1	0.23	NA	NA	NA	
124-48-1	Dibromochloromethane	ND	1.1	0.068	NA	NA	NA	
106-93-4	1,2-Dibromoethane	ND	1.1	0.098	NA	NA	NA	
111-65-9	n-Octane	**8.2**	1.1	0.21	NA	NA	NA	
127-18-4	Tetrachloroethene	**0.14**	1.1	0.12	NA	NA	NA	**J**
108-90-7	Chlorobenzene	ND	1.1	0.084	NA	NA	NA	
100-41-4	Ethylbenzene	**15**	1.1	0.11	NA	NA	NA	
179601-23-1	m,p-Xylenes	**29**	2.1	0.17	NA	NA	NA	
75-25-2	Bromoform	ND	1.1	0.14	NA	NA	NA	
100-42-5	Styrene	**37**	1.1	0.078	NA	NA	NA	
95-47-6	o-Xylene	**12**	1.1	0.071	NA	NA	NA	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.1	0.14	NA	NA	NA	
98-82-8	Cumene	**2.4**	1.1	0.28	NA	NA	NA	
108-67-8	1,3,5-Trimethylbenzene	**5.5**	1.0	0.27	NA	NA	NA	
95-63-6	1,2,4-Trimethylbenzene	**20**	1.1	0.14	NA	NA	NA	
541-73-1	1,3-Dichlorobenzene	ND	1.1	0.15	NA	NA	NA	
106-46-7	1,4-Dichlorobenzene	ND	1.1	0.14	NA	NA	NA	
95-50-1	1,2-Dichlorobenzene	ND	1.1	0.17	NA	NA	NA	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.1	0.21	NA	NA	NA	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.41	NA	NA	NA	
91-20-3	Naphthalene	**120**	1.1	0.37	NA	NA	NA	
87-68-3	Hexachlorobutadiene	ND	1.1	0.30	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **US Environmental Protection Agency (E-343-03)**
Client Sample ID: **BS-VOC-100616**

ALS Project ID: P1604824
ALS Sample ID: P1604824-005

Test Code: EPA TO-17
Instrument ID: Markes ATD/Agilent 5975Cinert/7890A/MS18
Analyst: Rui Malinowski
Sampling Media: TD Carbo 300 Sorbent Tube
Test Notes:

Date Collected: 10/6/16
Date Received: 10/12/16
Date Analyzed: 10/13/16
Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Result ng/Tube	MRL ng/Tube	MDL ng/Tube	Result µg/m³	MRL µg/m³	MDL µg/m³	Data Qualifier
75-71-8	Dichlorodifluoromethane(CFC 12)	**14**	1.0	0.12	NA	NA	NA	
74-87-3	Chloromethane	**0.31**	1.0	0.27	NA	NA	NA	**J**
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	**0.63**	1.0	0.16	NA	NA	NA	**J**
75-01-4	Vinyl Chloride	ND	1.0	0.14	NA	NA	NA	
106-99-0	1,3-Butadiene	ND	1.1	0.28	NA	NA	NA	
75-00-3	Chloroethane	ND	1.0	0.20	NA	NA	NA	
64-17-5	Ethanol	**1.8**	5.2	0.73	NA	NA	NA	**J**
75-05-8	Acetonitrile	**0.64**	2.1	0.23	NA	NA	NA	**J**
67-64-1	Acetone	**5.4**	5.3	1.9	NA	NA	NA	
75-69-4	Trichlorofluoromethane	**3.0**	1.0	0.079	NA	NA	NA	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	0.52	NA	NA	NA	
75-35-4	1,1-Dichloroethene	ND	1.1	0.17	NA	NA	NA	
75-09-2	Methylene Chloride	**2.1**	1.1	0.13	NA	NA	NA	
76-13-1	Trichlorotrifluoroethane	**3.2**	1.0	0.14	NA	NA	NA	
75-15-0	Carbon Disulfide	ND	5.3	0.80	NA	NA	NA	
156-60-5	trans-1,2-Dichloroethene	ND	1.1	0.12	NA	NA	NA	
75-34-3	1,1-Dichloroethane	ND	1.0	0.059	NA	NA	NA	
1634-04-4	Methyl tert-Butyl Ether	ND	1.1	0.070	NA	NA	NA	
78-93-3	2-Butanone (MEK)	**2.0**	1.0	0.20	NA	NA	NA	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	0.093	NA	NA	NA	
110-54-3	n-Hexane	**1.7**	1.1	0.12	NA	NA	NA	
67-66-3	Chloroform	**0.15**	1.1	0.11	NA	NA	NA	**J**
109-99-9	Tetrahydrofuran (THF)	ND	1.1	0.25	NA	NA	NA	
107-06-2	1,2-Dichloroethane	ND	1.1	0.15	NA	NA	NA	
71-55-6	1,1,1-Trichloroethane	ND	1.1	0.12	NA	NA	NA	
71-43-2	Benzene	**1.7**	2.1	0.94	NA	NA	NA	**J**
56-23-5	Carbon Tetrachloride	**3.0**	1.1	0.098	NA	NA	NA	
110-82-7	Cyclohexane	ND	2.1	0.18	NA	NA	NA	
78-87-5	1,2-Dichloropropane	ND	1.1	0.20	NA	NA	NA	
75-27-4	Bromodichloromethane	**0.13**	1.1	0.095	NA	NA	NA	**J**
79-01-6	Trichloroethene	ND	1.1	0.13	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **US Environmental Protection Agency (E-343-03)**

Client Sample ID: **BS-VOC-100616**

ALS Project ID: P1604824
ALS Sample ID: P1604824-005

Test Code: EPA TO-17
Instrument ID: Markes ATD/Agilent 5975Cinert/7890A/MS18
Analyst: Rui Malinowski
Sampling Media: TD Carbo 300 Sorbent Tube
Test Notes:

Date Collected: 10/6/16
Date Received: 10/12/16
Date Analyzed: 10/13/16
Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Result ng/Tube	MRL ng/Tube	MDL ng/Tube	Result µg/m³	MRL µg/m³	MDL µg/m³	Data Qualifier
123-91-1	1,4-Dioxane	ND	1.1	0.20	NA	NA	NA	
540-84-1	2,2,4-Trimethylpentane (Isooctane)	**0.91**	1.1	0.13	NA	NA	NA	**J**
142-82-5	n-Heptane	**0.85**	1.1	0.14	NA	NA	NA	**J**
10061-01-5	cis-1,3-Dichloropropene	ND	1.1	0.11	NA	NA	NA	
108-10-1	4-Methyl-2-pentanone	**0.65**	2.1	0.16	NA	NA	NA	**J**
10061-02-6	trans-1,3-Dichloropropene	ND	1.1	0.11	NA	NA	NA	
79-00-5	1,1,2-Trichloroethane	ND	1.1	0.20	NA	NA	NA	
108-88-3	Toluene	**13**	1.1	0.47	NA	NA	NA	
591-78-6	2-Hexanone	**0.35**	1.1	0.23	NA	NA	NA	**J**
124-48-1	Dibromochloromethane	ND	1.1	0.068	NA	NA	NA	
106-93-4	1,2-Dibromoethane	ND	1.1	0.098	NA	NA	NA	
111-65-9	n-Octane	**0.79**	1.1	0.21	NA	NA	NA	**J**
127-18-4	Tetrachloroethene	**0.27**	1.1	0.12	NA	NA	NA	**J**
108-90-7	Chlorobenzene	**0.10**	1.1	0.084	NA	NA	NA	**J**
100-41-4	Ethylbenzene	**0.70**	1.1	0.11	NA	NA	NA	**J**
179601-23-1	m,p-Xylenes	**2.2**	2.1	0.17	NA	NA	NA	
75-25-2	Bromoform	**0.15**	1.1	0.14	NA	NA	NA	**J**
100-42-5	Styrene	**0.25**	1.1	0.078	NA	NA	NA	**J**
95-47-6	o-Xylene	**0.86**	1.1	0.071	NA	NA	NA	**J**
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.1	0.14	NA	NA	NA	
98-82-8	Cumene	ND	1.1	0.28	NA	NA	NA	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	0.27	NA	NA	NA	
95-63-6	1,2,4-Trimethylbenzene	**0.93**	1.1	0.14	NA	NA	NA	**J**
541-73-1	1,3-Dichlorobenzene	ND	1.1	0.15	NA	NA	NA	
106-46-7	1,4-Dichlorobenzene	**0.17**	1.1	0.14	NA	NA	NA	**J**
95-50-1	1,2-Dichlorobenzene	ND	1.1	0.17	NA	NA	NA	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.1	0.21	NA	NA	NA	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.41	NA	NA	NA	
91-20-3	Naphthalene	**2.1**	1.1	0.37	NA	NA	NA	
87-68-3	Hexachlorobutadiene	ND	1.1	0.30	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **US Environmental Protection Agency (E-343-03)**
Client Sample ID: **TS-VOC-101116**

ALS Project ID: P1604824
ALS Sample ID: P1604824-006

Test Code: EPA TO-17
Instrument ID: Markes ATD/Agilent 5975Cinert/7890A/MS18
Analyst: Rui Malinowski
Sampling Media: TD Carbo 300 Sorbent Tube
Test Notes:

Date Collected: 10/11/16
Date Received: 10/12/16
Date Analyzed: 10/13/16
Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Result ng/Tube	MRL ng/Tube	MDL ng/Tube	Result µg/m³	MRL µg/m³	MDL µg/m³	Data Qualifier
75-71-8	Dichlorodifluoromethane(CFC 12)	ND	1.0	0.12	NA	NA	NA	
74-87-3	Chloromethane	ND	1.0	0.27	NA	NA	NA	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	1.0	0.16	NA	NA	NA	
75-01-4	Vinyl Chloride	ND	1.0	0.14	NA	NA	NA	
106-99-0	1,3-Butadiene	ND	1.1	0.28	NA	NA	NA	
75-00-3	Chloroethane	ND	1.0	0.20	NA	NA	NA	
64-17-5	Ethanol	**1.6**	5.2	0.73	NA	NA	NA	**J**
75-05-8	Acetonitrile	**0.49**	2.1	0.23	NA	NA	NA	**J**
67-64-1	Acetone	**2.8**	5.3	1.9	NA	NA	NA	**J**
75-69-4	Trichlorofluoromethane	ND	1.0	0.079	NA	NA	NA	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	0.52	NA	NA	NA	
75-35-4	1,1-Dichloroethene	ND	1.1	0.17	NA	NA	NA	
75-09-2	Methylene Chloride	ND	1.1	0.13	NA	NA	NA	
76-13-1	Trichlorotrifluoroethane	ND	1.0	0.14	NA	NA	NA	
75-15-0	Carbon Disulfide	ND	5.3	0.80	NA	NA	NA	
156-60-5	trans-1,2-Dichloroethene	ND	1.1	0.12	NA	NA	NA	
75-34-3	1,1-Dichloroethane	ND	1.0	0.059	NA	NA	NA	
1634-04-4	Methyl tert-Butyl Ether	ND	1.1	0.070	NA	NA	NA	
78-93-3	2-Butanone (MEK)	ND	1.0	0.20	NA	NA	NA	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	0.093	NA	NA	NA	
110-54-3	n-Hexane	ND	1.1	0.12	NA	NA	NA	
67-66-3	Chloroform	ND	1.1	0.11	NA	NA	NA	
109-99-9	Tetrahydrofuran (THF)	ND	1.1	0.25	NA	NA	NA	
107-06-2	1,2-Dichloroethane	ND	1.1	0.15	NA	NA	NA	
71-55-6	1,1,1-Trichloroethane	ND	1.1	0.12	NA	NA	NA	
71-43-2	Benzene	ND	2.1	0.94	NA	NA	NA	
56-23-5	Carbon Tetrachloride	ND	1.1	0.098	NA	NA	NA	
110-82-7	Cyclohexane	ND	2.1	0.18	NA	NA	NA	
78-87-5	1,2-Dichloropropane	ND	1.1	0.20	NA	NA	NA	
75-27-4	Bromodichloromethane	ND	1.1	0.095	NA	NA	NA	
79-01-6	Trichloroethene	ND	1.1	0.13	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **US Environmental Protection Agency (E-343-03)**

Client Sample ID: **TS-VOC-101116**

ALS Project ID: P1604824
ALS Sample ID: P1604824-006

Test Code: EPA TO-17
Instrument ID: Markes ATD/Agilent 5975Cinert/7890A/MS18
Analyst: Rui Malinowski
Sampling Media: TD Carbo 300 Sorbent Tube
Test Notes:

Date Collected: 10/11/16
Date Received: 10/12/16
Date Analyzed: 10/13/16
Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Result ng/Tube	MRL ng/Tube	MDL ng/Tube	Result µg/m³	MRL µg/m³	MDL µg/m³	Data Qualifier
123-91-1	1,4-Dioxane	ND	1.1	0.20	NA	NA	NA	
540-84-1	2,2,4-Trimethylpentane (Isooctane)	ND	1.1	0.13	NA	NA	NA	
142-82-5	n-Heptane	ND	1.1	0.14	NA	NA	NA	
10061-01-5	cis-1,3-Dichloropropene	ND	1.1	0.11	NA	NA	NA	
108-10-1	4-Methyl-2-pentanone	ND	2.1	0.16	NA	NA	NA	
10061-02-6	trans-1,3-Dichloropropene	ND	1.1	0.11	NA	NA	NA	
79-00-5	1,1,2-Trichloroethane	ND	1.1	0.20	NA	NA	NA	
108-88-3	Toluene	ND	1.1	0.47	NA	NA	NA	
591-78-6	2-Hexanone	ND	1.1	0.23	NA	NA	NA	
124-48-1	Dibromochloromethane	ND	1.1	0.068	NA	NA	NA	
106-93-4	1,2-Dibromoethane	ND	1.1	0.098	NA	NA	NA	
111-65-9	n-Octane	ND	1.1	0.21	NA	NA	NA	
127-18-4	Tetrachloroethene	ND	1.1	0.12	NA	NA	NA	
108-90-7	Chlorobenzene	ND	1.1	0.084	NA	NA	NA	
100-41-4	Ethylbenzene	ND	1.1	0.11	NA	NA	NA	
179601-23-1	m,p-Xylenes	ND	2.1	0.17	NA	NA	NA	
75-25-2	Bromoform	ND	1.1	0.14	NA	NA	NA	
100-42-5	Styrene	ND	1.1	0.078	NA	NA	NA	
95-47-6	o-Xylene	ND	1.1	0.071	NA	NA	NA	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.1	0.14	NA	NA	NA	
98-82-8	Cumene	ND	1.1	0.28	NA	NA	NA	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	0.27	NA	NA	NA	
95-63-6	1,2,4-Trimethylbenzene	ND	1.1	0.14	NA	NA	NA	
541-73-1	1,3-Dichlorobenzene	ND	1.1	0.15	NA	NA	NA	
106-46-7	1,4-Dichlorobenzene	ND	1.1	0.14	NA	NA	NA	
95-50-1	1,2-Dichlorobenzene	ND	1.1	0.17	NA	NA	NA	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.1	0.21	NA	NA	NA	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.41	NA	NA	NA	
91-20-3	Naphthalene	ND	1.1	0.37	NA	NA	NA	
87-68-3	Hexachlorobutadiene	ND	1.1	0.30	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory detection 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

Client: **US Environmental Protection Agency (E-343-03)**
Client Sample ID: **Method Blank**

ALS Project ID: P1604824
ALS Sample ID: P161013-MB

Test Code: EPA TO-17
Instrument ID: Markes ATD/Agilent 5975Cinert/7890A/MS18
Analyst: Rui Malinowski
Sampling Media: TD Carbo 300 Sorbent Tube
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/13/16
Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Result ng/Tube	MRL ng/Tube	MDL ng/Tube	Result µg/m³	MRL µg/m³	MDL µg/m³	Data Qualifier
75-71-8	Dichlorodifluoromethane(CFC 12)	ND	1.0	0.12	NA	NA	NA	
74-87-3	Chloromethane	ND	1.0	0.27	NA	NA	NA	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	1.0	0.16	NA	NA	NA	
75-01-4	Vinyl Chloride	ND	1.0	0.14	NA	NA	NA	
106-99-0	1,3-Butadiene	ND	1.1	0.28	NA	NA	NA	
75-00-3	Chloroethane	ND	1.0	0.20	NA	NA	NA	
64-17-5	Ethanol	ND	5.2	0.73	NA	NA	NA	
75-05-8	Acetonitrile	ND	2.1	0.23	NA	NA	NA	
67-64-1	Acetone	ND	5.3	1.9	NA	NA	NA	
75-69-4	Trichlorofluoromethane	ND	1.0	0.079	NA	NA	NA	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	0.52	NA	NA	NA	
75-35-4	1,1-Dichloroethene	ND	1.1	0.17	NA	NA	NA	
75-09-2	Methylene Chloride	ND	1.1	0.13	NA	NA	NA	
76-13-1	Trichlorotrifluoroethane	ND	1.0	0.14	NA	NA	NA	
75-15-0	Carbon Disulfide	**0.92**	5.3	0.80	NA	NA	NA	**J**
156-60-5	trans-1,2-Dichloroethene	ND	1.1	0.12	NA	NA	NA	
75-34-3	1,1-Dichloroethane	ND	1.0	0.059	NA	NA	NA	
1634-04-4	Methyl tert-Butyl Ether	ND	1.1	0.070	NA	NA	NA	
78-93-3	2-Butanone (MEK)	ND	1.0	0.20	NA	NA	NA	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	0.093	NA	NA	NA	
110-54-3	n-Hexane	ND	1.1	0.12	NA	NA	NA	
67-66-3	Chloroform	ND	1.1	0.11	NA	NA	NA	
109-99-9	Tetrahydrofuran (THF)	ND	1.1	0.25	NA	NA	NA	
107-06-2	1,2-Dichloroethane	ND	1.1	0.15	NA	NA	NA	
71-55-6	1,1,1-Trichloroethane	ND	1.1	0.12	NA	NA	NA	
71-43-2	Benzene	ND	2.1	0.94	NA	NA	NA	
56-23-5	Carbon Tetrachloride	ND	1.1	0.098	NA	NA	NA	
110-82-7	Cyclohexane	ND	2.1	0.18	NA	NA	NA	
78-87-5	1,2-Dichloropropane	ND	1.1	0.20	NA	NA	NA	
75-27-4	Bromodichloromethane	ND	1.1	0.095	NA	NA	NA	
79-01-6	Trichloroethene	ND	1.1	0.13	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **US Environmental Protection Agency (E-343-03)**

Client Sample ID: **Method Blank**

ALS Project ID: P1604824
ALS Sample ID: P161013-MB

Test Code: EPA TO-17
Instrument ID: Markes ATD/Agilent 5975Cinert/7890A/MS18
Analyst: Rui Malinowski
Sampling Media: TD Carbo 300 Sorbent Tube
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/13/16
Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Result ng/Tube	MRL ng/Tube	MDL ng/Tube	Result µg/m³	MRL µg/m³	MDL µg/m³	Data Qualifier
123-91-1	1,4-Dioxane	ND	1.1	0.20	NA	NA	NA	
540-84-1	2,2,4-Trimethylpentane (Isooctane)	ND	1.1	0.13	NA	NA	NA	
142-82-5	n-Heptane	ND	1.1	0.14	NA	NA	NA	
10061-01-5	cis-1,3-Dichloropropene	ND	1.1	0.11	NA	NA	NA	
108-10-1	4-Methyl-2-pentanone	ND	2.1	0.16	NA	NA	NA	
10061-02-6	trans-1,3-Dichloropropene	ND	1.1	0.11	NA	NA	NA	
79-00-5	1,1,2-Trichloroethane	ND	1.1	0.20	NA	NA	NA	
108-88-3	Toluene	ND	1.1	0.47	NA	NA	NA	
591-78-6	2-Hexanone	ND	1.1	0.23	NA	NA	NA	
124-48-1	Dibromochloromethane	ND	1.1	0.068	NA	NA	NA	
106-93-4	1,2-Dibromoethane	ND	1.1	0.098	NA	NA	NA	
111-65-9	n-Octane	ND	1.1	0.21	NA	NA	NA	
127-18-4	Tetrachloroethene	ND	1.1	0.12	NA	NA	NA	
108-90-7	Chlorobenzene	ND	1.1	0.084	NA	NA	NA	
100-41-4	Ethylbenzene	ND	1.1	0.11	NA	NA	NA	
179601-23-1	m,p-Xylenes	ND	2.1	0.17	NA	NA	NA	
75-25-2	Bromoform	ND	1.1	0.14	NA	NA	NA	
100-42-5	Styrene	ND	1.1	0.078	NA	NA	NA	
95-47-6	o-Xylene	ND	1.1	0.071	NA	NA	NA	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.1	0.14	NA	NA	NA	
98-82-8	Cumene	ND	1.1	0.28	NA	NA	NA	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	0.27	NA	NA	NA	
95-63-6	1,2,4-Trimethylbenzene	ND	1.1	0.14	NA	NA	NA	
541-73-1	1,3-Dichlorobenzene	ND	1.1	0.15	NA	NA	NA	
106-46-7	1,4-Dichlorobenzene	ND	1.1	0.14	NA	NA	NA	
95-50-1	1,2-Dichlorobenzene	ND	1.1	0.17	NA	NA	NA	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.1	0.21	NA	NA	NA	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.41	NA	NA	NA	
91-20-3	Naphthalene	ND	1.1	0.37	NA	NA	NA	
87-68-3	Hexachlorobutadiene	ND	1.1	0.30	NA	NA	NA	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **US Environmental Protection Agency (E-343-03)**

ALS Project ID: P1604824

Test Code: EPA TO-17
Instrument ID: Markes ATD/Agilent 5975Cinert/7890A/MS18
Analyst: Rui Malinowski
Sampling Media: TD Carbo 300 Sorbent Tube(s)
Test Notes:

Date(s) Collected: 9/30 - 10/11/16
Date(s) Received: 10/12/16
Date(s) Analyzed: 10/13/16

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 % Recovered	Acceptance Limits	Toluene-d8 % Recovered	Acceptance Limits	Bromofluorobenzene % Recovered	Acceptance Limits	Data Qualifier
Method Blank	P161013-MB	**90**	70-140	**100**	70-140	**101**	70-140	
Lab Control Sample	P161013-LCS	**99**	70-140	**99**	70-140	**106**	70-140	
Duplicate Lab Control Sample	P161013-DLCS	**104**	70-140	**98**	70-140	**107**	70-140	
PS-SW-VOC-093016-01	P1604824-001	**95**	70-140	**100**	70-140	**104**	70-140	
PS-SW-VOC-093016-02	P1604824-002	**87**	70-140	**100**	70-140	**102**	70-140	
PS-SW-VOC-100616-01	P1604824-003	**85**	70-140	**99**	70-140	**103**	70-140	
PS-SW-VOC-100616-02	P1604824-004	**86**	70-140	**98**	70-140	**104**	70-140	
BS-VOC-100616	P1604824-005	**86**	70-140	**99**	70-140	**102**	70-140	
TS-VOC-101116	P1604824-006	**91**	70-140	**99**	70-140	**103**	70-140	

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **US Environmental Protection Agency (E-343-03)**
Client Sample ID: **Duplicate Lab Control Sample**

ALS Project ID: P1604824
ALS Sample ID: P161013-DLCS

Test Code: EPA TO-17
Instrument ID: Markes ATD/Agilent 5975Cinert/7890A/MS18
Analyst: Rui Malinowski
Sampling Media: TD Carbo 300 Sorbent Tube
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/13/16
Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Spike Amount LCS / DLCS ng	Result LCS ng	Result DLCS ng	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
75-71-8	Dichlorodifluoromethane(CFC 12)	52.5	52.3	56.6	**100**	**108**	73-120	8	25	
74-87-3	Chloromethane	52.5	53.6	58.2	**102**	**111**	69-120	8	25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	52.8	53.5	57.2	**101**	**108**	79-112	7	25	
75-01-4	Vinyl Chloride	52.5	54.5	57.9	**104**	**110**	75-119	6	25	
106-99-0	1,3-Butadiene	52.5	61.5	58.9	**117**	**112**	77-118	4	25	
75-00-3	Chloroethane	52.5	55.8	58.3	**106**	**111**	75-120	5	25	
64-17-5	Ethanol	265	278	282	**105**	**106**	72-120	0.9	25	
75-05-8	Acetonitrile	53.3	53.8	56.2	**101**	**105**	66-115	4	25	
67-64-1	Acetone	266	277	277	**104**	**104**	70-110	0	25	
75-69-4	Trichlorofluoromethane	52.6	53.1	56.1	**101**	**107**	70-103	6	25	**L**
67-63-0	2-Propanol (Isopropyl Alcohol)	106	116	117	**109**	**110**	75-123	0.9	25	
75-35-4	1,1-Dichloroethene	53.2	54.9	58.2	**103**	**109**	79-111	6	25	
75-09-2	Methylene Chloride	53.1	53.1	57.4	**100**	**108**	75-106	8	25	**L**
76-13-1	Trichlorotrifluoroethane	52.9	54.1	57.3	**102**	**108**	65-127	6	25	
75-15-0	Carbon Disulfide	53.4	52.6	54.3	**99**	**102**	53-100	3	25	**L**
156-60-5	trans-1,2-Dichloroethene	53.4	56.7	60.5	**106**	**113**	78-119	6	25	
75-34-3	1,1-Dichloroethane	53.1	55.3	57.9	**104**	**109**	76-118	5	25	
1634-04-4	Methyl tert-Butyl Ether	53.2	58.9	62.7	**111**	**118**	81-120	6	25	
78-93-3	2-Butanone (MEK)	53.1	67.0	71.1	**126**	**134**	88-138	6	25	
156-59-2	cis-1,2-Dichloroethene	53.0	56.5	59.6	**107**	**112**	78-119	5	25	
110-54-3	n-Hexane	53.2	54.8	58.2	**103**	**109**	75-114	6	25	
67-66-3	Chloroform	53.0	56.0	56.9	**106**	**107**	73-115	0.9	25	
109-99-9	Tetrahydrofuran (THF)	53.2	60.3	60.3	**113**	**113**	80-119	0	25	
107-06-2	1,2-Dichloroethane	53.0	56.1	59.1	**106**	**112**	71-131	6	25	
71-55-6	1,1,1-Trichloroethane	53.0	57.7	56.9	**109**	**107**	79-116	2	25	
71-43-2	Benzene	53.1	47.7	47.8	**90**	**90**	68-99	0	25	
56-23-5	Carbon Tetrachloride	53.2	58.5	57.7	**110**	**108**	78-114	2	25	
110-82-7	Cyclohexane	106	110	110	**104**	**104**	77-113	0	25	
78-87-5	1,2-Dichloropropane	53.1	56.9	56.6	**107**	**107**	78-114	0	25	
75-27-4	Bromodichloromethane	53.4	62.1	61.7	**116**	**116**	85-121	0	25	
79-01-6	Trichloroethene	53.1	54.5	56.1	**103**	**106**	78-102	3	25	**L**

L = Laboratory control sample recovery outside the specified limits, results may be biased high.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **US Environmental Protection Agency (E-343-03)**
Client Sample ID: **Duplicate Lab Control Sample**

ALS Project ID: P1604824
ALS Sample ID: P161013-DLCS

Test Code: EPA TO-17
Instrument ID: Markes ATD/Agilent 5975Cinert/7890A/MS18
Analyst: Rui Malinowski
Sampling Media: TD Carbo 300 Sorbent Tube
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/13/16
Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Spike Amount LCS / DLCS ng	Result LCS ng	Result DLCS ng	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
123-91-1	1,4-Dioxane	53.2	58.3	57.9	**110**	**109**	85-117	0.9	25	
540-84-1	2,2,4-Trimethylpentane (Isooctane)	53.1	54.7	54.5	**103**	**103**	74-110	0	25	
142-82-5	n-Heptane	53.2	56.4	57.5	**106**	**108**	82-109	2	25	
10061-01-5	cis-1,3-Dichloropropene	52.6	61.7	59.1	**117**	**112**	86-117	4	25	
108-10-1	4-Methyl-2-pentanone	53.2	60.9	60.4	**114**	**114**	85-114	0	25	
10061-02-6	trans-1,3-Dichloropropene	53.4	63.1	61.2	**118**	**115**	83-123	3	25	
79-00-5	1,1,2-Trichloroethane	53.1	58.1	57.1	**109**	**108**	84-107	0.9	25	**L**
108-88-3	Toluene	52.9	55.1	55.2	**104**	**104**	78-102	0	25	**L**
591-78-6	2-Hexanone	53.2	59.6	58.1	**112**	**109**	82-121	3	25	
124-48-1	Dibromochloromethane	53.2	58.2	57.1	**109**	**107**	84-110	2	25	
106-93-4	1,2-Dibromoethane	52.9	60.3	59.9	**114**	**113**	85-111	0.9	25	**L**
111-65-9	n-Octane	53.0	52.5	53.5	**99**	**101**	75-118	2	25	
127-18-4	Tetrachloroethene	53.2	54.0	55.5	**102**	**104**	81-109	2	25	
108-90-7	Chlorobenzene	53.0	53.8	54.7	**102**	**103**	82-108	1	25	
100-41-4	Ethylbenzene	52.9	54.1	55.5	**102**	**105**	81-112	3	25	
179601-23-1	m,p-Xylenes	106	109	111	**103**	**105**	83-111	2	25	
75-25-2	Bromoform	53.1	55.0	55.1	**104**	**104**	73-103	0	25	**L**
100-42-5	Styrene	53.0	57.3	58.1	**108**	**110**	85-113	2	25	
95-47-6	o-Xylene	52.9	54.1	55.7	**102**	**105**	82-112	3	25	
79-34-5	1,1,2,2-Tetrachloroethane	53.0	58.0	58.0	**109**	**109**	79-115	0	25	
98-82-8	Cumene	53.1	54.0	55.4	**102**	**104**	81-110	2	25	
108-67-8	1,3,5-Trimethylbenzene	53.1	54.3	55.6	**102**	**105**	81-111	3	25	
95-63-6	1,2,4-Trimethylbenzene	53.1	55.4	56.4	**104**	**106**	80-111	2	25	
541-73-1	1,3-Dichlorobenzene	53.0	55.3	57.6	**104**	**109**	73-112	5	25	
106-46-7	1,4-Dichlorobenzene	53.3	53.8	55.9	**101**	**105**	75-119	4	25	
95-50-1	1,2-Dichlorobenzene	53.1	54.9	56.5	**103**	**106**	74-112	3	25	
96-12-8	1,2-Dibromo-3-chloropropane	53.0	64.7	63.1	**122**	**119**	63-135	2	25	
120-82-1	1,2,4-Trichlorobenzene	53.0	58.0	60.6	**109**	**114**	53-127	4	25	
91-20-3	Naphthalene	53.4	61.0	62.9	**114**	**118**	52-130	3	25	
87-68-3	Hexachlorobutadiene	53.2	54.0	55.1	**102**	**104**	58-113	2	25	

L = Laboratory control sample recovery outside the specified limits, results may be biased high.

Response Factor Report GCMS18

Method Path : I:\MS18\METHODS\
Method File : F18101216.M
Title : EPA TO-17 per SOP VOA-TO17 (CASS TO-17/GC-MS)
Last Update : Thu Oct 20 09:15:10 2016
Response Via : Initial Calibration

RM 10/20/16

Calibration Files
1.0 =10121602.D 2.0 =10121603.D 5.0 =10121604.D 10 =10121605.D 50 =10121606.D 100 =10121607.D 500 =10121608.D
1000=10121609.D

		Compound	1.0	2.0	5.0	10	50	100	500	1000	Avg	%RSD
1)	IR	Bromochloromethane...	----------ISTD----------									
2)	T	Propene	1.367	1.362	1.126	1.117	0.876	0.935	0.856	0.876	1.064	20.02
3)	T	Dichlorodifluo...	1.543	1.610	1.758	1.792	1.502	1.576	1.435	1.380	1.575	9.16
4)	T	Chloromethane	1.268	1.364	1.338	1.394	1.159	1.239	1.132	1.087	1.247	9.13
5)	T	Freon 114	0.983	0.993	1.017	1.000	0.864	0.907	0.789	0.738	0.911	11.59
6)	T	Vinyl Chloride	1.236	1.219	1.375	1.445	1.205	1.260	1.195	1.163	1.262	7.73
7)	T	1,3-Butadiene	1.077	0.855	1.055	1.109	1.042	0.945	0.944	0.836	0.983	10.47
8)	T	Bromomethane	0.973	0.832	0.634	0.618	0.635	0.640	0.612	0.541	0.686	20.76
9)	T	Chloroethane	0.625	0.646	0.677	0.684	0.619	0.644	0.611	0.585	0.636	5.28
10)	T	Ethanol	0.664	0.653	0.632	0.712	0.621	0.641	0.621	0.600	0.643	5.35
11)	T	Acetonitrile	1.734	1.786	1.779	1.923	1.619	1.692	1.600	1.547	1.710	7.12
12)	T	Acrolein	0.521	0.649	0.595	0.577	0.492	0.494	0.451	0.432	0.526	14.19
13)	T	Acetone	0.816	0.771	0.661	0.679	0.584	0.557	0.494	0.458	0.627	20.26
14)	T	Trichlorofluor...	1.717	1.601	1.696	1.737	1.439	1.473	1.346	1.213	1.528	12.52
15)	T	Isopropanol	2.164	2.268	2.442	2.519	2.210	2.173	1.991	1.856	2.203	9.84
16)	T	Acrylonitrile	0.752	0.733	1.120	1.300	1.069	1.124	1.051	1.019	1.021	18.76
17)	T	1,1-Dichloroet...	0.865	0.893	0.899	0.936	0.783	0.806	0.791	0.775	0.844	7.38
18)	T	tert-Butanol	2.289	2.299	2.476	2.693	2.351	2.302	1.337	1.115	2.108	26.75
19)	T	Methylene Chlo...	0.883	0.901	0.942	0.964	0.757	0.800	0.741	0.724	0.839	11.32
20)	T	Allyl Chloride	1.339	1.444	1.340	1.342	1.267	1.192	1.165	1.010	1.262	10.77
21)	T	Trichlorotrifl...	0.978	0.914	0.856	0.914	0.740	0.776	0.708	0.648	0.817	14.20
22)	T	Carbon Disulfide		3.949	3.786	3.666	3.013	3.070	2.864	2.674	3.289	15.25
23)	T	trans-1,2-Dich...	1.205	1.252	1.350	1.480	1.253	1.275	1.203	1.122	1.267	8.53
24)	T	1,1-Dichloroet...	1.577	1.699	1.764	1.795	1.539	1.563	1.478	1.377	1.599	9.01
25)	T	Methyl tert-Bu...	2.729	2.923	2.997	3.130	2.593	2.758	2.253	1.697	2.635	17.63
26)	T	2-Butanone	0.425	0.492	0.528	0.641	0.578	0.609	0.370		0.520	18.95
27)	T	cis-1,2-Dichlo...	1.145	1.283	1.320	1.376	1.161	1.206	1.137	1.069	1.212	8.65
28)	T	n-Hexane	1.580	1.757	1.772	1.899	1.558	1.618	1.519	1.450	1.644	9.19
29)	T	Chloroform	1.657	1.605	1.627	1.671	1.404	1.324	1.344	1.272	1.488	11.25
30)	S	1,2-Dichloroet...	1.669	1.772	1.765	1.822	1.745	1.770	1.566	1.290	1.675	10.42
31)	T	Tetrahydrofuran	0.527	0.574	0.661	0.669	0.538	0.513	0.477	0.462	0.552	14.05
32)	T	Ethyl tert-But...	1.087	1.125	1.157	1.226	1.046	1.096	1.057	0.995	1.099	6.49
33)	T	1,2-Dichloroet...	1.135	1.247	1.304	1.352	1.134	1.141	0.990	0.847	1.144	14.45
34)	IR	1,4-Difluorobenzen...	----------ISTD----------									
35)	T	1,1,1-Trichlor...	0.318	0.319	0.331	0.337	0.288	0.290	0.260	0.238	0.298	11.87
36)	T	1-Butanol			0.158	0.201	0.209	0.208	0.214	0.209	0.200	10.53
37)	T	Benzene	1.412	1.159	0.949	0.890	0.723	0.731	0.721	0.736	0.915	27.65
38)	T	Carbon Tetrach...	0.280	0.259	0.300	0.304	0.264	0.263	0.217	0.159	0.256	18.69
39)	T	Cyclohexane	0.355	0.333	0.334	0.336	0.288	0.290	0.286	0.285	0.313	9.16
40)	T	tert-Amyl Meth...	0.628	0.589	0.612	0.616	0.538	0.543	0.554	0.571	0.581	6.02
41)	T	1,2-Dichloropr...	0.219	0.206	0.221	0.233	0.199	0.200	0.199	0.192	0.209	6.74
42)	T	Bromodichlorom...	0.271	0.258	0.273	0.284	0.257	0.257	0.204	0.151	0.245	18.21

Method Path : I:\MS18\METHODS\
Method File : F18101216.M
Title : EPA TO-17 per SOP VOA-TO17 (CASS TO-17/GC-MS)

43)	T	Trichloroethene	0.237	0.235	0.243	0.258	0.208	0.215	0.213	0.219	0.229	7.75
44)	T	1,4-Dioxane	0.148	0.152	0.169	0.173	0.152	0.153	0.153	0.159	0.157	5.73
45)	T	Isooctane	0.898	0.860	0.906	0.930	0.792	0.798	0.812	0.833	0.854	6.21
46)	T	n-Heptane	0.211	0.222	0.241	0.251	0.214	0.220	0.216	0.221	0.224	6.28
47)	T	cis-1,3-Dichlo...	0.262	0.312	0.309	0.320	0.312	0.313	0.315	0.254	0.300	8.64
48)	T	4-Methyl-2-pen...	0.163	0.150	0.183	0.200	0.190	0.193	0.201	0.206	0.186	10.64
49)	T	trans-1,3-Dich...	0.198	0.228	0.262	0.282	0.276	0.284	0.302	0.276	0.263	12.98
50)	T	1,1,2-Trichlor...	0.177	0.179	0.190	0.212	0.185	0.185	0.192	0.197	0.190	5.93
51)	S	Toluene-d8 (SS2)	1.196	1.209	1.219	1.239	1.260	1.238	1.296	1.283	1.242	2.84
52)	T	Toluene	0.847	0.885	0.872	0.895	0.777	0.781	0.806	0.815	0.835	5.57
53)	T	2-Hexanone		0.392	0.441	0.498	0.484	0.485	0.514	0.536	0.479	10.06
54)	T	Dibromochlorom...	0.198	0.217	0.226	0.238	0.217	0.222	0.235	0.212	0.221	5.81
55)	T	1,2-Dibromoethane	0.174	0.175	0.198	0.210	0.199	0.203	0.215	0.213	0.198	8.03
56)	IR	Chlorobenzene-d5 (...	----------ISTD----------									
57)		n-Octane	0.287	0.233	0.244	0.233	0.197	0.200	0.192	0.193	0.223	14.95
58)	T	Tetrachloroethene	0.306	0.276	0.291	0.293	0.244	0.248	0.241	0.248	0.269	9.75
59)	T	Chlorobenzene	0.710	0.630	0.658	0.649	0.535	0.545	0.534	0.557	0.602	11.22
60)	T	Ethylbenzene	1.144	1.115	1.141	1.143	0.944	0.967	0.947	0.959	1.045	9.36
61)	T	m- & p-Xylene	0.875	0.842	0.862	0.858	0.721	0.738	0.722	0.733	0.794	8.91
62)	T	Bromoform	0.196	0.201	0.207	0.218	0.195	0.207	0.211	0.221	0.207	4.63
63)	T	Styrene	0.578	0.569	0.605	0.641	0.559	0.583	0.584	0.619	0.592	4.62
64)	T	o-Xylene	0.854	0.876	0.889	0.888	0.742	0.759	0.731	0.739	0.810	8.98
65)	T	n-Nonane	0.619	0.577	0.577	0.592	0.496	0.502	0.478	0.471	0.539	10.79
66)	T	1,1,2,2-Tetrac...	0.350	0.345	0.377	0.373	0.345	0.349	0.349	0.353	0.355	3.49
67)	S	Bromofluoroben...	0.428	0.421	0.436	0.445	0.467	0.458	0.464	0.454	0.446	3.80
68)	T	Cumene	1.123	1.096	1.106	1.147	0.955	0.974	0.941	0.933	1.034	8.84
69)	T	alpha-Pinene	0.575	0.503	0.574	0.566	0.440	0.454	0.435	0.453	0.500	12.55
70)	T	n-Propylbenzene	1.318	1.241	1.318	1.370	1.152	1.183	1.149	1.055	1.223	8.75
71)	T	3-Ethyltoluene	1.072	1.027	1.107	1.114	0.938	0.961	0.970	0.968	1.020	6.88
72)	T	4-Ethyltoluene	1.089	0.969	1.011	1.094	0.935	0.956	0.914	0.924	0.986	7.23
73)	T	1,3,5-Trimethy...	0.923	0.854	0.927	0.955	0.788	0.810	0.783	0.792	0.854	8.33
74)	T	alpha-Methylst...	0.341	0.363	0.436	0.450	0.418	0.435	0.441	0.466	0.419	10.45
75)	T	2-Ethyltoluene	1.072	0.979	1.050	1.094	0.918	0.935	0.900	0.901	0.981	8.16
76)	T	1,2,4-Trimethy...	0.884	0.848	0.899	0.942	0.808	0.819	0.805	0.826	0.854	5.80
77)	T	n-Decane	0.546	0.509	0.554	0.561	0.495	0.500	0.487	0.494	0.518	5.85
78)	T	1,3-Dichlorobe...	0.499	0.467	0.517	0.540	0.455	0.468	0.462	0.485	0.487	6.17
79)	T	1,4-Dichlorobe...	0.544	0.517	0.578	0.571	0.459	0.474	0.468	0.497	0.514	9.12
80)	T	sec-Butylbenzene	1.260	1.131	1.249	1.241	1.068	1.094	1.040	0.962	1.131	9.74
81)	T	p-Isopropyltol...	1.108	1.035	1.126	1.176	1.010	1.043	1.018	0.952	1.059	6.88
82)	T	1,2,3-Trimethy...	0.864	0.843	0.929	0.954	0.816	0.833	0.813	0.819	0.859	6.28
83)	T	1,2-Dichlorobe...	0.481	0.484	0.515	0.526	0.442	0.452	0.446	0.469	0.477	6.50
84)	T	d-Limonene	0.310	0.322	0.360	0.384	0.344	0.359	0.353	0.358	0.349	6.69
85)	T	1,2-Dibromo-3-...	0.142	0.128	0.135	0.148	0.158	0.169	0.170	0.175	0.153	11.42
86)	T	n-Undecane	0.601	0.550	0.537	0.569	0.525	0.540	0.532	0.532	0.548	4.63
87)	T	1,2,4-Trichlor...	0.084	0.090	0.117	0.120	0.107	0.112	0.112	0.120	0.108	12.51
88)	T	Naphthalene	1.010	0.903	1.074	1.180	1.025	1.066	1.059	0.969	1.036	7.87
89)	T	n-Dodecane	0.639	0.455	0.488	0.529	0.534	0.557	0.561	0.569	0.542	10.23
90)	T	Hexachloro-1,3...	0.257	0.226	0.251	0.259	0.224	0.232	0.226	0.233	0.238	6.15
91)	T	Cyclohexanone	0.320	0.261	0.280	0.283	0.291	0.290	0.283	0.297	0.288	5.83
92)	T	tert-Butylbenzene	0.952	0.856	0.923	0.919	0.781	0.801	0.756	0.747	0.842	9.69
93)	T	n-Butylbenzene	0.957	0.833	0.976	1.012	0.884	0.907	0.888	0.863	0.915	6.69

Evaluate Continuing Calibration Report

RM 10/20/16

Data Path : I:\MS18\DATA\2016 10\13\
Data File : 10131601.D
Acq On : 13 Oct 2016 11:19
Operator : RM
Sample : CCV F18 101316 S29-10051601
Misc : C300/C300 LIST/TO17 LIST 1042001
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 20 10:27:18 2016
Quant Method : I:\MS18\METHODS\F18101216.M
Quant Title : EPA TO-17 per SOP VOA-TO17 (CASS TO-17/GC-MS)
QLast Update : Thu Oct 20 09:15:10 2016
Response via : Initial Calibration

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	109	0.00
2	T	Propene	1.064	0.933	12.3	116	0.00
3	T	Dichlorodifluoromethane	1.575	1.548	1.7	113	0.00
4	T	Chloromethane	1.247	1.250	-0.2	118	0.00
5	T	Freon 114	0.911	0.919	-0.9	116	0.00
6	T	Vinyl Chloride	1.262	1.274	-1.0	116	0.00
7	T	1,3-Butadiene	0.983	1.122	-14.1	118	0.00
8	T	Bromomethane	0.686	0.712	-3.8	123	0.00
9	T	Chloroethane	0.636	0.668	-5.0	118	0.00
10	T	Ethanol	0.643	0.672	-4.5	118	0.00
11	T	Acetonitrile	1.710	1.731	-1.2	117	0.00
12	T	Acrolein	0.526	0.545	-3.6	121	0.00
13	T	Acetone	0.627	0.632	-0.8	118	0.00
14	T	Trichlorofluoromethane	1.528	1.488	2.6	113	0.00
15	T	Isopropanol	2.203	2.371	-7.6	117	0.00
16	T	Acrylonitrile	1.021	1.175	-15.1	120	0.00
17	T	1,1-Dichloroethene	0.844	0.851	-0.8	119	0.00
18	T	tert-Butanol	2.108	2.516	-19.4	117	0.00
19	T	Methylene Chloride	0.839	0.820	2.3	118	0.00
20	T	Allyl Chloride	1.262	1.403	-11.2	121	0.00
21	T	Trichlorotrifluoroethane	0.817	0.794	2.8	117	0.00
22	T	Carbon Disulfide	3.289	3.262	0.8	118	0.00
23	T	trans-1,2-Dichloroethene	1.267	1.315	-3.8	115	0.00
24	T	1,1-Dichloroethane	1.599	1.625	-1.6	115	0.00
25	T	Methyl tert-Butyl Ether	2.635	2.788	-5.8	118	0.00
26	T	2-Butanone	0.520	0.634	-21.9	120	0.00
27	T	cis-1,2-Dichloroethene	1.212	1.240	-2.3	117	0.00
28	T	n-Hexane	1.644	1.639	0.3	115	0.00
29	T	Chloroform	1.488	1.502	-0.9	117	0.00
30	S	1,2-Dichloroethane-d4(SS1)	1.675	1.654	1.3	104	0.00
31	T	Tetrahydrofuran	0.552	0.603	-9.2	123	0.00
32	T	Ethyl tert-Butyl Ether	1.099	1.118	-1.7	117	0.00
33	T	1,2-Dichloroethane	1.144	1.154	-0.9	111	0.00
34	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	109	0.00
35	T	1,1,1-Trichloroethane	0.298	0.304	-2.0	115	0.00
36	T	1-Butanol	0.200	0.217	-8.5	114	0.00
37	T	Benzene	0.915	0.782	14.5	118	0.00
38	T	Carbon Tetrachloride	0.256	0.279	-9.0	116	0.00
39	T	Cyclohexane	0.313	0.311	0.6	118	0.00
40	T	tert-Amyl Methyl Ether	0.581	0.575	1.0	117	0.00
41	T	1,2-Dichloropropane	0.209	0.211	-1.0	116	0.00
42	T	Bromodichloromethane	0.245	0.266	-8.6	113	0.00
43	T	Trichloroethene	0.229	0.223	2.6	117	0.00
44	T	1,4-Dioxane	0.157	0.167	-6.4	120	0.00
45	T	Isooctane	0.854	0.837	2.0	116	0.00
46	T	n-Heptane	0.224	0.228	-1.8	117	0.00
47	T	cis-1,3-Dichloropropene	0.300	0.333	-11.0	117	0.00
48	T	4-Methyl-2-pentanone	0.186	0.204	-9.7	117	0.00
49	T	trans-1,3-Dichloropropene	0.263	0.307	-16.7	122	0.00
50	T	1,1,2-Trichloroethane	0.190	0.198	-4.2	117	0.00
51	S	Toluene-d8 (SS2)	1.242	1.228	1.1	107	0.00
52	T	Toluene	0.835	0.821	1.7	116	0.00
53	T	2-Hexanone	0.479	0.508	-6.1	115	0.00

Evaluate Continuing Calibration Report

Data Path : I:\MS18\DATA\2016 10\13\
Data File : 10131601.D
Acq On : 13 Oct 2016 11:19
Operator : RM
Sample : CCV F18 101316 S29-10051601
Misc : C300/C300 LIST/TO17 LIST 1042001
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 20 10:27:18 2016
Quant Method : I:\MS18\METHODS\F18101216.M
Quant Title : EPA TO-17 per SOP VOA-TO17 (CASS TO-17/GC-MS)
QLast Update : Thu Oct 20 09:15:10 2016
Response via : Initial Calibration

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)
54	T	Dibromochloromethane	0.221	0.232	-5.0	117	0.00
55	T	1,2-Dibromoethane	0.198	0.215	-8.6	118	0.00
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	104	0.00
57		n-Octane	0.223	0.220	1.3	116	0.00
58	T	Tetrachloroethene	0.269	0.270	-0.4	116	0.00
59	T	Chlorobenzene	0.602	0.597	0.8	116	0.00
60	T	Ethylbenzene	1.045	1.046	-0.1	115	0.00
61	T	m- & p-Xylene	0.794	0.794	0.0	115	0.01
62	T	Bromoform	0.207	0.221	-6.8	118	0.00
63	T	Styrene	0.592	0.629	-6.3	118	0.00
64	T	o-Xylene	0.810	0.819	-1.1	115	0.00
65	T	n-Nonane	0.539	0.537	0.4	113	0.00
66	T	1,1,2,2-Tetrachloroethane	0.355	0.395	-11.3	119	0.00
67	S	Bromofluorobenzene (SS3)	0.446	0.448	-0.4	100	0.00
68	T	Cumene	1.034	1.049	-1.5	115	0.00
69	T	alpha-Pinene	0.500	0.489	2.2	116	0.00
70	T	n-Propylbenzene	1.223	1.263	-3.3	114	0.00
71	T	3-Ethyltoluene	1.020	1.056	-3.5	117	0.00
72	T	4-Ethyltoluene	0.986	1.013	-2.7	113	0.00
73	T	1,3,5-Trimethylbenzene	0.854	0.869	-1.8	115	0.00
74	T	alpha-Methylstyrene	0.419	0.460	-9.8	115	0.00
75	T	2-Ethyltoluene	0.981	1.013	-3.3	115	0.00
76	T	1,2,4-Trimethylbenzene	0.854	0.880	-3.0	113	0.00
77	T	n-Decane	0.518	0.538	-3.9	113	0.00
78	T	1,3-Dichlorobenzene	0.487	0.501	-2.9	115	0.00
79	T	1,4-Dichlorobenzene	0.514	0.523	-1.8	119	0.00
80	T	sec-Butylbenzene	1.131	1.160	-2.6	113	0.00
81	T	p-Isopropyltoluene	1.059	1.106	-4.4	114	0.01
82	T	1,2,3-Trimethylbenzene	0.859	0.880	-2.4	113	0.00
83	T	1,2-Dichlorobenzene	0.477	0.488	-2.3	115	0.00
84	T	d-Limonene	0.349	0.378	-8.3	115	0.00
85	T	1,2-Dibromo-3-Chloropropane	0.153	0.180	-17.6	119	0.01
86	T	n-Undecane	0.548	0.571	-4.2	114	0.00
87	T	1,2,4-Trichlorobenzene	0.108	0.122	-13.0	119	0.00
88	T	Naphthalene	1.036	1.189	-14.8	121	0.00
89	T	n-Dodecane	0.542	0.585	-7.9	114	0.00
90	T	Hexachloro-1,3-butadiene	0.238	0.245	-2.9	114	0.01
91	T	Cyclohexanone	0.288	0.336	-16.7	120	0.00
92	T	tert-Butylbenzene	0.842	0.859	-2.0	115	0.00
93	T	n-Butylbenzene	0.915	0.968	-5.8	114	0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0