2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

LABORATORY REPORT

February 17, 2016

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

RE: 1602347

Dear Rob:

Enclosed are the results of the sample submitted to our laboratory on February 5, 2016. For your reference, these analyses have been assigned our service request number P1600610.

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

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

Respectfully submitted,

ALS | Environmental

Kate Aguilera

By Kate Aguilera at 5:14 pm, Feb 17, 2016

Kate Aguilera
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: ALS Environmental
Project: 1602347

Service Request No: P1600610

CASE NARRATIVE

The sample was received intact under chain of custody on February 5, 2016 and was 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 container was 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.

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L15-398
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	4068-001
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	T104704413-15-6
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272015-5
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

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

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

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Environmental
Project ID: 1602347

Service Request: P1600610

Date Received: 2/5/2016
Time Received: 09:40

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	ASTM D 5504-12 - Sulfur Can	TO-15 - VOC Cans
1602347-06A (KSL020416-Summa)	P1600610-001	Air	2/4/2016	11:29	AS00862	-1.31	3.35	X	X

P1600610

CHAIN-OF-CUSTODY RECORD

Date: **10-Feb-16**
COC ID: **3504**
Due Date **23-Feb-16**

Subcontractor:
ALS Simi Valley
2655 Park Center Drive
Suite A
Simi Valley,
TEL: (805) 526-7161
FAX: (805) 526-7270
Acct #:

Salesperson

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	31-1883	Project Name	1602347	A	Sulfur gases by ASTM 5504 Mod. (A5504)
Work Order		Project Number		B	TO-15 by GC/MS (ETO-15)
Company Name	ALS Group USA, Corp	Bill To Company	ALS Group USA, Corp	C	
Send Report To	Rob Nieman	Inv Attn	Accounts Payable	D	
Address	4388 Glendale Milford Rd	Address	4388 Glendale Milford Rd	E	
				F	
City/State/Zip	Cincinnati, Ohio 45242-	City/State/Zip	Cincinnati, Ohio 45242-	G	
Phone	(513) 733-5336	Phone	(513) 733-5336	H	
Fax	(513) 733-5347	Fax	(513) 733-5347	I	
eMail Address	alscn.reporting@alsglobal.com	eMail CC		J	

Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
1602347-06A (KSL020416-Summa)	Air	4/Feb/2016	(1) SUMMA	X	X								

5 of 20

Comments:

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
					Std
Relinquished by:	Date/Time	Received by:	Date/Time		

SUMMA

Air - Chain of Custody Record & Analytical Service Request

Page _____ of _____

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

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 P1600610

ALS Contact:

Company Name & Address (Reporting Information)
Pennsylvania Dept. of Environmental Protection
2 Public Square
Wilkes-Barre, PA 18701-1915

Project Name Keystone Landfill/PADOH/PADEP

Project Number

P.O. # / Billing Information

Project Manager Roger Bellas

Phone (570) 826-2511

Fax (570) 826-5448

Email Address for Result Reporting RBELLAS@PA.GOV

Sampler (Print & Sign) David P Golobek

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	Analysis Method		Legal Seal#
KSL 020416		2/4/16	11:29am	17623	03400	-29 "Hg	-4 "Hg				106529
start date/time:		2/3/16	11:36am								

Report Tier Levels - please select

Tier I - Results (Default in not specified) _____
Tier II (Results + QC Summaries _____
Tier III (Results + QC & Calibration Summaries) _____
Tier IV (Date Validation Package) 10% Surcharge _____

EDD required YES / No
Type: _____ Units: _____

Chain of Custody Seal: (Circle)
INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
David P Golobek	02/04/2016	1:26 pm		2/5/16	0940
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

Cooler / Blank Temperature _____ °C

6 of 20

ALS Environmental
Sample Acceptance Check Form

Client: ALS Environmental Work order: P1600610

Project: 1602347

Sample(s) received on: 2/5/16 Date opened: 2/5/16 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?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? sealing boxes 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
P1600610-001.01	6.0 L Silonite Can					

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

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental**
Client Sample ID: **1602347-06A (KSL020416-Summa)**
Client Project ID: **1602347**

ALS Project ID: P1600610
ALS Sample ID: P1600610-001

Test Code: ASTM D 5504-12
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: AS00862

Date Collected: 2/4/16
Time Collected: 11:29
Date Received: 2/5/16
Date Analyzed: 2/11/16
Time Analyzed: 08:02
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): -1.31 Final Pressure (psig): 3.35

Canister Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	9.4	ND	6.8	
463-58-1	Carbonyl Sulfide	ND	17	ND	6.8	
74-93-1	Methyl Mercaptan	ND	13	ND	6.8	
75-08-1	Ethyl Mercaptan	ND	17	ND	6.8	
75-18-3	Dimethyl Sulfide	ND	17	ND	6.8	
75-15-0	Carbon Disulfide	ND	11	ND	3.4	
75-33-2	Isopropyl Mercaptan	ND	21	ND	6.8	
75-66-1	tert-Butyl Mercaptan	ND	25	ND	6.8	
107-03-9	n-Propyl Mercaptan	ND	21	ND	6.8	
624-89-5	Ethyl Methyl Sulfide	ND	21	ND	6.8	
110-02-1	Thiophene	ND	23	ND	6.8	
513-44-0	Isobutyl Mercaptan	ND	25	ND	6.8	
352-93-2	Diethyl Sulfide	ND	25	ND	6.8	
109-79-5	n-Butyl Mercaptan	ND	25	ND	6.8	
624-92-0	Dimethyl Disulfide	ND	13	ND	3.4	
616-44-4	3-Methylthiophene	ND	27	ND	6.8	
110-01-0	Tetrahydrothiophene	ND	24	ND	6.8	
638-02-8	2,5-Dimethylthiophene	ND	31	ND	6.8	
872-55-9	2-Ethylthiophene	ND	31	ND	6.8	
110-81-6	Diethyl Disulfide	ND	17	ND	3.4	

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

Client: **ALS Environmental**
Client Sample ID: **Method Blank**
Client Project ID: **1602347**

ALS Project ID: P1600610
ALS Sample ID: P160211-MB

Test Code: ASTM D 5504-12
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 2/11/16
Time Analyzed: 07:22
Volume(s) Analyzed: 1.0 ml(s)

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

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

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Environmental**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1600610
Client Project ID: **1602347** ALS Sample ID: P160211-LCS

Test Code: ASTM D 5504-12 Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 2/11/16
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	2,000	**2,100**	**105**	65-138	
463-58-1	Carbonyl Sulfide	2,000	**1,990**	**100**	60-135	
74-93-1	Methyl Mercaptan	2,000	**2,010**	**101**	57-140	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental**
Client Sample ID: **1602347-06A (KSL020416-Summa)** ALS Project ID: P1600610
Client Project ID: **1602347** ALS Sample ID: P1600610-001

Test Code: EPA TO-15 Date Collected: 2/4/16
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 2/5/16
Analyst: Wida Ang Date Analyzed: 2/12/16
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00862

Initial Pressure (psig): -1.31 Final Pressure (psig): 3.35

Canister Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	**4.1**	0.68	**2.4**	0.39	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.6**	0.68	**0.52**	0.14	
74-87-3	Chloromethane	ND	0.68	ND	0.33	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.68	ND	0.097	
75-01-4	Vinyl Chloride	ND	0.68	ND	0.26	
106-99-0	1,3-Butadiene	ND	0.68	ND	0.31	
74-83-9	Bromomethane	ND	0.68	ND	0.17	
75-00-3	Chloroethane	ND	0.68	ND	0.26	
64-17-5	Ethanol	ND	6.8	ND	3.6	
75-05-8	Acetonitrile	ND	0.68	ND	0.40	
107-02-8	Acrolein	ND	2.7	ND	1.2	
67-64-1	Acetone	ND	6.8	ND	2.8	
75-69-4	Trichlorofluoromethane	**1.2**	0.68	**0.22**	0.12	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	6.8	ND	2.7	
107-13-1	Acrylonitrile	ND	0.68	ND	0.31	
75-35-4	1,1-Dichloroethene	ND	0.68	ND	0.17	
75-09-2	Methylene Chloride	ND	0.68	ND	0.19	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.68	ND	0.22	
76-13-1	Trichlorotrifluoroethane	ND	0.68	ND	0.088	
75-15-0	Carbon Disulfide	ND	6.8	ND	2.2	
156-60-5	trans-1,2-Dichloroethene	ND	0.68	ND	0.17	
75-34-3	1,1-Dichloroethane	ND	0.68	ND	0.17	
1634-04-4	Methyl tert-Butyl Ether	ND	0.68	ND	0.19	
108-05-4	Vinyl Acetate	ND	6.8	ND	1.9	
78-93-3	2-Butanone (MEK)	ND	6.8	ND	2.3	

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

Client: **ALS Environmental**
Client Sample ID: **1602347-06A (KSL020416-Summa)** ALS Project ID: P1600610
Client Project ID: **1602347** ALS Sample ID: P1600610-001

Test Code: EPA TO-15 Date Collected: 2/4/16
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 2/5/16
Analyst: Wida Ang Date Analyzed: 2/12/16
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00862

Initial Pressure (psig): -1.31 Final Pressure (psig): 3.35

Canister Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.68	ND	0.17	
141-78-6	Ethyl Acetate	**1.5**	1.4	**0.41**	0.37	
110-54-3	n-Hexane	ND	0.68	ND	0.19	
67-66-3	Chloroform	ND	0.68	ND	0.14	
109-99-9	Tetrahydrofuran (THF)	ND	0.68	ND	0.23	
107-06-2	1,2-Dichloroethane	ND	0.68	ND	0.17	
71-55-6	1,1,1-Trichloroethane	ND	0.68	ND	0.12	
71-43-2	Benzene	ND	0.68	ND	0.21	
56-23-5	Carbon Tetrachloride	ND	0.68	ND	0.11	
110-82-7	Cyclohexane	ND	1.4	ND	0.39	
78-87-5	1,2-Dichloropropane	ND	0.68	ND	0.15	
75-27-4	Bromodichloromethane	ND	0.68	ND	0.10	
79-01-6	Trichloroethene	ND	0.68	ND	0.13	
123-91-1	1,4-Dioxane	ND	0.68	ND	0.19	
80-62-6	Methyl Methacrylate	ND	1.4	ND	0.33	
142-82-5	n-Heptane	ND	0.68	ND	0.16	
10061-01-5	cis-1,3-Dichloropropene	ND	0.68	ND	0.15	
108-10-1	4-Methyl-2-pentanone	ND	0.68	ND	0.16	
10061-02-6	trans-1,3-Dichloropropene	ND	0.68	ND	0.15	
79-00-5	1,1,2-Trichloroethane	ND	0.68	ND	0.12	
108-88-3	Toluene	**1.1**	0.68	**0.29**	0.18	
591-78-6	2-Hexanone	ND	0.68	ND	0.16	
124-48-1	Dibromochloromethane	ND	0.68	ND	0.079	
106-93-4	1,2-Dibromoethane	ND	0.68	ND	0.088	
123-86-4	n-Butyl Acetate	ND	0.68	ND	0.14	

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental**
Client Sample ID: **1602347-06A (KSL020416-Summa)** ALS Project ID: P1600610
Client Project ID: **1602347** ALS Sample ID: P1600610-001

Test Code: EPA TO-15 Date Collected: 2/4/16
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 2/5/16
Analyst: Wida Ang Date Analyzed: 2/12/16
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00862

Initial Pressure (psig): -1.31 Final Pressure (psig): 3.35

Canister Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.68	ND	0.14	
127-18-4	Tetrachloroethene	ND	0.68	ND	0.10	
108-90-7	Chlorobenzene	ND	0.68	ND	0.15	
100-41-4	Ethylbenzene	ND	0.68	ND	0.16	
179601-23-1	m,p-Xylenes	ND	1.4	ND	0.31	
75-25-2	Bromoform	ND	0.68	ND	0.065	
100-42-5	Styrene	ND	0.68	ND	0.16	
95-47-6	o-Xylene	ND	0.68	ND	0.16	
111-84-2	n-Nonane	ND	0.68	ND	0.13	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.68	ND	0.098	
98-82-8	Cumene	ND	0.68	ND	0.14	
80-56-8	alpha-Pinene	ND	0.68	ND	0.12	
103-65-1	n-Propylbenzene	ND	0.68	ND	0.14	
622-96-8	4-Ethyltoluene	ND	0.68	ND	0.14	
108-67-8	1,3,5-Trimethylbenzene	ND	0.68	ND	0.14	
95-63-6	1,2,4-Trimethylbenzene	ND	0.68	ND	0.14	
100-44-7	Benzyl Chloride	ND	0.68	ND	0.13	
541-73-1	1,3-Dichlorobenzene	ND	0.68	ND	0.11	
106-46-7	1,4-Dichlorobenzene	ND	0.68	ND	0.11	
95-50-1	1,2-Dichlorobenzene	ND	0.68	ND	0.11	
5989-27-5	d-Limonene	ND	0.68	ND	0.12	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.68	ND	0.070	
120-82-1	1,2,4-Trichlorobenzene	ND	0.68	ND	0.091	
91-20-3	Naphthalene	ND	0.68	ND	0.13	
87-68-3	Hexachlorobutadiene	ND	0.68	ND	0.063	

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

Client: **ALS Environmental**
Client Sample ID: **Method Blank** ALS Project ID: P1600610
Client Project ID: **1602347** ALS Sample ID: P160212-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: Wida Ang Date Analyzed: 2/12/16
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

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

Client: **ALS Environmental**

Client Sample ID: **Method Blank** ALS Project ID: P1600610

Client Project ID: **1602347** ALS Sample ID: P160212-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA

Analyst: Wida Ang Date Analyzed: 2/12/16

Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

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

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

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

Client: **ALS Environmental**

Client Sample ID: **Method Blank** ALS Project ID: P1600610

Client Project ID: **1602347** ALS Sample ID: P160212-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA

Analyst: Wida Ang Date Analyzed: 2/12/16

Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
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

Client: **ALS Environmental**
Client Project ID: **1602347** ALS Project ID: P1600610

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date(s) Collected: 2/4/16
Analyst: Wida Ang Date(s) Received: 2/5/16
Sample Type: 6.0 L Silonite Canister(s) Date(s) Analyzed: 2/12/16
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P160212-MB	**100**	**104**	**96**	70-130	
Lab Control Sample	P160212-LCS	**98**	**101**	**97**	70-130	
1602347-06A (KSL020416-Summa)	P1600610-001	**105**	**100**	**93**	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

Client: **ALS Environmental**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1600610
Client Project ID: **1602347** ALS Sample ID: P160212-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: Wida Ang Date Analyzed: 2/12/16
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
115-07-1	Propene	196	**165**	**84**	49-131	
75-71-8	Dichlorodifluoromethane (CFC 12)	188	**170**	**90**	65-117	
74-87-3	Chloromethane	200	**184**	**92**	48-132	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	204	**193**	**95**	65-122	
75-01-4	Vinyl Chloride	200	**205**	**103**	65-128	
106-99-0	1,3-Butadiene	206	**196**	**95**	62-143	
74-83-9	Bromomethane	202	**191**	**95**	65-130	
75-00-3	Chloroethane	200	**175**	**88**	69-126	
64-17-5	Ethanol	998	**844**	**85**	57-126	
75-05-8	Acetonitrile	212	**159**	**75**	51-134	
107-02-8	Acrolein	214	**164**	**77**	55-146	
67-64-1	Acetone	1,080	**817**	**76**	57-120	
75-69-4	Trichlorofluoromethane	216	**162**	**75**	59-139	
67-63-0	2-Propanol (Isopropyl Alcohol)	418	**358**	**86**	59-129	
107-13-1	Acrylonitrile	212	**192**	**91**	64-136	
75-35-4	1,1-Dichloroethene	216	**188**	**87**	72-123	
75-09-2	Methylene Chloride	222	**170**	**77**	63-117	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	218	**193**	**89**	50-141	
76-13-1	Trichlorotrifluoroethane	220	**187**	**85**	68-118	
75-15-0	Carbon Disulfide	210	**150**	**71**	55-143	
156-60-5	trans-1,2-Dichloroethene	210	**185**	**88**	69-129	
75-34-3	1,1-Dichloroethane	212	**177**	**83**	66-122	
1634-04-4	Methyl tert-Butyl Ether	216	**183**	**85**	55-128	
108-05-4	Vinyl Acetate	1,040	**946**	**91**	66-140	
78-93-3	2-Butanone (MEK)	220	**187**	**85**	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

Client: **ALS Environmental**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1600610
Client Project ID: **1602347** ALS Sample ID: P160212-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: Wida Ang Date Analyzed: 2/12/16
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	218	**187**	**86**	65-125	
141-78-6	Ethyl Acetate	428	**414**	**97**	64-132	
110-54-3	n-Hexane	212	**168**	**79**	58-126	
67-66-3	Chloroform	224	**184**	**82**	68-117	
109-99-9	Tetrahydrofuran (THF)	220	**174**	**79**	64-123	
107-06-2	1,2-Dichloroethane	214	**179**	**84**	63-124	
71-55-6	1,1,1-Trichloroethane	210	**182**	**87**	68-120	
71-43-2	Benzene	226	**177**	**78**	61-110	
56-23-5	Carbon Tetrachloride	230	**193**	**84**	65-137	
110-82-7	Cyclohexane	424	**354**	**83**	68-122	
78-87-5	1,2-Dichloropropane	216	**183**	**85**	67-122	
75-27-4	Bromodichloromethane	218	**196**	**90**	71-124	
79-01-6	Trichloroethene	216	**175**	**81**	71-121	
123-91-1	1,4-Dioxane	210	**200**	**95**	67-122	
80-62-6	Methyl Methacrylate	422	**386**	**91**	76-130	
142-82-5	n-Heptane	216	**181**	**84**	67-125	
10061-01-5	cis-1,3-Dichloropropene	208	**191**	**92**	73-131	
108-10-1	4-Methyl-2-pentanone	220	**202**	**92**	66-132	
10061-02-6	trans-1,3-Dichloropropene	210	**202**	**96**	76-135	
79-00-5	1,1,2-Trichloroethane	216	**187**	**87**	73-121	
108-88-3	Toluene	218	**184**	**84**	67-117	
591-78-6	2-Hexanone	220	**211**	**96**	59-128	
124-48-1	Dibromochloromethane	220	**211**	**96**	73-132	
106-93-4	1,2-Dibromoethane	218	**202**	**93**	73-128	
123-86-4	n-Butyl Acetate	226	**217**	**96**	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

Client: **ALS Environmental**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1600610
Client Project ID: **1602347** ALS Sample ID: P160212-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: Wida Ang Date Analyzed: 2/12/16
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
111-65-9	n-Octane	210	**183**	**87**	67-124	
127-18-4	Tetrachloroethene	202	**174**	**86**	65-126	
108-90-7	Chlorobenzene	220	**189**	**86**	68-120	
100-41-4	Ethylbenzene	218	**192**	**88**	69-123	
179601-23-1	m,p-Xylenes	428	**378**	**88**	67-125	
75-25-2	Bromoform	228	**199**	**87**	68-153	
100-42-5	Styrene	222	**215**	**97**	68-132	
95-47-6	o-Xylene	210	**186**	**89**	67-124	
111-84-2	n-Nonane	204	**182**	**89**	60-130	
79-34-5	1,1,2,2-Tetrachloroethane	210	**195**	**93**	72-128	
98-82-8	Cumene	208	**182**	**88**	67-124	
80-56-8	alpha-Pinene	212	**194**	**92**	67-129	
103-65-1	n-Propylbenzene	204	**184**	**90**	67-125	
622-96-8	4-Ethyltoluene	214	**191**	**89**	66-128	
108-67-8	1,3,5-Trimethylbenzene	214	**188**	**88**	65-125	
95-63-6	1,2,4-Trimethylbenzene	218	**199**	**91**	62-134	
100-44-7	Benzyl Chloride	220	**236**	**107**	74-145	
541-73-1	1,3-Dichlorobenzene	228	**201**	**88**	63-133	
106-46-7	1,4-Dichlorobenzene	208	**186**	**89**	62-129	
95-50-1	1,2-Dichlorobenzene	220	**200**	**91**	62-134	
5989-27-5	d-Limonene	210	**214**	**102**	66-137	
96-12-8	1,2-Dibromo-3-chloropropane	218	**215**	**99**	71-147	
120-82-1	1,2,4-Trichlorobenzene	230	**226**	**98**	60-145	
91-20-3	Naphthalene	218	**232**	**106**	56-158	
87-68-3	Hexachlorobutadiene	230	**207**	**90**	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.