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[www.alsglobal.com](http://www.alsglobal.com)

## LABORATORY REPORT

March 17, 2016

Rob Nieman  
ALS Environmental  
4388 Glendale Milford Road  
Cincinnati, OH 45242

**RE: 1603278**

Dear Rob:

Enclosed are the results of the sample submitted to our laboratory on March 3, 2016. For your reference, these analyses have been assigned our service request number P1601121.

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](http://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 Kate Aguilera at 3:08 pm, Mar 17, 2016

Kate Aguilera  
Project Manager



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Client: ALS Environmental  
Project: 1603278

Service Request No: P1601121

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## CASE NARRATIVE

The sample was received intact under chain of custody on March 3, 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 sample at the time of sample receipt.

### Sulfur Analysis

The sample was 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 included on the laboratory's NELAP scope of accreditation, however it is not part of the DoD-ELAP or AIHA-LAP accreditation.

### Volatile Organic Compound Analysis

The sample was also analyzed for volatile organic 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. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation, however it is not part of the AIHA-LAP accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The minimum criterion for Propene was not met in the Continuing Calibration Verification (CCV) analyzed on March 9, 2016. A Method Reporting Limit (MRL) check standard containing the analyte of concern was analyzed the day of analysis. The MRL check standard verified that instrument sensitivity was adequate to detect the analyte at the MRL on the day of analysis. The sample contained a hit of the analyte above the MRL. Since the recovery for Propene in the MRL check standard was above 70% the data quality has not been significantly affected. No further corrective action was necessary.

The containers 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.

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*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	<a href="http://www.aihaaccreditedlabs.org">http://www.aihaaccreditedlabs.org</a>	101661
Arizona DHS	<a href="http://www.azdhs.gov/lab/license/env.htm">http://www.azdhs.gov/lab/license/env.htm</a>	AZ0694
DoD ELAP	<a href="http://www.pjlabs.com/search-accredited-labs">http://www.pjlabs.com/search-accredited-labs</a>	L15-398
Florida DOH (NELAP)	<a href="http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm">http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm</a>	E871020
Maine DHHS	<a href="http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm">http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm</a>	2014025
Minnesota DOH (NELAP)	<a href="http://www.health.state.mn.us/accreditation">http://www.health.state.mn.us/accreditation</a>	977273
New Jersey DEP (NELAP)	<a href="http://www.nj.gov/dep/oqa/">http://www.nj.gov/dep/oqa/</a>	CA009
New York DOH (NELAP)	<a href="http://www.wadsworth.org/labcert/elap/elap.html">http://www.wadsworth.org/labcert/elap/elap.html</a>	11221
Oregon PHD (NELAP)	<a href="http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx">http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx</a>	4068-001
Pennsylvania DEP	<a href="http://www.depweb.state.pa.us/labs">http://www.depweb.state.pa.us/labs</a>	68-03307 (Registration)
Texas CEQ (NELAP)	<a href="http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html">http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html</a>	T104704413-15-6
Utah DOH (NELAP)	<a href="http://www.health.utah.gov/lab/labimp/certification/index.html">http://www.health.utah.gov/lab/labimp/certification/index.html</a>	CA01627201 5-5
Washington DOE	<a href="http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html">http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html</a>	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](http://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: ALS Environmental  
 Project ID: 1603278

Service Request: P1601121

Date Received: 3/3/2016  
 Time Received: 09:30

ASTM D 5504-12 - Sulfur Can
TO-15 - VOC Cans

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)		
1603278-06A (SHP030216-summa)	P1601121-001	Air	3/2/2016	12:39	AS00781	-4.08	3.28	X	X







# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 1

**Client:** ALS Environmental  
**Client Sample ID:** 1603278-06A (SHP030216-summa)  
**Client Project ID:** 1603278

ALS Project ID: P1601121  
 ALS Sample ID: P1601121-001

Test Code: ASTM D 5504-12  
 Instrument ID: Agilent 7890B/GC30/SCD  
 Analyst: Mike Conejo  
 Sample Type: 6.0 L Silonite Canister  
 Test Notes:  
 Container ID: AS00781

Date Collected: 3/2/16  
 Time Collected: 12:39  
 Date Received: 3/3/16  
 Date Analyzed: 3/7/16  
 Time Analyzed: 11:56  
 Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): -4.08      Final Pressure (psig): 3.28

Canister Dilution Factor: 1.69

CAS #	Compound	Result µg/m <sup>3</sup>	MRL µg/m <sup>3</sup>	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	12	ND	8.5	
463-58-1	Carbonyl Sulfide	ND	21	ND	8.5	
74-93-1	Methyl Mercaptan	ND	17	ND	8.5	
75-08-1	Ethyl Mercaptan	ND	21	ND	8.5	
75-18-3	Dimethyl Sulfide	ND	21	ND	8.5	
75-15-0	Carbon Disulfide	ND	13	ND	4.2	
75-33-2	Isopropyl Mercaptan	ND	26	ND	8.5	
75-66-1	tert-Butyl Mercaptan	ND	31	ND	8.5	
107-03-9	n-Propyl Mercaptan	ND	26	ND	8.5	
624-89-5	Ethyl Methyl Sulfide	ND	26	ND	8.5	
110-02-1	Thiophene	ND	29	ND	8.5	
513-44-0	Isobutyl Mercaptan	ND	31	ND	8.5	
352-93-2	Diethyl Sulfide	ND	31	ND	8.5	
109-79-5	n-Butyl Mercaptan	ND	31	ND	8.5	
624-92-0	Dimethyl Disulfide	ND	16	ND	4.2	
616-44-4	3-Methylthiophene	ND	34	ND	8.5	
110-01-0	Tetrahydrothiophene	ND	30	ND	8.5	
638-02-8	2,5-Dimethylthiophene	ND	39	ND	8.5	
872-55-9	2-Ethylthiophene	ND	39	ND	8.5	
110-81-6	Diethyl Disulfide	ND	21	ND	4.2	

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:** ALS Environmental  
**Client Sample ID:** Method Blank  
**Client Project ID:** 1603278

ALS Project ID: P1601121  
 ALS Sample ID: P160307-MB

Test Code: ASTM D 5504-12  
 Instrument ID: Agilent 7890B/GC30/SCD  
 Analyst: Mike Conejo  
 Sample Type: 6.0 L Silonite Canister  
 Test Notes:

Date Collected: NA  
 Time Collected: NA  
 Date Received: NA  
 Date Analyzed: 3/07/16  
 Time Analyzed: 08:27  
 Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m <sup>3</sup>	MRL µg/m <sup>3</sup>	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:** ALS Environmental  
**Client Sample ID:** Lab Control Sample  
**Client Project ID:** 1603278

ALS Project ID: P1601121  
ALS Sample ID: P160307-LCS

Test Code: ASTM D 5504-12  
Instrument ID: Agilent 7890B/GC30/SCD  
Analyst: Mike Conejo  
Sample Type: 6.0 L Silonite Canister  
Test Notes:

Date Collected: NA  
Date Received: NA  
Date Analyzed: 3/07/16  
Volume(s) Analyzed: NA ml(s)

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS	Data Qualifier
					Acceptance Limits	
7783-06-4	Hydrogen Sulfide	1,000	<b>935</b>	<b>94</b>	65-138	
463-58-1	Carbonyl Sulfide	1,000	<b>997</b>	<b>100</b>	60-135	
74-93-1	Methyl Mercaptan	1,000	<b>1,010</b>	<b>101</b>	57-140	

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 3

**Client:** ALS Environmental  
**Client Sample ID:** 1603278-06A (SHP030216-summa)  
**Client Project ID:** 1603278

ALS Project ID: P1601121  
 ALS Sample ID: P1601121-001

Test Code: EPA TO-15  
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13  
 Analyst: Evelyn Alvarez  
 Sample Type: 6.0 L Silonite Canister  
 Test Notes:  
 Container ID: AS00781

Date Collected: 3/2/16  
 Date Received: 3/3/16  
 Date Analyzed: 3/9/16  
 Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -4.08      Final Pressure (psig): 3.28

Canister Dilution Factor: 1.69

CAS #	Compound	Result	MRL	Result	MRL	Data Qualifier
		µg/m <sup>3</sup>	µg/m <sup>3</sup>	ppbV	ppbV	
115-07-1	Propene	2.4	0.85	1.4	0.49	V
75-71-8	Dichlorodifluoromethane (CFC 12)	2.2	0.85	0.44	0.17	
74-87-3	Chloromethane	ND	0.85	ND	0.41	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.85	ND	0.12	
75-01-4	Vinyl Chloride	ND	0.85	ND	0.33	
106-99-0	1,3-Butadiene	ND	0.85	ND	0.38	
74-83-9	Bromomethane	ND	0.85	ND	0.22	
75-00-3	Chloroethane	ND	0.85	ND	0.32	
64-17-5	Ethanol	ND	8.5	ND	4.5	
75-05-8	Acetonitrile	ND	0.85	ND	0.50	
107-02-8	Acrolein	ND	3.4	ND	1.5	
67-64-1	Acetone	ND	8.5	ND	3.6	
75-69-4	Trichlorofluoromethane	1.1	0.85	0.20	0.15	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	8.5	ND	3.4	
107-13-1	Acrylonitrile	ND	0.85	ND	0.39	
75-35-4	1,1-Dichloroethene	ND	0.85	ND	0.21	
75-09-2	Methylene Chloride	ND	0.85	ND	0.24	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.85	ND	0.27	
76-13-1	Trichlorotrifluoroethane	ND	0.85	ND	0.11	
75-15-0	Carbon Disulfide	ND	8.5	ND	2.7	
156-60-5	trans-1,2-Dichloroethene	ND	0.85	ND	0.21	
75-34-3	1,1-Dichloroethane	ND	0.85	ND	0.21	
1634-04-4	Methyl tert-Butyl Ether	ND	0.85	ND	0.23	
108-05-4	Vinyl Acetate	ND	8.5	ND	2.4	
78-93-3	2-Butanone (MEK)	ND	8.5	ND	2.9	

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.

V = The continuing calibration verification standard was outside (biased low) the specified limits for this compound.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 2 of 3

**Client:** ALS Environmental  
**Client Sample ID:** 1603278-06A (SHP030216-summa)  
**Client Project ID:** 1603278

ALS Project ID: P1601121  
 ALS Sample ID: P1601121-001

Test Code: EPA TO-15  
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13  
 Analyst: Evelyn Alvarez  
 Sample Type: 6.0 L Silonite Canister  
 Test Notes:  
 Container ID: AS00781

Date Collected: 3/2/16  
 Date Received: 3/3/16  
 Date Analyzed: 3/9/16  
 Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -4.08      Final Pressure (psig): 3.28

Canister Dilution Factor: 1.69

CAS #	Compound	Result µg/m <sup>3</sup>	MRL µg/m <sup>3</sup>	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.85	ND	0.21	
141-78-6	Ethyl Acetate	<b>3.9</b>	1.7	<b>1.1</b>	0.47	
110-54-3	n-Hexane	ND	0.85	ND	0.24	
67-66-3	Chloroform	ND	0.85	ND	0.17	
109-99-9	Tetrahydrofuran (THF)	ND	0.85	ND	0.29	
107-06-2	1,2-Dichloroethane	ND	0.85	ND	0.21	
71-55-6	1,1,1-Trichloroethane	ND	0.85	ND	0.15	
71-43-2	Benzene	ND	0.85	ND	0.26	
56-23-5	Carbon Tetrachloride	ND	0.85	ND	0.13	
110-82-7	Cyclohexane	ND	1.7	ND	0.49	
78-87-5	1,2-Dichloropropane	ND	0.85	ND	0.18	
75-27-4	Bromodichloromethane	ND	0.85	ND	0.13	
79-01-6	Trichloroethene	ND	0.85	ND	0.16	
123-91-1	1,4-Dioxane	ND	0.85	ND	0.23	
80-62-6	Methyl Methacrylate	ND	1.7	ND	0.41	
142-82-5	n-Heptane	ND	0.85	ND	0.21	
10061-01-5	cis-1,3-Dichloropropene	ND	0.85	ND	0.19	
108-10-1	4-Methyl-2-pentanone	ND	0.85	ND	0.21	
10061-02-6	trans-1,3-Dichloropropene	ND	0.85	ND	0.19	
79-00-5	1,1,2-Trichloroethane	ND	0.85	ND	0.15	
108-88-3	Toluene	ND	0.85	ND	0.22	
591-78-6	2-Hexanone	ND	0.85	ND	0.21	
124-48-1	Dibromochloromethane	ND	0.85	ND	0.099	
106-93-4	1,2-Dibromoethane	ND	0.85	ND	0.11	
123-86-4	n-Butyl Acetate	ND	0.85	ND	0.18	

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

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

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 3 of 3

**Client:** ALS Environmental  
**Client Sample ID:** 1603278-06A (SHP030216-summa)  
**Client Project ID:** 1603278

ALS Project ID: P1601121  
 ALS Sample ID: P1601121-001

Test Code: EPA TO-15  
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13  
 Analyst: Evelyn Alvarez  
 Sample Type: 6.0 L Silonite Canister  
 Test Notes:  
 Container ID: AS00781

Date Collected: 3/2/16  
 Date Received: 3/3/16  
 Date Analyzed: 3/9/16  
 Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -4.08      Final Pressure (psig): 3.28

Canister Dilution Factor: 1.69

CAS #	Compound	Result µg/m <sup>3</sup>	MRL µg/m <sup>3</sup>	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.85	ND	0.18	
127-18-4	Tetrachloroethene	ND	0.85	ND	0.12	
108-90-7	Chlorobenzene	ND	0.85	ND	0.18	
100-41-4	Ethylbenzene	ND	0.85	ND	0.19	
179601-23-1	m,p-Xylenes	ND	1.7	ND	0.39	
75-25-2	Bromoform	ND	0.85	ND	0.082	
100-42-5	Styrene	ND	0.85	ND	0.20	
95-47-6	o-Xylene	ND	0.85	ND	0.19	
111-84-2	n-Nonane	ND	0.85	ND	0.16	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.85	ND	0.12	
98-82-8	Cumene	ND	0.85	ND	0.17	
80-56-8	alpha-Pinene	ND	0.85	ND	0.15	
103-65-1	n-Propylbenzene	ND	0.85	ND	0.17	
622-96-8	4-Ethyltoluene	ND	0.85	ND	0.17	
108-67-8	1,3,5-Trimethylbenzene	ND	0.85	ND	0.17	
95-63-6	1,2,4-Trimethylbenzene	ND	0.85	ND	0.17	
100-44-7	Benzyl Chloride	ND	0.85	ND	0.16	
541-73-1	1,3-Dichlorobenzene	ND	0.85	ND	0.14	
106-46-7	1,4-Dichlorobenzene	ND	0.85	ND	0.14	
95-50-1	1,2-Dichlorobenzene	ND	0.85	ND	0.14	
5989-27-5	d-Limonene	ND	0.85	ND	0.15	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.85	ND	0.087	
120-82-1	1,2,4-Trichlorobenzene	ND	0.85	ND	0.11	
91-20-3	Naphthalene	ND	0.85	ND	0.16	
87-68-3	Hexachlorobutadiene	ND	0.85	ND	0.079	

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 3

**Client:** ALS Environmental  
**Client Sample ID:** Method Blank  
**Client Project ID:** 1603278

ALS Project ID: P1601121  
 ALS Sample ID: P160309-MB

Test Code: EPA TO-15  
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13  
 Analyst: Evelyn Alvarez  
 Sample Type: 6.0 L Silonite Canister  
 Test Notes:

Date Collected: NA  
 Date Received: NA  
 Date Analyzed: 3/9/16  
 Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result	MRL	Result	MRL	Data Qualifier
		µg/m <sup>3</sup>	µg/m <sup>3</sup>	ppbV	ppbV	
115-07-1	Propene	ND	0.50	ND	0.29	V
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.

V = The continuing calibration verification standard was outside (biased low) the specified limits for this compound.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 2 of 3

**Client:** ALS Environmental  
**Client Sample ID:** Method Blank  
**Client Project ID:** 1603278

ALS Project ID: P1601121  
 ALS Sample ID: P160309-MB

Test Code: EPA TO-15  
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13  
 Analyst: Evelyn Alvarez  
 Sample Type: 6.0 L Silonite Canister  
 Test Notes:

Date Collected: NA  
 Date Received: NA  
 Date Analyzed: 3/9/16  
 Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m <sup>3</sup>	MRL µg/m <sup>3</sup>	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

Page 3 of 3

**Client:** ALS Environmental  
**Client Sample ID:** Method Blank  
**Client Project ID:** 1603278

ALS Project ID: P1601121  
 ALS Sample ID: P160309-MB

Test Code: EPA TO-15  
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13  
 Analyst: Evelyn Alvarez  
 Sample Type: 6.0 L Silonite Canister  
 Test Notes:

Date Collected: NA  
 Date Received: NA  
 Date Analyzed: 3/9/16  
 Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m <sup>3</sup>	MRL µg/m <sup>3</sup>	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

## SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

**Client:** ALS Environmental  
**Client Project ID:** 1603278

ALS Project ID: P1601121

Test Code: EPA TO-15  
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13  
 Analyst: Evelyn Alvarez  
 Sample Type: 6.0 L Silonite Canister(s)  
 Test Notes:

Date(s) Collected: 3/2/16  
 Date(s) Received: 3/3/16  
 Date(s) Analyzed: 3/9/16

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	P160309-MB	<b>93</b>	<b>104</b>	<b>97</b>	70-130	
Lab Control Sample	P160309-LCS	<b>88</b>	<b>102</b>	<b>105</b>	70-130	
1603278-06A (SHP030216-summa)	P1601121-001	<b>91</b>	<b>103</b>	<b>100</b>	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:** ALS Environmental  
**Client Sample ID:** Lab Control Sample  
**Client Project ID:** 1603278

ALS Project ID: P1601121  
 ALS Sample ID: P160309-LCS

Test Code: EPA TO-15  
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13  
 Analyst: Evelyn Alvarez  
 Sample Type: 6.0 L Silonite Canister  
 Test Notes:

Date Collected: NA  
 Date Received: NA  
 Date Analyzed: 3/9/16  
 Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m <sup>3</sup>	Result µg/m <sup>3</sup>	% Recovery	ALS	Data Qualifier
					Acceptance Limits	
115-07-1	Propene	196	163	83	49-131	
75-71-8	Dichlorodifluoromethane (CFC 12)	188	162	86	65-117	
74-87-3	Chloromethane	200	183	92	48-132	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	204	178	87	65-122	
75-01-4	Vinyl Chloride	200	182	91	65-128	
106-99-0	1,3-Butadiene	206	213	103	62-143	
74-83-9	Bromomethane	202	200	99	65-130	
75-00-3	Chloroethane	200	179	90	69-126	
64-17-5	Ethanol	998	981	98	57-126	
75-05-8	Acetonitrile	212	189	89	51-134	
107-02-8	Acrolein	214	203	95	55-146	
67-64-1	Acetone	1,080	1120	104	57-120	
75-69-4	Trichlorofluoromethane	216	172	80	59-139	
67-63-0	2-Propanol (Isopropyl Alcohol)	418	413	99	59-129	
107-13-1	Acrylonitrile	212	220	104	64-136	
75-35-4	1,1-Dichloroethene	216	215	100	72-123	
75-09-2	Methylene Chloride	222	199	90	63-117	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	218	203	93	50-141	
76-13-1	Trichlorotrifluoroethane	220	206	94	68-118	
75-15-0	Carbon Disulfide	210	161	77	55-143	
156-60-5	trans-1,2-Dichloroethene	210	211	100	69-129	
75-34-3	1,1-Dichloroethane	212	194	92	66-122	
1634-04-4	Methyl tert-Butyl Ether	216	195	90	55-128	
108-05-4	Vinyl Acetate	1,040	1190	114	66-140	
78-93-3	2-Butanone (MEK)	220	237	108	62-127	

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:** ALS Environmental  
**Client Sample ID:** Lab Control Sample  
**Client Project ID:** 1603278

ALS Project ID: P1601121  
 ALS Sample ID: P160309-LCS

Test Code: EPA TO-15  
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13  
 Analyst: Evelyn Alvarez  
 Sample Type: 6.0 L Silonite Canister  
 Test Notes:

Date Collected: NA  
 Date Received: NA  
 Date Analyzed: 3/9/16  
 Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m <sup>3</sup>	Result µg/m <sup>3</sup>	% Recovery	ALS	Data Qualifier
					Acceptance Limits	
156-59-2	cis-1,2-Dichloroethene	218	213	98	65-125	
141-78-6	Ethyl Acetate	428	483	113	64-132	
110-54-3	n-Hexane	212	203	96	58-126	
67-66-3	Chloroform	224	208	93	68-117	
109-99-9	Tetrahydrofuran (THF)	220	206	94	64-123	
107-06-2	1,2-Dichloroethane	214	187	87	63-124	
71-55-6	1,1,1-Trichloroethane	210	194	92	68-120	
71-43-2	Benzene	226	221	98	61-110	
56-23-5	Carbon Tetrachloride	230	205	89	65-137	
110-82-7	Cyclohexane	424	447	105	68-122	
78-87-5	1,2-Dichloropropane	216	213	99	67-122	
75-27-4	Bromodichloromethane	218	213	98	71-124	
79-01-6	Trichloroethene	216	207	96	71-121	
123-91-1	1,4-Dioxane	210	248	118	67-122	
80-62-6	Methyl Methacrylate	422	511	121	76-130	
142-82-5	n-Heptane	216	213	99	67-125	
10061-01-5	cis-1,3-Dichloropropene	208	219	105	73-131	
108-10-1	4-Methyl-2-pentanone	220	248	113	66-132	
10061-02-6	trans-1,3-Dichloropropene	210	228	109	76-135	
79-00-5	1,1,2-Trichloroethane	216	226	105	73-121	
108-88-3	Toluene	218	223	102	67-117	
591-78-6	2-Hexanone	220	243	110	59-128	
124-48-1	Dibromochloromethane	220	243	110	73-132	
106-93-4	1,2-Dibromoethane	218	243	111	73-128	
123-86-4	n-Butyl Acetate	226	257	114	61-136	

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:** ALS Environmental  
**Client Sample ID:** Lab Control Sample  
**Client Project ID:** 1603278

ALS Project ID: P1601121  
 ALS Sample ID: P160309-LCS

Test Code: EPA TO-15  
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13  
 Analyst: Evelyn Alvarez  
 Sample Type: 6.0 L Silonite Canister  
 Test Notes:

Date Collected: NA  
 Date Received: NA  
 Date Analyzed: 3/9/16  
 Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m <sup>3</sup>	Result µg/m <sup>3</sup>	% Recovery	ALS	Data Qualifier
					Acceptance Limits	
111-65-9	n-Octane	210	<b>209</b>	<b>100</b>	67-124	
127-18-4	Tetrachloroethene	202	<b>218</b>	<b>108</b>	65-126	
108-90-7	Chlorobenzene	220	<b>233</b>	<b>106</b>	68-120	
100-41-4	Ethylbenzene	218	<b>233</b>	<b>107</b>	69-123	
179601-23-1	m,p-Xylenes	428	<b>463</b>	<b>108</b>	67-125	
75-25-2	Bromoform	228	<b>242</b>	<b>106</b>	68-153	
100-42-5	Styrene	222	<b>258</b>	<b>116</b>	68-132	
95-47-6	o-Xylene	210	<b>229</b>	<b>109</b>	67-124	
111-84-2	n-Nonane	204	<b>210</b>	<b>103</b>	60-130	
79-34-5	1,1,2,2-Tetrachloroethane	210	<b>246</b>	<b>117</b>	72-128	
98-82-8	Cumene	208	<b>232</b>	<b>112</b>	67-124	
80-56-8	alpha-Pinene	212	<b>238</b>	<b>112</b>	67-129	
103-65-1	n-Propylbenzene	204	<b>232</b>	<b>114</b>	67-125	
622-96-8	4-Ethyltoluene	214	<b>246</b>	<b>115</b>	66-128	
108-67-8	1,3,5-Trimethylbenzene	214	<b>242</b>	<b>113</b>	65-125	
95-63-6	1,2,4-Trimethylbenzene	218	<b>287</b>	<b>132</b>	62-134	
100-44-7	Benzyl Chloride	220	<b>256</b>	<b>116</b>	74-145	
541-73-1	1,3-Dichlorobenzene	228	<b>280</b>	<b>123</b>	63-133	
106-46-7	1,4-Dichlorobenzene	208	<b>263</b>	<b>126</b>	62-129	
95-50-1	1,2-Dichlorobenzene	220	<b>285</b>	<b>130</b>	62-134	
5989-27-5	d-Limonene	210	<b>262</b>	<b>125</b>	66-137	
96-12-8	1,2-Dibromo-3-chloropropane	218	<b>251</b>	<b>115</b>	71-147	
120-82-1	1,2,4-Trichlorobenzene	230	<b>263</b>	<b>114</b>	60-145	
91-20-3	Naphthalene	218	<b>281</b>	<b>129</b>	56-158	
87-68-3	Hexachlorobutadiene	230	<b>244</b>	<b>106</b>	56-139	

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.