ENVIRONMENTAL
MANAGEMENT SERVICES, INC.

March 7, 2019

Mr. Robert Huckaby
Assessment Remediation Branch
Mississippi Department of Environmental Quality
515 East Amite Street
Jackson, Mississippi 39201

Re: Kuhlman Electric Corporation
Soil Vapor Extraction Semi-Annual Report
Crystal Springs, Mississippi

Dear Mr. Huckaby:

Environmental Management Services, Inc. (EMS) has prepared the Second Semi-Annual Soil Vapor Extraction Report 2018 for the Kuhlman Electric Corporation in Crystal Springs, Mississippi. Please find the enclosed copy of the aforementioned report.

Please contact EMS at (601) 544-3674 if you should have any question or comments concerning the enclosure.

Sincerely,
Environmental Management Services, Inc.

Jeremy Van Slyke, RPG
Project Geologist

Enclosure: Second Semi-Annual Soil Vapor Extraction Report 2018

cc:
Ken Mathis, KEC
Craig Flagge, KEC
Melody Christopher, ABB, Inc.
Kathy Smith, CMS
Crystal Springs Public Library
Melissa McGee-Collier, MDEQ (email)

P. O. Box 15369 (39404) • 7350 Highway 98 • Hattiesburg, MS 39402
Phone (601) 544-3674 • Fax (601) 544-0504 • www.env-mgt.com

SOIL VAPOR EXTRACTION SYSTEM
SECOND SEMIANNUAL REPORT 2018

KUHLMAN ELECTRIC CORPORATION
CRYSTAL SPRINGS, MISSISSIPPI

Prepared by:

ENVIRONMENTAL MANAGEMENT SERVICES, INC.

P.O. Box 15369
Hattiesburg, Mississippi 39404

March 7, 2019

EMS Project No: KUH0-18-012

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Executive Summary

This Soil Vapor Extraction (SVE) System Semiannual Report summarizes the performance of the SVE system installed by Environmental Management Services, Inc. (EMS) for Kuhlman Electric Company (KEC) located in Crystal Springs, Mississippi (the Site). This report includes a synopsis of the performance data for the second semiannual period of 2018.

The system initially began operations April 21, 2014 with normal operation attained on May 2, 2014. Routine monitoring has been performed according to the schedule described in the *SVE Final Design and Quality Assurance Project Plan* submitted to Mississippi Department of Environmental Quality (MDEQ) on September 13, 2013.

Historical Information Summary

The Site is located at 101 Kuhlman Drive in Crystal Springs, Mississippi, as shown in Figure 1, and has operated as an electrical transformer manufacturing plant since its construction in the 1950's. In April of 2000, Polychlorinated Biphenyl (PCB)-contaminated soil was discovered on-site during subsurface construction activities. This discovery initiated several phases of environmental assessments and remediation projects, some of which are currently ongoing. During these investigations and remediation projects it was discovered that the groundwater on and off KEC property was impacted with Volatile Organic Compounds (VOCs); principally, 1,1-dichloroethene (DCE) and the semi-volatile constituent 1,4-dioxane.

An investigation was performed to determine the source of the groundwater impacts and was documented in the April 30, 2009 *Groundwater Assessment Report, Kuhlman Electric Corporation, Crystal Springs, Mississippi* prepared by Martin & Slagle Geoenvironmental Associates, LLC (Martin & Slagle) for BorgWarner (hereafter referred to as the April 2009 *Groundwater Assessment Report*). These efforts included a soil vapor study, which detected VOCs in the soil vapors from 3 to 12 feet below the plant floor. Soil samples were also collected from beneath the building from 0 to 62 feet below ground surface (bgs) and analyzed for VOCs.

The analytical results indicated that VOCs were present in the subsurface soil under portions of the plant building. This area, near the western portion of the plant building beneath the Winding Department process area, the Break Room, and a former rail pit, was identified as the source area for the groundwater impacts. The source area was first published in the April 2009 Groundwater Assessment Report and is depicted on Figure 2 of this report.

These investigations beneath the building footprint confirmed that commingled plumes of DCE and 1,4-dioxane extend from upgradient of the source area, beneath the plant building, to the

southwest and off-site. The DCE plume extends off-site approximately 3,000 feet to the south and approximately 2,800 feet to the west from the property boundary based on the most recent groundwater sampling data collected in March of 2018.

DCE and 1,4-dioxane have been identified as the primary Constituents of Concern (COC) at this site. The presence of 1,4-dioxane is presumed to be related to its use as a stabilizer in 1,1,1-trichloroethane (TCA), a solvent used in the past at the KEC site. DCE is a breakdown product of TCA.

In connection with the environmental assessments at the site and in accordance with MDEQ requirements, groundwater monitoring has been performed on and off the KEC facility property since 2004. Groundwater monitoring is currently performed on a semiannual schedule. A total of forty-six permanent groundwater monitoring wells are used to monitor the groundwater plume.

As a result of the discovery of the groundwater contamination and subsequent investigations of soil and groundwater, BorgWarner submitted the Corrective Action Plan (CAP) dated March 2011 (Arcadis) to MDEQ. The CAP was approved by MDEQ on March 1, 2012. The CAP targeted an area beneath the building as the source area contributing to the groundwater impact by the COC as shown in Figure 2. It presented three objectives to mitigate impacts to the COC contaminant plume. The three objectives are listed below:

1. Ensure COC concentrations in soil and groundwater in the contaminant source area beneath the KEC manufacturing building are at levels protective of site workers.
2. Reduce COC concentrations in soil in the contaminant source area beneath the KEC manufacturing building to the extent that remaining concentrations no longer contribute to, or exacerbate COC concentrations in off-site groundwater.
3. Reduce COC concentrations in off-site groundwater to levels protective of downgradient groundwater receptors.

A pilot study was performed at the site May 12-13, 2012, to confirm the viability of soil vapor extraction as a remedial strategy. The *Soil Vapor Extraction Pilot Study Report* (revised May 1, 2013) detailing the outcome of the study and proposing the use of Soil Vapor Extraction (SVE) to reduce COC concentrations was approved by MDEQ July 12, 2013. The *Soil Vapor Extraction Final Design and Quality Assurance Project Plan* was approved by MDEQ October 4, 2013. The system was installed as described in the *SVE Installation Report* submitted to MDEQ September 18, 2014.

SVE Operations and Maintenance

Site visits for this semiannual period were completed on the following dates: July 16; August 3, 7, and 16; September 6, 10, and 14; October 3 and 10; November 13 and 28; and, December 13 and 17. Activities performed during site visits included visually inspecting the operating components, adjusting various operating parameters if warranted, collecting samples, and collecting operating data. There were no significant maintenance activities during the semiannual period.

Groundwater Results

Groundwater was sampled from the entire network of monitoring wells, which includes the SVE Performance Monitoring Wells MW-10A, MW-10B, MW-10C, MW-30, MW-31, and MW-35, as shown on Figure 1, on September 24-27, 2018, for the required semiannual sampling event. Analytical results for MW-10A, MW-10B, MW-30, and MW-35 showed concentrations of constituents greater than the MDEQ groundwater target remediation goals (TRG). The constituents with exceedances were 1,4-dioxane, DCE, 1,1,2 Trichloroethane, and chloroform. The concentrations of DCE measured in MW-35, which is located within the source area, have decreased since April 2014 when monitoring of the well began. Additional data is necessary to confirm that this trend continues and will be collected during future monitoring events. The analytical results from the September 2018 sampling event for the wells listed are presented in Table 1.

Soil Vapor Results

The observation wells, as shown on Figure 2, are monitored quarterly for relative VOC concentration in the soil vapor. Tubing is placed in the well to a depth within the screened interval, and a photoionization detection (PID) meter and a flame ionization detection (FID) meter are used to purge the wells and measure the relative VOC concentration in the soil vapor within the well. The measured relative concentrations ranged from 0 to 0.9 parts per million (ppm) with the PID and from 0 to 7 ppm with the FID. The observation well soil vapor results from July through December are summarized in Table 2.

The observation well soil vapor was also sampled and analyzed for VOCs and 1,4-dioxane during the September and December sampling events using 1-liter SUMMA canisters. The vapor samples were collected by placing tubing within the middle of the screened interval depth and the well opening was covered. A PID meter and FID meter were then used to purge and measure the relative VOC concentration in the soil vapor. After obtaining the PID and FID measurements, the SUMMA canister was connected to the tubing to collect the soil vapors within the screened interval. The observation well soil vapor analytical results are summarized in Table 3, and the laboratory results are included in Appendix A.

The SVE system exhaust and the vapor exiting each stage of carbon treatment were monitored quarterly utilizing both PID and FID meters to evaluate relative VOC concentrations. The relative VOC concentrations measured by the PID meter and the FID meter in the discharge from the SVE system prior to carbon treatment are included in Table 4.

The SVE unit exhaust and the vapor exiting each stage of carbon treatment were also sampled and analyzed for VOCs and 1,4-dioxane. Samples were collected during August and November. The results are summarized in Table 5. The concentrations of TCA, DCE, and 1,4-dioxane are used to calculate the cumulative mass removed. Since startup of the SVE unit, approximately 3.88 pounds of TCA, 16.02 pounds of DCE, and 244.45 pounds of 1,4-dioxane have been removed through the SVE system. Figures 3-5 show the cumulative mass removal of each constituent. Laboratory results along with the cumulative mass removal calculations are included in Appendix B.

The flow rates from each individual well are also calculated and recorded during routine visits to the SVE system. The calculated flow rates from each well for the period from July to December are contained in Table 6.

Ambient Air Results

Ambient air sampling was performed quarterly utilizing 1-liter SUMMA canisters equipped with 8-hour flow valves. The air sampling locations are shown on Figure 2. The canisters are placed in the sampling location to collect samples to be analyzed for VOCs and 1,4-dioxane. Concentrations of all analytes detected were well below any published regulatory limit. The analytical results of the ambient air monitoring for the semiannual period are shown in Table 7. The analytical laboratory reports for the ambient air monitoring are contained in Appendix C.

Vacuum Measurements

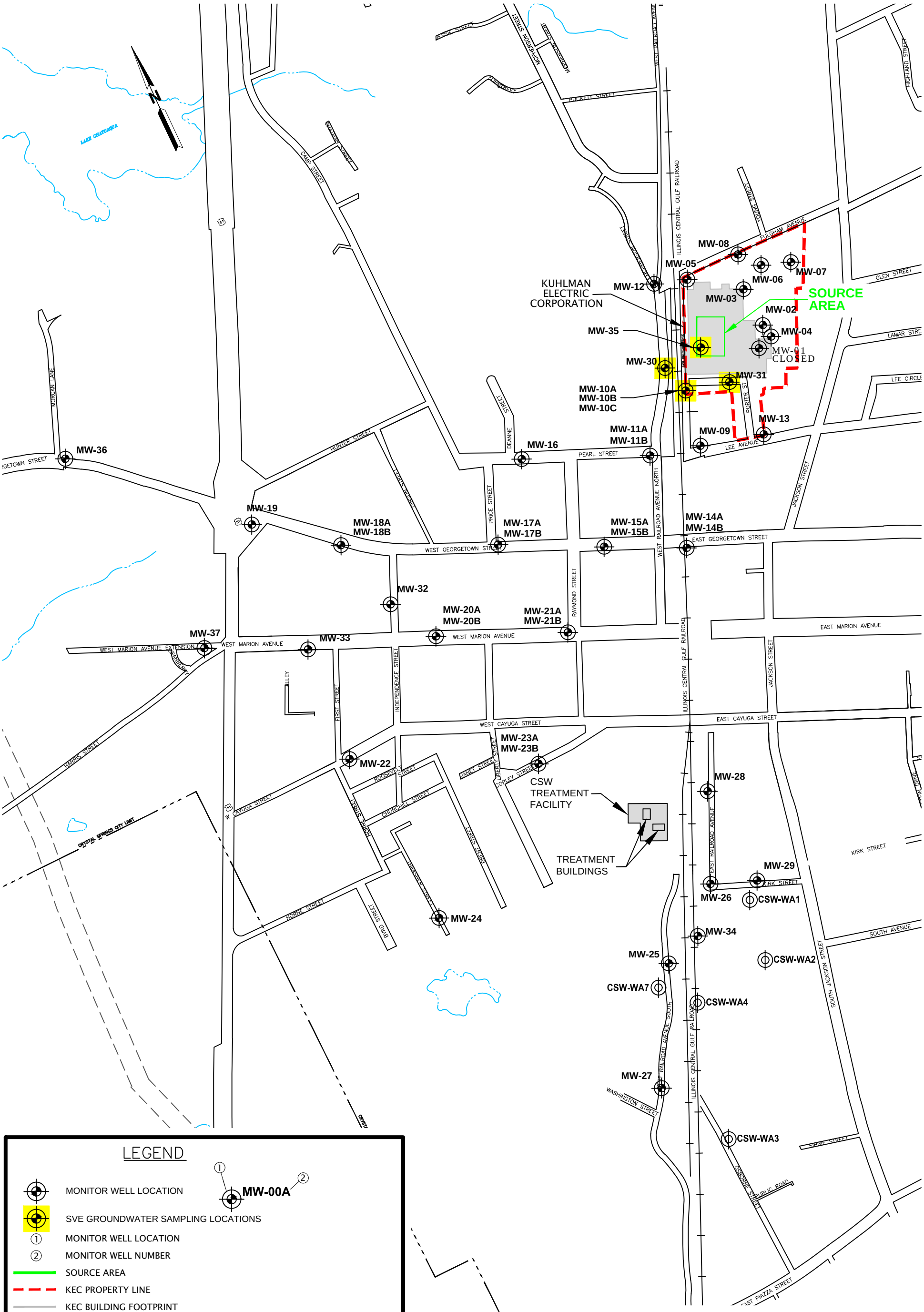
The vacuum response at each observation well is measured quarterly. At 80 feet from the nearest extraction well, the vacuum response averaged 2.6 inches of water. The vacuum response measurements for the second semiannual period in 2018 are shown in Table 8.

In addition, vacuum gauges were placed in the interstitial space on each dual-walled HDPE piping run near the extraction wells. The vacuum gauges are used to measure the vacuum or pressure of the interstitial space between the inner carrier pipe and the outer containment pipe during monthly site visits for leak detection. The gauges have shown no measureable vacuum or pressure within the interstitial space indicating no leaks within the carrier pipe.

Conclusion

The results from this monitoring period indicate that contaminants are being removed from the soil beneath the facility. The remediation activities will continue to remove contaminant mass from the soil through vapor extraction in order to remediate the defined source area. Monitoring as described in this report will continue, and monitoring events will be documented and reported semiannually.

Figures



MONITOR WELL LOCATIONS
WELL LAYOUT

KUHLMAN ELECTRIC
KEC FACILITY
CRYSTAL SPRINGS, MS

DATE: 01/23/2019	APPROVED: BY: _____ DATE: _____	DRAWN BY: PDM
SCALE: AS SHOWN		PROJECT NO. KUH0-18-012

ENVIRONMENTAL MANAGEMENT SERVICES, INC.

FIGURE 1

SVE SYSTEM LOCATION.

SVE-OBS-09

SVE-OBS-08

SVE-OBS-07

SVE-EXT-2

SVE-EXT-1

AIR MONITORING
SAMPLE LOCATION 1

SVE-OBS-02

SVE-OBS-01

SVE-OBS-03

AIR MONITORING
SAMPLE LOCATION 2

SVE-OBS-04

SVE-EXT-3

SVE-OBS-05

SVE-OBS-06

EAST RAILROAD AVENUE

LEGEND

- KEC BUILDING FOOTPRINT
- SVE OBSERVATION WELLS
- SVE EXTRACTION WELLS
- AMBIENT AIR SAMPLE LOCATIONS
- 1,1-DICHLOROETHENE IN SOIL EXCEEDING UNRESTRICTED TIER 1 TRG (0.0772 mg/kg)
- 1,4-DIOXANE IN SOIL EXCEEDING UNRESTRICTED TIER 1 TRG (58.1 mg/kg)

SCALE 1 INCH = 25 FEET

5 10 25

0 5 10 15 20 25 50

NOTES:

1) SOIL CONCENTRATIONS ARE BASED ON EXTENT AS DEFINED IN CORRECTIVE ACTION PLAN, ARCADIS, MARCH 2010.

SVE SYSTEM LAYOUT

KUHLMAN ELECTRIC
KEC FACILITY
CRYSTAL SPRINGS, MS

DATE: 01/23/2019	APPROVED: BY: _____ DATE: _____	DRAWN BY: PDM
SCALE: AS SHOWN		CAD NO. KUH0-18-012

ENVIRONMENTAL MANAGEMENT SERVICES, INC.

FIGURE 2

Figure 3
1,1,1-Trichloroethane Cumulative Mass Removal Through December 2018

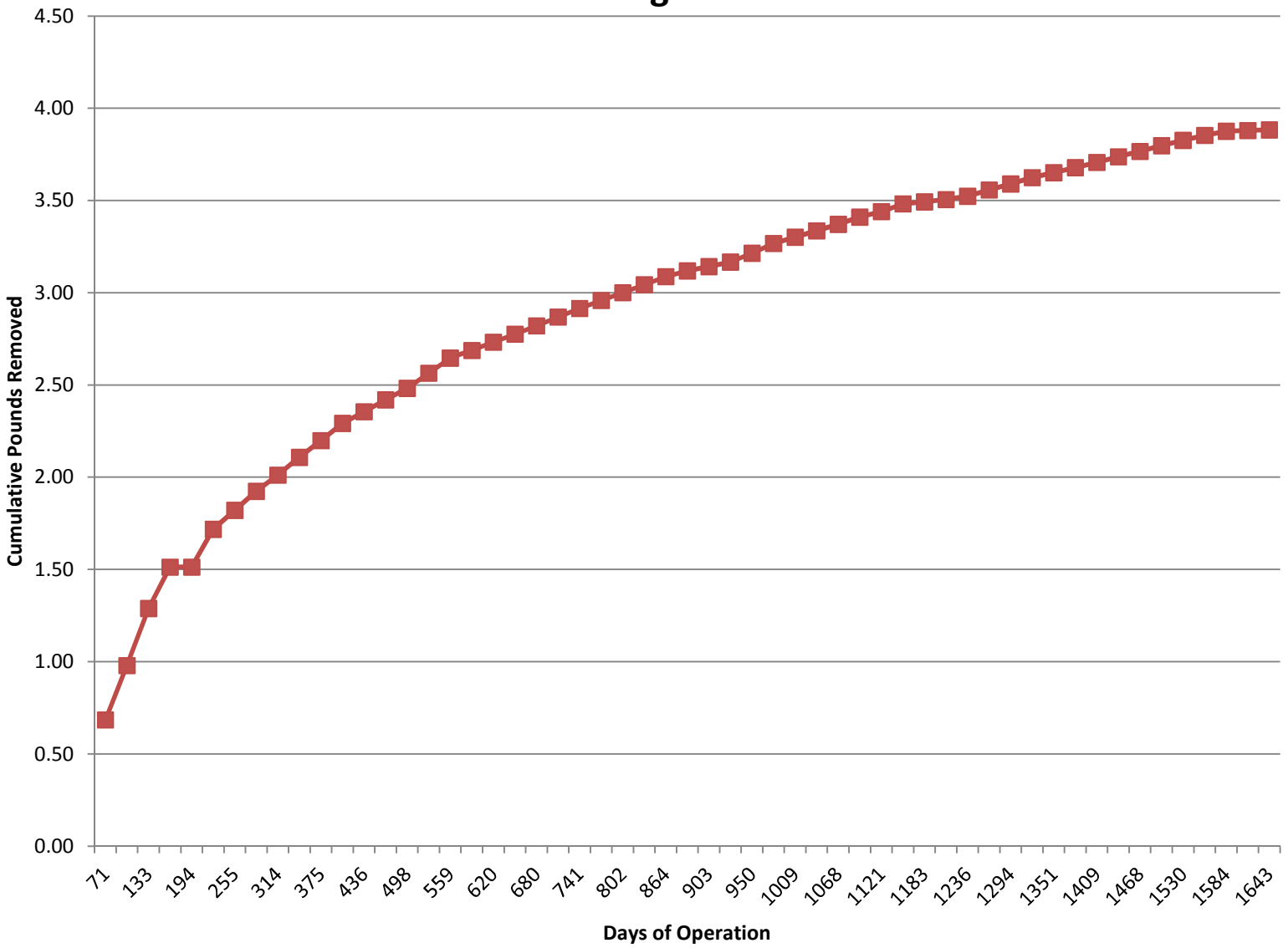


Figure 4
1,1-Dichloroethene Cumulative Mass Removal
Through December 2018

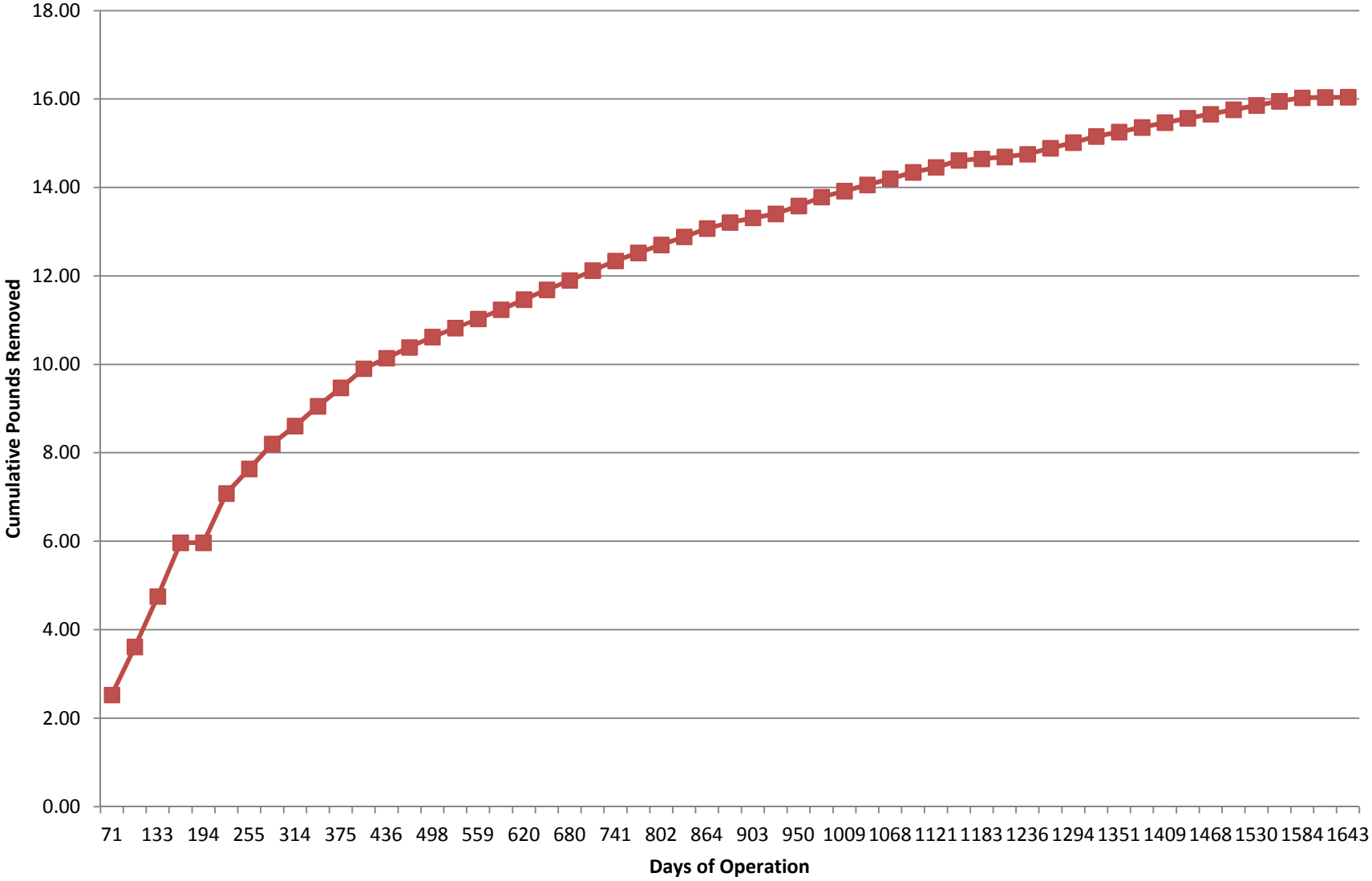
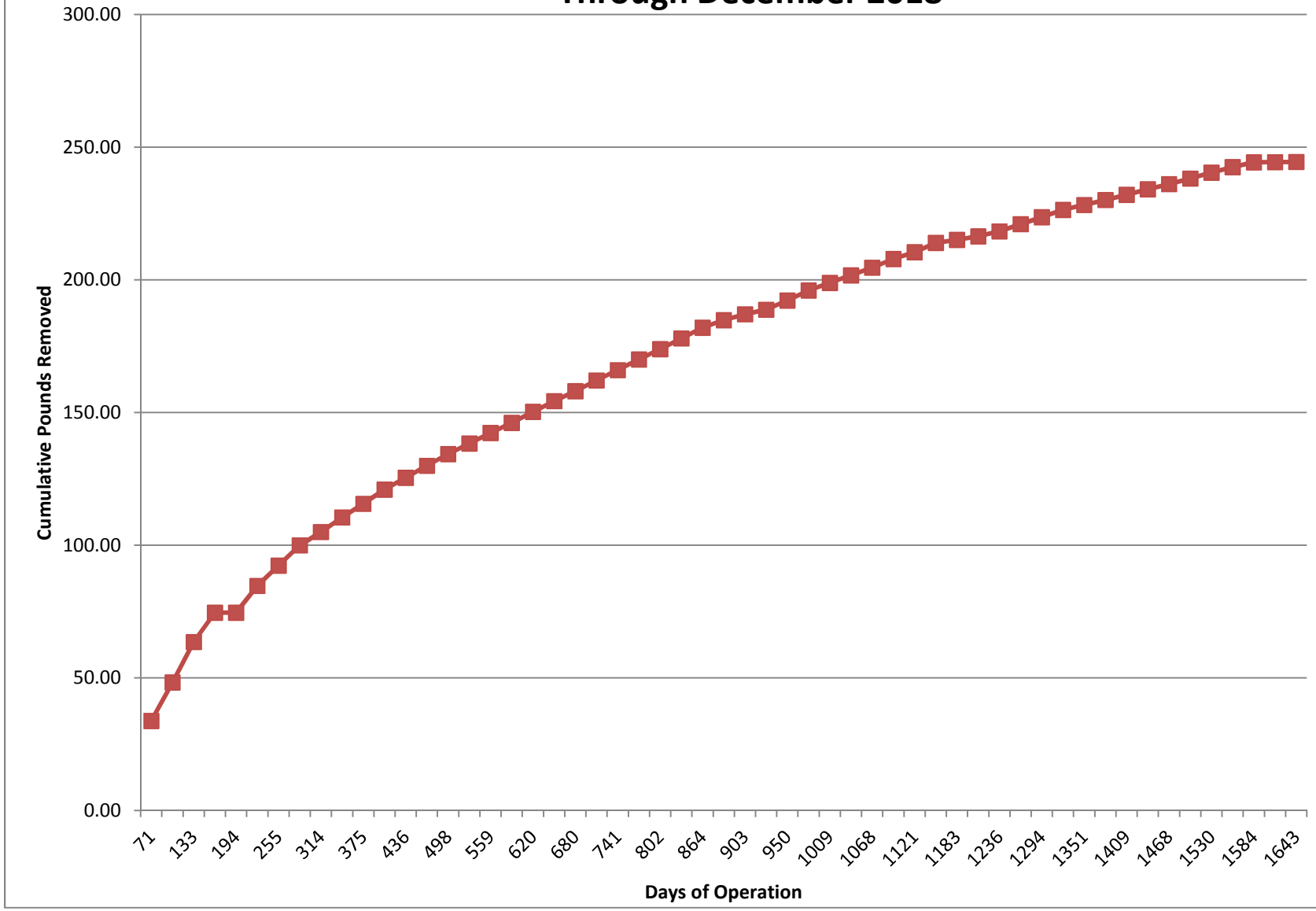


Figure 5
1,4-Dioxane Cumulative Mass Removal
Through December 2018



Tables

TABLE 1
GROUNDWATER ANALYTICAL RESULTS SUMMARY

SVE Second Semiannual Sampling 2018
Kuhlman Electric Corporation
Crystal Springs, MS

		MW-35		MW-10A	MW-10B	MW-10C	MW-30	MW-31
Constituent	**MDEQ Tier I TRG ***	**KEP-GW-035-013**	**KEP-GW-BD4-918**	**KEP-GW-010A-033**	**KEP-GW-010B-033**	**KEP-GW-010C-033**	**KEP-GW-030-019**	**KEP-GW-031-019**
Sample Date		**9/26/2018**		**9/26/2018**	**9/27/2018**	**9/27/2018**	**9/24/2018**	**9/25/2018**
1,1,1-Trichloroethane (TCA)	200	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	5.0	<0.5	<0.5	**5.9**	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	798	<0.5	<0.5	2.2	0.6	<0.5	<0.5	<0.5
1,1-Dichloroethene (DCE)	7.0	1.1	1.1	**73.0**	**22.0**	<0.5	1.0	4.9
1,2-Dichloroethane (EDC)	5.0	<0.5	<0.5	2.1	<0.5	<0.5	<0.5	<0.5
1,4-Dioxane	6.09	**21**	**21.0**	**9.6**	**9.4**	0.5	<0.4	<0.4
Chloroform	0.155	<0.5	<0.5	**0.9**	<0.5	<0.5	<0.5	**0.5**
Tetrachloroethene (PCE)	5.0	0.78	0.8	<0.5	<0.5	1.1	<0.5	<0.5
Trichloroethene (TCE)	5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

All results/standards in units of: µg/l - micrograms per liter
Bold indicates an exceedance
** MDEQ Target Remediation Goals (TRG's) for Groundwater*

TABLE 2
OBSERVATION WELL RELATIVE VOC CONCENTRATIONS RESULTS SUMMARY

SVE System
Kuhlman Electric Corporation
Crystal Springs, MS

OBSERVATION WELL PID RESULTS SUMMARY

Sample Date	SVE-OBS-1	SVE-OBS-2	SVE-OBS-3	SVE-OBS-4	SVE-OBS-5	SVE-OBS-6	SVE-OBS-7	SVE-OBS-8	SVE-OBS-9
9/10/2018	0	0	0	0	0	0	0	0	0
12/17/2018	0.5	0.6	0.4	0.3	0.4	0.3	0.7	0.8	0.9

OBSERVATION WELL FID RESULTS SUMMARY

Sample Date	SVE-OBS-1	SVE-OBS-2	SVE-OBS-3	SVE-OBS-4	SVE-OBS-5	SVE-OBS-6	SVE-OBS-7	SVE-OBS-8	SVE-OBS-9
9/10/2018	0	0	0	0	0	0	0	0	0
12/17/2018	0	0	0	0	0	0	0	0	7

All results in units of ppm - parts per million

TABLE 3
OBSERVATION WELL SOIL VAPOR ANALYTICAL RESULTS SUMMARY

SVE System
Kuhlman Electric Corporation
Crystal Springs, MS

Compound	SVE-OBS-1		SVE-OBS-2		SVE-OBS-3		SVE-OBS-4		SVE-OBS-5		SVE-OBS-6		SVE-OBS-7			SVE-OBS-8			SVE-OBS-9	
Sample Date	**9/10/2018**	**12/17/2018**	**9/10/2018**	**12/17/2018**	**9/10/2018**	**12/17/2018**	**9/10/2018**	**12/17/2018**	**9/10/2018**	**12/17/2018**	**9/10/2018**	**12/17/2018**	**9/10/2018**	**10/3/2018**	**12/17/2018**	**9/10/2018**	**10/3/2018**	**12/17/2018**	**9/10/2018**	**12/17/2018**
1,1,1-Trichloroethane	12	9.6	4.3	3.5	2.3	2.2	2.9	2.7	2.7	ND	35	39	ND	4.1	2.6	19	28	21	ND	3.6
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.4	1.4	ND	ND	ND	ND	ND
1,1-Dichloroethane	0.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.1	2.6	ND	5.3	1.3	14	17	11	ND	ND
1,1-Dichloroethene	6.8	13	0.86	1.1	1.3	3.2	0.75	ND	ND	ND	3.8	4.9	ND	200	42	210	310	230	ND	4.5
1,2-Dichloroethane	ND	ND	ND	ND	6.3	ND	0.33	ND	ND	ND	ND	ND	1.2	1.3	ND	ND	ND	ND	ND	ND
1,4-Dioxane	2.2	3.7	0.44	1.8	0.31	2.4	0.7	ND	0.23	ND	ND	ND	ND	ND	0.9	ND	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	0.4	ND	0.41	ND	0.36	ND	ND	ND	ND	ND	0.42	0.6	ND	0.37	0.32	ND	ND	ND

All results in units of ppb - parts per billion

TABLE 4
SVE SYSTEM RELATIVE VOC CONCENTRATION MONITORING

SVE System
Kuhlman Electric Corporation
Crystal Springs, MS

Sample Date	Pre Carbon	Carbon Unit 1	Carbon Unit 2
	PID ppm		
8/7/2018	0	0.3	0
11/13/2018	0	0	0

Sample Date	Pre Carbon	Carbon Unit 1	Carbon Unit 2
	FID ppm		
8/7/2018	0	0	0
11/13/2018	0	0	0

Notes:

All results in units of ppm - parts per million
NM - Not measured

TABLE 5
SVE SYSTEM EXHAUST ANALYTICAL SUMMARY

SVE System
Kuhlman Electric Corporation
Crystal Springs, MS

Compound	Pre Carbon		Post Carbon 1		Post Carbon 2	
Sample Date	**8/7/2018**	**11/13/2018**	**8/7/2018**	**11/13/2018**	**8/7/2018**	**11/13/2018**
1,1,1-Trichloroethane	33	4.1	ND	23	ND	4.7
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	3	3.1	ND	ND
1,1-Dichloroethene	120	9	96	100	23	14
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND
1,4-Dioxane	2600	83	61	1800	7.3	320

Results are in µg/m ^{3}

TABLE 6
SVE SYSTEM WELL FLOW RATE SUMMARY

SVE System
Kuhlman Electric Corporation
Crystal Springs, MS

	SVE-EXT-1	SVE-EXT-2	SVE-EXT-3
Date	**Flow Rate SCFM**		
7/16/2018	102.2	72.3	126.8
8/3/2018	102.2	72.3	126.8
8/7/2018	102.2	69.5	126.8
9/6/2018	102.2	69.5	126.8
9/10/2018	102.2	69.5	123.6
9/14/2018	102.2	69.5	126.8
10/3/2018	102.2	69.5	125.2
10/10/2018	102.2	69.5	123.6
11/13/2018	106.1	69.5	126.8
11/28/2018	106.1	69.5	126.8
12/13/2018	106.1	69.5	126.8
12/17/2018	109.8	75.0	129.9

TABLE 7
QUARTERLY AMBIENT AIR MONITORING

SVE SYSTEM
Kuhlman Electric Corporation
Crystal Springs, MS

Contaminant	OCCUPATIONAL STANDARDS			Air Mon 01-30	Air Mon 02-30	Air Mon 01-30A	Air Mon 01-31	Air Mon 02-31
Sample Date	**OSHA**	**ACGIH**	**NIOSH**	**8/7/2018**		**9/6/2018**	**11/28/2018**	
1,1,1-Trichloroethane	1900000	1900000	1900000	<2.3	<2.3	<2.6	<2.6	<2.8
1,1-Dichloroethene	--	19800	--	<2.3	<2.3	<2.6	<2.6	<2.8
1,2,4-Trichlorobenzene	--	--	40000	0.71	<2.4	<2.6	<2.5	<2.7
1,2,4-Trimethylbenzene	--	125000	125000	28	21	39	11	14
1,2-Dichloroethane	40450	40450	4000	<2.3	<2.3	<2.6	0.53	3.7
1,3,5-Trimethylbenzene		125000	125000	6.9	5	13	4	4.5
1,4-Dichlorobenzene	450000	60000	--	0.74	<2.3	0.43	<2.6	<2.8
1,4-Dioxane	360000	72000	--	0.66	<2.3	<2.6	<2.5	<2.7
2-Butanone (MEK)	590000	590000	590000	30	35	13	16	14
2-Hexanone	410000	20480	4000	<2.3	<2.3	<2.6	0.43	<2.8
2-Propanol (Isopropyl Alcohol)	980000	980000	980000	31	8.8	20	100	120
4-Ethyltoluene	--	--	--	6.8	4.5	9.4	3.1	3.7
4-Methyl-2-pentanone	410000	205000	205000	20	12	33	9.4	9.7
Acetone	2400000	1200000	590000	380	550	270	2300	1900
Acetonitrile	70000	70000	34000	<2.3	<2.3	1.7	1.2	0.96
Acrolein	250	0	250	0.95	<4.7	4.6	4.1	2
alpha-Pinene	556000	111000	556000	6.2	5	8.6	<2.5	21
Benzene	3200	1600	320	0.53	0.4	2.3	0.91	1.1
Carbon Disulfide	60000	30000	3000	<4.7	<4.7	1.2	1.3	1.8
Carbon Tetrachloride	63000	31000	12600	0.38	0.34	<2.5	0.36	<2.7
Chloromethane	207000	103000	--	0.93	0.86	1.8	0.89	0.92
cis-1,2-Dichloroethene	--	792600	790000	<2.3	<2.3	<2.6	<2.5	<2.7
Cumene	245000	245000	245000	1.5	1	2.8	0.8	0.95
Cyclohexane	1050000	344000	1050000	1.5	1.6	4.2	1.4	8.8
Dichlorodifluoromethane (CFC 12)	4950000	4950000	4950000	2.3	2.2	1.8	2.2	2.2
d-Limonene	--	--	--	5.3	2.7	4.9	<2.4	2.9
Ethanol	1900000	1900000	1900000	1100	690	550	590	430
Ethyl Acetate	1400000	1400000	1400000	8.4	5.3	4.8	17	20
Ethylbenzene	435000	435000	435000	25	21	22	16	20
m,p-Xylenes	435000	435000	435000	110	98	99	76	92
Methylene Chloride	87000	174000	--	<2.3	<2.3	<2.6	0.72	2.3
Naphthalene	50000	50000	50000	20	20	8.4	<2.4	<2.6
n-Butyl Acetate	710000	710000	710000	55	88	33	200	270
n-Heptane	2000000	1640000	350000	2.1	1.4	4.3	1.2	1.2
n-Hexane	1800000	180000	180000	7.5	8.7	1.8	3.9	4.1
n-Nonane	--	1050000	1050000	1.4	1.1	11	1.1	1.5
n-Octane	2350000	1400000	350000	1	0.62	5.5	<2.6	0.72
n-Propylbenzene	--	--	--	4.6	3.1	7.6	2.3	2.8
o-Xylene	435000	435000	435000	59	46	64	26	31
Propene	--	--	--	1100	240	470	520	200
Styrene	425000	85200	215000	2.2	1.7	1.1	<2.5	1
Tetrachloroethene	678000	169500	--	0.56	0.46	<2.6	5.2	4.8
Tetrahydrofuran (THF)	590000	590000	590000	9	22	0.33	0.87	0.81
Toluene	750000	188000	375000	94	27	74	170	56
Trichlorofluoromethane (CFC 11)	5600000	--	5600000	1.1	1.1	0.93	1.1	1.1
Trichlorotrifluoroethane (CFC 113)	7600000	7600000	7600000	0.41	0.4	0.41	0.46	0.47
Vinyl Acetate	--	35000	15000	<23	<23	9.8	<25	<27

All results/standards are in $\mu g/m^3$

TABLE 8
OBSERVATION WELL VACUUM RESPONSE SUMMARY

SVE System
Kuhlman Electric Corporation
Crystal Springs, MS

Date	SVE-OBS-1	SVE-OBS-2	SVE-OBS-3	SVE-OBS-4	SVE-OBS-5	SVE-OBS-6	SVE-OBS-7	SVE-OBS-8	SVE-OBS-9
Distance* (feet)	**5**	**10**	**20**	**40**	**80**	**40**	**50**	**95**	**80**
7/16/2018	27.22	18.28	11.63	4.36	2.02	2.49	7.10	0.34	3.28
10/10/2018	27.25	18.21	12.04	4.26	1.81	2.39	6.80	0.32	3.21

** Distance to the nearest extraction well*
Vacuum readings are in inches of water.

Appendix A

Observation Well Soil Vapor Laboratory Analytical Results

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

September 28, 2018

Jeremy Van Slyke
Environmental Management Services, Inc.
P.O. Box 15369
Hattiesburg, MS 39404

RE: SVE Performance Monitoring / KUHO-18-010

Dear Jeremy:

Enclosed are the results of the samples submitted to our laboratory on September 14, 2018. For your reference, these analyses have been assigned our service request number P1804807.

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

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

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 5:33 pm, Sep 28, 2018

Sue Anderson
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: Environmental Management Services, Inc. Service Request No: P1804807
Project: SVE Performance Monitoring / KUHO-18-010

CASE NARRATIVE

The samples were received intact under chain of custody on September 14, 2018 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 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. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The upper control criterion was exceeded for naphthalene in the Continuing Calibration Verifications (CCV). The apparent problem equates to a potential high bias. The data quality of the results for this compound is affected as follows: a non-detect (ND) result is not significantly affected whereas a positive result has a potential high bias. The latter has been flagged accordingly. No further corrective action was taken.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. 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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F: +1 805 526 7270
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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1347317
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-005
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272018-9
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: Environmental Management Services, Inc. Service Request: P1804807

Project ID: SVE Performance Monitoring / KUHO-18-010

Date Received: 9/14/2018

Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans
SVE-OBS-01	P1804807-001	Air	9/10/2018	10:45	1SS00839	-6.03	5.89	X
SVE-OBS-02	P1804807-002	Air	9/10/2018	10:36	1SS00870	-1.49	5.72	X
SVE-OBS-03	P1804807-003	Air	9/10/2018	10:54	1SS00872	-0.53	5.72	X
SVE-OBS-04	P1804807-004	Air	9/10/2018	11:44	1SC01185	-0.95	5.34	X
SVE-OBS-05	P1804807-005	Air	9/10/2018	11:53	1SC01195	-0.48	5.42	X
SVE-OBS-06	P1804807-006	Air	9/10/2018	12:11	1SS00865	-2.64	5.89	X
SVE-OBS-07	P1804807-007	Air	9/10/2018	12:49	1SS00005	0.22	6.02	X
SVE-OBS-08	P1804807-008	Air	9/10/2018	12:23	1SS00003	0.10	5.83	X
SVE-OBS-09	P1804807-009	Air	9/10/2018	12:36	1SS00059	0.17	5.21	X

Air - Chain of Custody Record & Analytical Service Request

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. P1804807

Company Name & Address (Reporting Information)
Environmental Management Services
PO Box 15369
Hattiesburg MS 39404

Project Manager: Jeremy Van Slyke

Phone: 601 544 3674 | Fax: 601-544-0504

Email Address for Result Reporting: jvanslyke@env-mgt.com

Project Name: SVE Performance Monitoring

Project Number: KUHO-18-010

P.O. # / Billing Information: KUHO-18-010 Same as Reporting

Sampler (Print & Sign): Jeremy Van Slyke

ALS Contact:

Analysis Method

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	TO-15		Comments e.g. Actual Preservative or specific instructions
SVE-OBS-01		9.10.18	1045	15500839				1L	X		
SVE-OBS-02		9.10.18	1036	15500870				1L	X		
SVE-OBS-03		9.10.18	1054	15500872				1L	X		
SVE-OBS-04		9.10.18	1144	ISC01185				1L	X		
SVE-OBS-05		9.10.18	1153	ISC01195				1L	X		
SVE-OBS-06		9.10.18	1211	15500865				1L	X		
SVE-OBS-07		9.10.18	1249	15500005				1L	X		
SVE-OBS-08		9.10.18	1223	15500003				1L	X		
SVE-OBS-09		9.10.18	1236	15500059				1L	X		

Report Tier Levels - please select
Tier I - Results (Default in not specified) ____
Tier II (Results + QC Summaries) X
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: 9-11-18	Time: 1445	Received by: (Signature) FED EX	Date:	Time:	
Relinquished by: (Signature) FED EX	Date:	Time:	Received by: (Signature)	Date: 9/11/18	Time: 0930	Cooler / Blank Temperature ____ °C

ALS Environmental

Sample Acceptance Check Form

Client: Environmental Management Services, Inc. Work order: P1804807

Project: SVE Performance Monitoring / KUHO-18-010

Sample(s) received on: 9/14/18 Date opened: 9/14/18 by: AARON GONZALEZ

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 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
P1804807-001.01	1.0 L Source Silonite Canister					
P1804807-002.01	1.0 L Source Silonite Canister					
P1804807-003.01	1.0 L Source Silonite Canister					
P1804807-004.01	1.0 L Source Can					
P1804807-005.01	1.0 L Source Can					
P1804807-006.01	1.0 L Source Silonite Canister					
P1804807-007.01	1.0 L Source Silonite Canister					
P1804807-008.01	1.0 L Source Silonite Canister					
P1804807-009.01	1.0 L Source Silonite Canister					

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-01** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-001

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/27/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SS00839

Initial Pressure (psig): -6.03 Final Pressure (psig): 5.89

Container Dilution Factor: 2.37

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**17**	3.1	0.77	**9.8**	1.8	0.45	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.4**	3.1	0.52	**0.50**	0.62	0.10	**J**
74-87-3	Chloromethane	ND	3.0	0.51	ND	1.4	0.25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	3.0	0.50	ND	0.43	0.071	
75-01-4	Vinyl Chloride	ND	3.1	0.34	ND	1.2	0.13	
106-99-0	1,3-Butadiene	ND	3.1	0.52	ND	1.4	0.24	
74-83-9	Bromomethane	ND	3.0	0.44	ND	0.76	0.11	
75-00-3	Chloroethane	ND	3.0	0.39	ND	1.1	0.15	
64-17-5	Ethanol	**8.6**	30	2.2	**4.6**	16	1.2	**J, B**
75-05-8	Acetonitrile	ND	3.1	0.77	ND	1.8	0.46	
107-02-8	Acrolein	ND	5.9	0.89	ND	2.6	0.39	
67-64-1	Acetone	**11**	32	7.1	**4.8**	13	3.0	**J**
75-69-4	Trichlorofluoromethane (CFC 11)	**1.2**	3.1	0.48	**0.21**	0.56	0.085	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	12	1.3	ND	5.1	0.53	
107-13-1	Acrylonitrile	ND	3.1	0.65	ND	1.4	0.30	
75-35-4	1,1-Dichloroethene	**6.8**	3.2	0.44	**1.7**	0.81	0.11	
75-09-2	Methylene Chloride	ND	3.2	0.89	ND	0.92	0.26	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	3.1	0.43	ND	1.0	0.14	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**1.1**	3.1	0.45	**0.14**	0.41	0.059	**J**
75-15-0	Carbon Disulfide	ND	6.5	0.95	ND	2.1	0.30	
156-60-5	trans-1,2-Dichloroethene	ND	3.1	0.44	ND	0.79	0.11	
75-34-3	1,1-Dichloroethane	**0.69**	3.1	0.46	**0.17**	0.76	0.11	**J**
1634-04-4	Methyl tert-Butyl Ether	ND	3.2	0.37	ND	0.89	0.10	
108-05-4	Vinyl Acetate	ND	31	7.1	ND	8.9	2.0	
78-93-3	2-Butanone (MEK)	**2.6**	5.9	0.65	**0.88**	2.0	0.22	**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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-01** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-001

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/27/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SS00839

Initial Pressure (psig): -6.03 Final Pressure (psig): 5.89

Container Dilution Factor: 2.37

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	3.1	0.44	ND	0.79	0.11	
141-78-6	Ethyl Acetate	ND	6.5	1.7	ND	1.8	0.46	
110-54-3	n-Hexane	ND	3.2	0.65	ND	0.91	0.18	
67-66-3	Chloroform	**0.49**	3.2	0.42	**0.10**	0.66	0.086	**J**
109-99-9	Tetrahydrofuran (THF)	**0.57**	3.1	0.40	**0.19**	1.1	0.13	**J**
107-06-2	1,2-Dichloroethane	ND	3.1	0.35	ND	0.78	0.086	
71-55-6	1,1,1-Trichloroethane	**12**	3.2	0.39	**2.1**	0.59	0.072	
71-43-2	Benzene	**1.7**	3.1	0.46	**0.55**	0.96	0.14	**J**
56-23-5	Carbon Tetrachloride	ND	3.1	0.44	ND	0.49	0.070	
110-82-7	Cyclohexane	**1.5**	5.9	0.89	**0.44**	1.7	0.26	**J**
78-87-5	1,2-Dichloropropane	ND	3.2	0.39	ND	0.69	0.085	
75-27-4	Bromodichloromethane	ND	3.1	0.46	ND	0.47	0.068	
79-01-6	Trichloroethene	ND	3.1	0.43	ND	0.58	0.079	
123-91-1	1,4-Dioxane	**2.2**	3.1	0.37	**0.62**	0.87	0.10	**J**
80-62-6	Methyl Methacrylate	ND	6.5	1.1	ND	1.6	0.28	
142-82-5	n-Heptane	**0.67**	3.2	0.50	**0.16**	0.78	0.12	**J**
10061-01-5	cis-1,3-Dichloropropene	ND	3.3	0.49	ND	0.73	0.11	
108-10-1	4-Methyl-2-pentanone	**2.2**	3.1	0.43	**0.53**	0.77	0.11	**J**
10061-02-6	trans-1,3-Dichloropropene	ND	3.1	0.65	ND	0.69	0.14	
79-00-5	1,1,2-Trichloroethane	ND	3.2	0.32	ND	0.59	0.059	
108-88-3	Toluene	**54**	3.1	0.39	**14**	0.83	0.10	
591-78-6	2-Hexanone	**0.40**	3.2	0.39	**0.098**	0.78	0.095	**J**
124-48-1	Dibromochloromethane	ND	3.2	0.41	ND	0.38	0.049	
106-93-4	1,2-Dibromoethane	ND	3.2	0.37	ND	0.42	0.048	
123-86-4	n-Butyl Acetate	**0.97**	3.2	0.43	**0.20**	0.67	0.091	**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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-01** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-001

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/27/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SS00839

Initial Pressure (psig): -6.03 Final Pressure (psig): 5.89

Container Dilution Factor: 2.37

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	3.2	0.71	ND	0.69	0.15	
127-18-4	Tetrachloroethene	**1.8**	3.1	0.41	**0.26**	0.46	0.060	**J**
108-90-7	Chlorobenzene	**0.43**	3.1	0.42	**0.093**	0.68	0.091	**J**
100-41-4	Ethylbenzene	**2.6**	3.1	0.44	**0.59**	0.71	0.10	**J**
179601-23-1	m,p-Xylenes	**12**	6.5	0.83	**2.8**	1.5	0.19	
75-25-2	Bromoform	ND	3.1	0.65	ND	0.30	0.063	
100-42-5	Styrene	**1.4**	3.1	0.51	**0.33**	0.74	0.12	**J**
95-47-6	o-Xylene	**7.7**	3.1	0.46	**1.8**	0.72	0.11	
111-84-2	n-Nonane	**1.4**	3.2	0.53	**0.26**	0.61	0.10	**J**
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.1	0.44	ND	0.46	0.064	
98-82-8	Cumene	ND	3.1	0.46	ND	0.64	0.093	
80-56-8	alpha-Pinene	**1.2**	3.1	0.49	**0.22**	0.55	0.087	**J**
103-65-1	n-Propylbenzene	**0.73**	3.2	0.46	**0.15**	0.65	0.093	**J**
622-96-8	4-Ethyltoluene	**1.1**	3.1	0.50	**0.22**	0.64	0.10	**J**
108-67-8	1,3,5-Trimethylbenzene	**1.3**	3.1	0.46	**0.26**	0.64	0.093	**J**
95-63-6	1,2,4-Trimethylbenzene	**3.6**	3.1	0.44	**0.73**	0.64	0.089	
100-44-7	Benzyl Chloride	ND	6.5	0.71	ND	1.3	0.14	
541-73-1	1,3-Dichlorobenzene	ND	3.2	0.47	ND	0.53	0.079	
106-46-7	1,4-Dichlorobenzene	ND	3.2	0.49	ND	0.53	0.081	
95-50-1	1,2-Dichlorobenzene	ND	3.2	0.47	ND	0.53	0.078	
5989-27-5	d-Limonene	**1.9**	3.0	0.65	**0.35**	0.54	0.12	**J**
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.1	0.59	ND	0.32	0.061	
120-82-1	1,2,4-Trichlorobenzene	ND	3.1	0.77	ND	0.42	0.10	
91-20-3	Naphthalene	**1.1**	3.0	0.77	**0.21**	0.58	0.15	**J, V**
87-68-3	Hexachlorobutadiene	ND	3.1	0.65	ND	0.29	0.061	

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-02** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-002

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/27/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SS00870

Initial Pressure (psig): -1.49 Final Pressure (psig): 5.72

Container Dilution Factor: 1.55

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**20**	2.0	0.50	**11**	1.2	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.4**	2.0	0.34	**0.48**	0.41	0.068	
74-87-3	Chloromethane	ND	1.9	0.33	ND	0.94	0.16	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	2.0	0.33	ND	0.28	0.047	
75-01-4	Vinyl Chloride	ND	2.1	0.22	ND	0.80	0.086	
106-99-0	1,3-Butadiene	ND	2.0	0.34	ND	0.91	0.15	
74-83-9	Bromomethane	ND	1.9	0.29	ND	0.50	0.074	
75-00-3	Chloroethane	ND	2.0	0.26	ND	0.75	0.097	
64-17-5	Ethanol	**6.3**	20	1.4	**3.3**	10	0.76	**J, B**
75-05-8	Acetonitrile	ND	2.0	0.50	ND	1.2	0.30	
107-02-8	Acrolein	ND	3.9	0.58	ND	1.7	0.25	
67-64-1	Acetone	**9.1**	21	4.7	**3.8**	8.8	2.0	**J**
75-69-4	Trichlorofluoromethane (CFC 11)	**1.2**	2.1	0.31	**0.21**	0.37	0.056	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**0.98**	8.1	0.85	**0.40**	3.3	0.35	**J**
107-13-1	Acrylonitrile	ND	2.0	0.43	ND	0.93	0.20	
75-35-4	1,1-Dichloroethene	**0.86**	2.1	0.29	**0.22**	0.53	0.072	**J**
75-09-2	Methylene Chloride	ND	2.1	0.58	ND	0.60	0.17	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	2.1	0.28	ND	0.66	0.089	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**0.63**	2.1	0.29	**0.082**	0.27	0.038	**J**
75-15-0	Carbon Disulfide	ND	4.3	0.62	ND	1.4	0.20	
156-60-5	trans-1,2-Dichloroethene	ND	2.1	0.29	ND	0.52	0.072	
75-34-3	1,1-Dichloroethane	ND	2.0	0.30	ND	0.50	0.075	
1634-04-4	Methyl tert-Butyl Ether	ND	2.1	0.24	ND	0.58	0.068	
108-05-4	Vinyl Acetate	ND	21	4.7	ND	5.8	1.3	
78-93-3	2-Butanone (MEK)	**1.4**	3.9	0.43	**0.49**	1.3	0.14	**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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-02** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-002

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/27/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SS00870

Initial Pressure (psig): -1.49 Final Pressure (psig): 5.72

Container Dilution Factor: 1.55

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	2.1	0.29	ND	0.52	0.073	
141-78-6	Ethyl Acetate	**5.0**	4.3	1.1	**1.4**	1.2	0.30	
110-54-3	n-Hexane	ND	2.1	0.43	ND	0.59	0.12	
67-66-3	Chloroform	**0.29**	2.1	0.28	**0.059**	0.43	0.056	**J**
109-99-9	Tetrahydrofuran (THF)	**0.30**	2.1	0.26	**0.10**	0.70	0.088	**J**
107-06-2	1,2-Dichloroethane	ND	2.1	0.23	ND	0.51	0.057	
71-55-6	1,1,1-Trichloroethane	**4.3**	2.1	0.26	**0.78**	0.38	0.047	
71-43-2	Benzene	**0.62**	2.0	0.30	**0.19**	0.63	0.093	**J**
56-23-5	Carbon Tetrachloride	**0.40**	2.0	0.29	**0.063**	0.32	0.046	**J**
110-82-7	Cyclohexane	ND	3.9	0.58	ND	1.1	0.17	
78-87-5	1,2-Dichloropropane	ND	2.1	0.26	ND	0.45	0.055	
75-27-4	Bromodichloromethane	ND	2.1	0.30	ND	0.31	0.045	
79-01-6	Trichloroethene	ND	2.1	0.28	ND	0.38	0.052	
123-91-1	1,4-Dioxane	**0.44**	2.1	0.24	**0.12**	0.57	0.068	**J**
80-62-6	Methyl Methacrylate	ND	4.3	0.74	ND	1.0	0.18	
142-82-5	n-Heptane	ND	2.1	0.33	ND	0.51	0.080	
10061-01-5	cis-1,3-Dichloropropene	ND	2.2	0.32	ND	0.48	0.071	
108-10-1	4-Methyl-2-pentanone	**1.7**	2.1	0.28	**0.42**	0.50	0.069	**J**
10061-02-6	trans-1,3-Dichloropropene	ND	2.1	0.43	ND	0.45	0.094	
79-00-5	1,1,2-Trichloroethane	ND	2.1	0.21	ND	0.38	0.038	
108-88-3	Toluene	**45**	2.1	0.25	**12**	0.55	0.067	
591-78-6	2-Hexanone	**0.36**	2.1	0.26	**0.088**	0.51	0.062	**J**
124-48-1	Dibromochloromethane	ND	2.1	0.27	ND	0.25	0.032	
106-93-4	1,2-Dibromoethane	ND	2.1	0.24	ND	0.27	0.031	
123-86-4	n-Butyl Acetate	**1.2**	2.1	0.28	**0.25**	0.44	0.060	**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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-02** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-002

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/27/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SS00870

Initial Pressure (psig): -1.49 Final Pressure (psig): 5.72

Container Dilution Factor: 1.55

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	2.1	0.47	ND	0.45	0.10	
127-18-4	Tetrachloroethene	**1.0**	2.1	0.27	**0.15**	0.30	0.039	**J**
108-90-7	Chlorobenzene	ND	2.1	0.28	ND	0.45	0.060	
100-41-4	Ethylbenzene	**5.6**	2.0	0.29	**1.3**	0.46	0.067	
179601-23-1	m,p-Xylenes	**28**	4.3	0.54	**6.4**	0.98	0.12	
75-25-2	Bromoform	ND	2.1	0.43	ND	0.20	0.041	
100-42-5	Styrene	**1.2**	2.1	0.33	**0.27**	0.48	0.078	**J**
95-47-6	o-Xylene	**29**	2.1	0.30	**6.6**	0.47	0.069	
111-84-2	n-Nonane	ND	2.1	0.34	ND	0.40	0.066	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.1	0.29	ND	0.30	0.042	
98-82-8	Cumene	**0.67**	2.1	0.30	**0.14**	0.42	0.061	**J**
80-56-8	alpha-Pinene	**1.5**	2.0	0.32	**0.28**	0.36	0.057	**J**
103-65-1	n-Propylbenzene	**2.3**	2.1	0.30	**0.46**	0.43	0.061	
622-96-8	4-Ethyltoluene	**3.8**	2.1	0.33	**0.78**	0.42	0.067	
108-67-8	1,3,5-Trimethylbenzene	**5.0**	2.1	0.30	**1.0**	0.42	0.061	
95-63-6	1,2,4-Trimethylbenzene	**12**	2.1	0.29	**2.4**	0.42	0.058	
100-44-7	Benzyl Chloride	ND	4.3	0.47	ND	0.82	0.090	
541-73-1	1,3-Dichlorobenzene	ND	2.1	0.31	ND	0.35	0.052	
106-46-7	1,4-Dichlorobenzene	ND	2.1	0.32	ND	0.35	0.053	
95-50-1	1,2-Dichlorobenzene	ND	2.1	0.31	ND	0.35	0.051	
5989-27-5	d-Limonene	**1.8**	2.0	0.43	**0.33**	0.35	0.077	**J**
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.39	ND	0.21	0.040	
120-82-1	1,2,4-Trichlorobenzene	ND	2.1	0.50	ND	0.28	0.068	
91-20-3	Naphthalene	**0.89**	2.0	0.50	**0.17**	0.38	0.096	**J ,V**
87-68-3	Hexachlorobutadiene	ND	2.1	0.43	ND	0.19	0.040	

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-03** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-003

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/28/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SS00872

Initial Pressure (psig): -0.53 Final Pressure (psig): 5.72

Container Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**15**	1.9	0.47	**9.0**	1.1	0.27	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.5**	1.9	0.31	**0.50**	0.38	0.063	
74-87-3	Chloromethane	**0.37**	1.8	0.31	**0.18**	0.87	0.15	**J**
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	1.8	0.30	ND	0.26	0.043	
75-01-4	Vinyl Chloride	ND	1.9	0.21	ND	0.75	0.080	
106-99-0	1,3-Butadiene	ND	1.9	0.32	ND	0.85	0.14	
74-83-9	Bromomethane	ND	1.8	0.27	ND	0.46	0.069	
75-00-3	Chloroethane	ND	1.8	0.24	ND	0.70	0.090	
64-17-5	Ethanol	**99**	18	1.3	**52**	9.7	0.71	**B**
75-05-8	Acetonitrile	ND	1.9	0.47	ND	1.1	0.28	
107-02-8	Acrolein	**2.8**	3.6	0.54	**1.2**	1.6	0.24	**J**
67-64-1	Acetone	**51**	19	4.3	**22**	8.2	1.8	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.3**	1.9	0.29	**0.23**	0.34	0.052	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**36**	7.6	0.79	**14**	3.1	0.32	
107-13-1	Acrylonitrile	ND	1.9	0.40	ND	0.86	0.18	
75-35-4	1,1-Dichloroethene	**1.3**	1.9	0.27	**0.33**	0.49	0.067	**J**
75-09-2	Methylene Chloride	**1.9**	1.9	0.54	**0.55**	0.56	0.16	**J**
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	1.9	0.26	ND	0.61	0.083	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**1.4**	1.9	0.27	**0.18**	0.25	0.036	**J**
75-15-0	Carbon Disulfide	**1.1**	4.0	0.58	**0.37**	1.3	0.19	**J**
156-60-5	trans-1,2-Dichloroethene	ND	1.9	0.27	ND	0.48	0.067	
75-34-3	1,1-Dichloroethane	ND	1.9	0.28	ND	0.46	0.069	
1634-04-4	Methyl tert-Butyl Ether	ND	1.9	0.23	ND	0.54	0.063	
108-05-4	Vinyl Acetate	ND	19	4.3	ND	5.4	1.2	
78-93-3	2-Butanone (MEK)	**7.2**	3.6	0.40	**2.5**	1.2	0.13	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **SVE-OBS-03** ALS Project ID: P1804807

Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-003

Test Code:	EPA TO-15	Date Collected:	9/10/18
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16	Date Received:	9/14/18
Analyst:	Lusine Hakobyan/Topacio De Leon	Date Analyzed:	9/28/18
Sample Type:	1.0 L Silonite Summa Canister	Volume(s) Analyzed:	0.40 Liter(s)
Test Notes:			
Container ID:	1SS00872		

Initial Pressure (psig): -0.53 Final Pressure (psig): 5.72

Container Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	1.9	0.27	ND	0.48	0.068	
141-78-6	Ethyl Acetate	**440**	4.0	1.0	**120**	1.1	0.28	
110-54-3	n-Hexane	**7.1**	1.9	0.40	**2.0**	0.55	0.11	
67-66-3	Chloroform	**0.70**	1.9	0.26	**0.14**	0.40	0.052	**J**
109-99-9	Tetrahydrofuran (THF)	**30**	1.9	0.24	**10**	0.65	0.082	
107-06-2	1,2-Dichloroethane	**6.3**	1.9	0.21	**1.6**	0.47	0.052	
71-55-6	1,1,1-Trichloroethane	**2.3**	1.9	0.24	**0.42**	0.36	0.044	
71-43-2	Benzene	**3.0**	1.9	0.28	**0.92**	0.59	0.087	
56-23-5	Carbon Tetrachloride	**0.41**	1.9	0.27	**0.065**	0.30	0.042	**J**
110-82-7	Cyclohexane	**5.2**	3.6	0.54	**1.5**	1.0	0.16	
78-87-5	1,2-Dichloropropane	ND	1.9	0.24	ND	0.42	0.051	
75-27-4	Bromodichloromethane	**0.32**	1.9	0.28	**0.048**	0.28	0.041	**J**
79-01-6	Trichloroethene	ND	1.9	0.26	ND	0.36	0.048	
123-91-1	1,4-Dioxane	**0.31**	1.9	0.23	**0.085**	0.53	0.063	**J**
80-62-6	Methyl Methacrylate	ND	4.0	0.68	ND	0.97	0.17	
142-82-5	n-Heptane	**3.9**	1.9	0.31	**0.96**	0.47	0.075	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	0.30	ND	0.44	0.066	
108-10-1	4-Methyl-2-pentanone	**5.5**	1.9	0.26	**1.3**	0.47	0.064	
10061-02-6	trans-1,3-Dichloropropene	ND	1.9	0.40	ND	0.42	0.087	
79-00-5	1,1,2-Trichloroethane	ND	1.9	0.19	ND	0.36	0.036	
108-88-3	Toluene	**51**	1.9	0.23	**13**	0.51	0.062	
591-78-6	2-Hexanone	ND	1.9	0.24	ND	0.47	0.058	
124-48-1	Dibromochloromethane	ND	1.9	0.25	ND	0.23	0.030	
106-93-4	1,2-Dibromoethane	ND	1.9	0.22	ND	0.25	0.029	
123-86-4	n-Butyl Acetate	**11**	1.9	0.26	**2.4**	0.41	0.055	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-03** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-003

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/28/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SS00872

Initial Pressure (psig): -0.53 Final Pressure (psig): 5.72

Container Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	**2.3**	1.9	0.43	**0.48**	0.42	0.093	
127-18-4	Tetrachloroethene	**1.8**	1.9	0.25	**0.26**	0.28	0.037	**J**
108-90-7	Chlorobenzene	**0.33**	1.9	0.26	**0.071**	0.41	0.056	**J**
100-41-4	Ethylbenzene	**4.3**	1.9	0.27	**0.98**	0.43	0.062	
179601-23-1	m,p-Xylenes	**16**	4.0	0.50	**3.7**	0.91	0.12	
75-25-2	Bromoform	ND	1.9	0.40	ND	0.18	0.038	
100-42-5	Styrene	**5.1**	1.9	0.31	**1.2**	0.45	0.073	
95-47-6	o-Xylene	**6.6**	1.9	0.28	**1.5**	0.44	0.064	
111-84-2	n-Nonane	**1.1**	1.9	0.32	**0.21**	0.37	0.061	**J**
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.9	0.27	ND	0.28	0.039	
98-82-8	Cumene	**0.35**	1.9	0.28	**0.072**	0.39	0.056	**J**
80-56-8	alpha-Pinene	**8.8**	1.9	0.30	**1.6**	0.34	0.053	
103-65-1	n-Propylbenzene	**0.71**	1.9	0.28	**0.15**	0.40	0.056	**J**
622-96-8	4-Ethyltoluene	**0.96**	1.9	0.31	**0.19**	0.39	0.062	**J**
108-67-8	1,3,5-Trimethylbenzene	**0.99**	1.9	0.28	**0.20**	0.39	0.056	**J**
95-63-6	1,2,4-Trimethylbenzene	**3.7**	1.9	0.27	**0.74**	0.39	0.054	
100-44-7	Benzyl Chloride	ND	4.0	0.43	ND	0.77	0.083	
541-73-1	1,3-Dichlorobenzene	ND	1.9	0.29	ND	0.32	0.048	
106-46-7	1,4-Dichlorobenzene	ND	1.9	0.30	ND	0.32	0.049	
95-50-1	1,2-Dichlorobenzene	ND	1.9	0.28	ND	0.32	0.047	
5989-27-5	d-Limonene	**31**	1.8	0.40	**5.6**	0.33	0.071	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.9	0.36	ND	0.19	0.037	
120-82-1	1,2,4-Trichlorobenzene	ND	1.9	0.47	ND	0.26	0.063	
91-20-3	Naphthalene	**2.6**	1.8	0.47	**0.49**	0.35	0.089	**V**
87-68-3	Hexachlorobutadiene	ND	1.9	0.40	ND	0.18	0.037	

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-04** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-004

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/28/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC01185

Initial Pressure (psig): -0.95 Final Pressure (psig): 5.34

Container Dilution Factor: 1.46

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**6.4**	1.9	0.47	**3.7**	1.1	0.28	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.4**	1.9	0.32	**0.48**	0.38	0.064	
74-87-3	Chloromethane	ND	1.8	0.31	ND	0.88	0.15	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	1.9	0.31	ND	0.27	0.044	
75-01-4	Vinyl Chloride	ND	1.9	0.21	ND	0.76	0.081	
106-99-0	1,3-Butadiene	ND	1.9	0.32	ND	0.86	0.15	
74-83-9	Bromomethane	ND	1.8	0.27	ND	0.47	0.070	
75-00-3	Chloroethane	ND	1.9	0.24	ND	0.71	0.091	
64-17-5	Ethanol	**49**	19	1.4	**26**	9.9	0.72	**B**
75-05-8	Acetonitrile	ND	1.9	0.47	ND	1.1	0.28	
107-02-8	Acrolein	**1.4**	3.7	0.55	**0.63**	1.6	0.24	**J**
67-64-1	Acetone	**68**	20	4.4	**29**	8.3	1.8	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.2**	1.9	0.30	**0.22**	0.34	0.053	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**10**	7.7	0.80	**4.2**	3.1	0.33	
107-13-1	Acrylonitrile	ND	1.9	0.40	ND	0.87	0.19	
75-35-4	1,1-Dichloroethene	**0.75**	2.0	0.27	**0.19**	0.50	0.068	**J**
75-09-2	Methylene Chloride	ND	2.0	0.55	ND	0.57	0.16	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	1.9	0.26	ND	0.62	0.084	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**14**	1.9	0.28	**1.9**	0.25	0.036	
75-15-0	Carbon Disulfide	**0.77**	4.0	0.58	**0.25**	1.3	0.19	**J**
156-60-5	trans-1,2-Dichloroethene	ND	1.9	0.27	ND	0.49	0.068	
75-34-3	1,1-Dichloroethane	ND	1.9	0.28	ND	0.47	0.070	
1634-04-4	Methyl tert-Butyl Ether	ND	2.0	0.23	ND	0.55	0.064	
108-05-4	Vinyl Acetate	**5.1**	19	4.4	**1.5**	5.5	1.2	**J**
78-93-3	2-Butanone (MEK)	**3.0**	3.7	0.40	**1.0**	1.2	0.14	**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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-04** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-004

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/28/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC01185

Initial Pressure (psig): -0.95 Final Pressure (psig): 5.34

Container Dilution Factor: 1.46

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	1.9	0.27	ND	0.49	0.069	
141-78-6	Ethyl Acetate	**210**	4.0	1.0	**58**	1.1	0.28	
110-54-3	n-Hexane	**0.61**	2.0	0.40	**0.17**	0.56	0.11	**J**
67-66-3	Chloroform	**0.33**	2.0	0.26	**0.068**	0.40	0.053	**J**
109-99-9	Tetrahydrofuran (THF)	**0.27**	1.9	0.24	**0.092**	0.66	0.083	**J**
107-06-2	1,2-Dichloroethane	**0.33**	1.9	0.22	**0.082**	0.48	0.053	**J**
71-55-6	1,1,1-Trichloroethane	**2.9**	2.0	0.24	**0.54**	0.36	0.044	
71-43-2	Benzene	**1.1**	1.9	0.28	**0.34**	0.59	0.088	**J**
56-23-5	Carbon Tetrachloride	**0.36**	1.9	0.27	**0.057**	0.30	0.043	**J**
110-82-7	Cyclohexane	**0.55**	3.7	0.55	**0.16**	1.1	0.16	**J**
78-87-5	1,2-Dichloropropane	**0.91**	2.0	0.24	**0.20**	0.43	0.052	**J**
75-27-4	Bromodichloromethane	ND	1.9	0.28	ND	0.29	0.042	
79-01-6	Trichloroethene	ND	1.9	0.26	ND	0.36	0.049	
123-91-1	1,4-Dioxane	**0.70**	1.9	0.23	**0.19**	0.54	0.064	**J**
80-62-6	Methyl Methacrylate	ND	4.0	0.69	ND	0.98	0.17	
142-82-5	n-Heptane	**0.82**	2.0	0.31	**0.20**	0.48	0.076	**J**
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	0.30	ND	0.45	0.067	
108-10-1	4-Methyl-2-pentanone	**1.1**	1.9	0.27	**0.26**	0.47	0.065	**J**
10061-02-6	trans-1,3-Dichloropropene	ND	1.9	0.40	ND	0.43	0.088	
79-00-5	1,1,2-Trichloroethane	ND	2.0	0.20	ND	0.36	0.036	
108-88-3	Toluene	**29**	1.9	0.24	**7.8**	0.51	0.063	
591-78-6	2-Hexanone	**0.34**	2.0	0.24	**0.082**	0.48	0.059	**J**
124-48-1	Dibromochloromethane	ND	2.0	0.26	ND	0.23	0.030	
106-93-4	1,2-Dibromoethane	ND	2.0	0.23	ND	0.26	0.029	
123-86-4	n-Butyl Acetate	**18**	2.0	0.27	**3.8**	0.42	0.056	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-04** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-004

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/28/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC01185

Initial Pressure (psig): -0.95 Final Pressure (psig): 5.34

Container Dilution Factor: 1.46

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	**0.87**	2.0	0.44	**0.19**	0.42	0.094	**J**
127-18-4	Tetrachloroethene	**0.83**	1.9	0.25	**0.12**	0.29	0.037	**J**
108-90-7	Chlorobenzene	ND	1.9	0.26	ND	0.42	0.056	
100-41-4	Ethylbenzene	**42**	1.9	0.27	**9.6**	0.44	0.063	
179601-23-1	m,p-Xylenes	**210**	4.0	0.51	**48**	0.92	0.12	
75-25-2	Bromoform	ND	1.9	0.40	ND	0.19	0.039	
100-42-5	Styrene	**2.3**	1.9	0.31	**0.53**	0.45	0.074	
95-47-6	o-Xylene	**62**	1.9	0.28	**14**	0.45	0.065	
111-84-2	n-Nonane	**1.6**	2.0	0.32	**0.30**	0.38	0.062	**J**
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.9	0.27	ND	0.28	0.039	
98-82-8	Cumene	**1.2**	1.9	0.28	**0.25**	0.39	0.057	**J**
80-56-8	alpha-Pinene	**8.7**	1.9	0.30	**1.6**	0.34	0.054	
103-65-1	n-Propylbenzene	**3.5**	2.0	0.28	**0.70**	0.40	0.057	
622-96-8	4-Ethyltoluene	**5.6**	1.9	0.31	**1.1**	0.39	0.063	
108-67-8	1,3,5-Trimethylbenzene	**5.5**	1.9	0.28	**1.1**	0.39	0.057	
95-63-6	1,2,4-Trimethylbenzene	**14**	1.9	0.27	**2.9**	0.39	0.055	
100-44-7	Benzyl Chloride	ND	4.0	0.44	ND	0.78	0.085	
541-73-1	1,3-Dichlorobenzene	ND	2.0	0.29	ND	0.33	0.049	
106-46-7	1,4-Dichlorobenzene	ND	2.0	0.30	ND	0.33	0.050	
95-50-1	1,2-Dichlorobenzene	ND	2.0	0.29	ND	0.33	0.048	
5989-27-5	d-Limonene	**4.2**	1.9	0.40	**0.75**	0.33	0.072	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.9	0.37	ND	0.20	0.038	
120-82-1	1,2,4-Trichlorobenzene	ND	1.9	0.47	ND	0.26	0.064	
91-20-3	Naphthalene	**1.4**	1.9	0.47	**0.27**	0.36	0.091	**J, V**
87-68-3	Hexachlorobutadiene	ND	1.9	0.40	ND	0.18	0.038	

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-05** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-005

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/28/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC01195

Initial Pressure (psig): -0.48 Final Pressure (psig): 5.42

Container Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**11**	1.8	0.46	**6.5**	1.1	0.27	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.3**	1.8	0.31	**0.47**	0.37	0.062	
74-87-3	Chloromethane	ND	1.8	0.30	ND	0.85	0.15	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	1.8	0.30	ND	0.26	0.042	
75-01-4	Vinyl Chloride	ND	1.9	0.20	ND	0.73	0.079	
106-99-0	1,3-Butadiene	ND	1.8	0.31	ND	0.83	0.14	
74-83-9	Bromomethane	ND	1.8	0.26	ND	0.45	0.067	
75-00-3	Chloroethane	ND	1.8	0.23	ND	0.68	0.088	
64-17-5	Ethanol	**15**	18	1.3	**8.0**	9.5	0.69	**J, B**
75-05-8	Acetonitrile	ND	1.8	0.46	ND	1.1	0.27	
107-02-8	Acrolein	**0.63**	3.5	0.53	**0.28**	1.5	0.23	**J**
67-64-1	Acetone	**26**	19	4.2	**11**	8.0	1.8	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.2**	1.9	0.29	**0.21**	0.33	0.051	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	7.4	0.78	ND	3.0	0.32	
107-13-1	Acrylonitrile	ND	1.8	0.39	ND	0.84	0.18	
75-35-4	1,1-Dichloroethene	ND	1.9	0.26	ND	0.48	0.066	
75-09-2	Methylene Chloride	ND	1.9	0.53	ND	0.55	0.15	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	1.9	0.25	ND	0.60	0.081	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**0.48**	1.9	0.27	**0.063**	0.24	0.035	**J**
75-15-0	Carbon Disulfide	**0.65**	3.9	0.56	**0.21**	1.2	0.18	**J**
156-60-5	trans-1,2-Dichloroethene	ND	1.9	0.26	ND	0.47	0.066	
75-34-3	1,1-Dichloroethane	ND	1.8	0.27	ND	0.45	0.068	
1634-04-4	Methyl tert-Butyl Ether	ND	1.9	0.22	ND	0.53	0.062	
108-05-4	Vinyl Acetate	ND	19	4.2	ND	5.3	1.2	
78-93-3	2-Butanone (MEK)	**1.7**	3.5	0.39	**0.58**	1.2	0.13	**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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-05** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-005

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/28/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC01195

Initial Pressure (psig): -0.48 Final Pressure (psig): 5.42

Container Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	1.9	0.26	ND	0.47	0.067	
141-78-6	Ethyl Acetate	**3.4**	3.9	0.99	**0.95**	1.1	0.27	**J**
110-54-3	n-Hexane	**2.9**	1.9	0.39	**0.82**	0.54	0.11	
67-66-3	Chloroform	**0.58**	1.9	0.25	**0.12**	0.39	0.051	**J**
109-99-9	Tetrahydrofuran (THF)	**0.33**	1.9	0.24	**0.11**	0.63	0.080	**J**
107-06-2	1,2-Dichloroethane	ND	1.9	0.21	ND	0.46	0.051	
71-55-6	1,1,1-Trichloroethane	**2.7**	1.9	0.23	**0.50**	0.35	0.043	
71-43-2	Benzene	**8.6**	1.8	0.27	**2.7**	0.57	0.085	
56-23-5	Carbon Tetrachloride	ND	1.8	0.26	ND	0.29	0.041	
110-82-7	Cyclohexane	**1.6**	3.5	0.53	**0.47**	1.0	0.15	**J**
78-87-5	1,2-Dichloropropane	**0.89**	1.9	0.23	**0.19**	0.41	0.050	**J**
75-27-4	Bromodichloromethane	**0.29**	1.9	0.27	**0.043**	0.28	0.041	**J**
79-01-6	Trichloroethene	ND	1.9	0.25	ND	0.35	0.047	
123-91-1	1,4-Dioxane	**0.23**	1.9	0.22	**0.064**	0.52	0.062	**J**
80-62-6	Methyl Methacrylate	ND	3.9	0.67	ND	0.95	0.16	
142-82-5	n-Heptane	**4.7**	1.9	0.30	**1.1**	0.46	0.073	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	0.29	ND	0.43	0.064	
108-10-1	4-Methyl-2-pentanone	**1.1**	1.9	0.26	**0.27**	0.46	0.063	**J**
10061-02-6	trans-1,3-Dichloropropene	ND	1.9	0.39	ND	0.41	0.085	
79-00-5	1,1,2-Trichloroethane	ND	1.9	0.19	ND	0.35	0.035	
108-88-3	Toluene	**61**	1.9	0.23	**16**	0.50	0.061	
591-78-6	2-Hexanone	ND	1.9	0.23	ND	0.46	0.057	
124-48-1	Dibromochloromethane	ND	1.9	0.25	ND	0.22	0.029	
106-93-4	1,2-Dibromoethane	**0.22**	1.9	0.22	**0.028**	0.25	0.028	**J**
123-86-4	n-Butyl Acetate	**11**	1.9	0.26	**2.4**	0.40	0.054	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-05** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-005

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/28/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC01195

Initial Pressure (psig): -0.48 Final Pressure (psig): 5.42

Container Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	**3.0**	1.9	0.42	**0.65**	0.41	0.091	
127-18-4	Tetrachloroethene	**2.1**	1.9	0.24	**0.31**	0.28	0.036	
108-90-7	Chlorobenzene	ND	1.9	0.25	ND	0.41	0.054	
100-41-4	Ethylbenzene	**46**	1.8	0.26	**11**	0.42	0.061	
179601-23-1	m,p-Xylenes	**210**	3.9	0.49	**49**	0.89	0.11	
75-25-2	Bromoform	ND	1.9	0.39	ND	0.18	0.038	
100-42-5	Styrene	**0.85**	1.9	0.30	**0.20**	0.44	0.071	**J**
95-47-6	o-Xylene	**190**	1.9	0.27	**44**	0.43	0.063	
111-84-2	n-Nonane	**4.1**	1.9	0.31	**0.77**	0.36	0.060	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.9	0.26	ND	0.27	0.038	
98-82-8	Cumene	**2.5**	1.9	0.27	**0.51**	0.38	0.055	
80-56-8	alpha-Pinene	**2.7**	1.8	0.29	**0.49**	0.33	0.052	
103-65-1	n-Propylbenzene	**6.4**	1.9	0.27	**1.3**	0.39	0.055	
622-96-8	4-Ethyltoluene	**22**	1.9	0.30	**4.4**	0.38	0.061	
108-67-8	1,3,5-Trimethylbenzene	**56**	1.9	0.27	**11**	0.38	0.055	
95-63-6	1,2,4-Trimethylbenzene	**25**	1.9	0.26	**5.0**	0.38	0.053	
100-44-7	Benzyl Chloride	ND	3.9	0.42	ND	0.75	0.082	
541-73-1	1,3-Dichlorobenzene	ND	1.9	0.28	ND	0.32	0.047	
106-46-7	1,4-Dichlorobenzene	ND	1.9	0.29	ND	0.32	0.048	
95-50-1	1,2-Dichlorobenzene	ND	1.9	0.28	ND	0.32	0.046	
5989-27-5	d-Limonene	**1.3**	1.8	0.39	**0.24**	0.32	0.070	**J**
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.8	0.35	ND	0.19	0.036	
120-82-1	1,2,4-Trichlorobenzene	ND	1.9	0.46	ND	0.25	0.062	
91-20-3	Naphthalene	**6.7**	1.8	0.46	**1.3**	0.34	0.087	**V**
87-68-3	Hexachlorobutadiene	ND	1.9	0.39	ND	0.18	0.036	

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-06** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-006

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/28/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.20 Liter(s)
Test Notes:
Container ID: 1SS00865

Initial Pressure (psig): -2.64 Final Pressure (psig): 5.89

Container Dilution Factor: 1.71

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**32**	4.4	1.1	**18**	2.6	0.65	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.2**	4.4	0.74	**0.45**	0.90	0.15	**J**
74-87-3	Chloromethane	ND	4.3	0.74	ND	2.1	0.36	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	4.4	0.72	ND	0.62	0.10	
75-01-4	Vinyl Chloride	ND	4.5	0.49	ND	1.8	0.19	
106-99-0	1,3-Butadiene	ND	4.4	0.75	ND	2.0	0.34	
74-83-9	Bromomethane	ND	4.3	0.63	ND	1.1	0.16	
75-00-3	Chloroethane	ND	4.4	0.56	ND	1.7	0.21	
64-17-5	Ethanol	**260**	44	3.2	**140**	23	1.7	**B**
75-05-8	Acetonitrile	ND	4.4	1.1	ND	2.6	0.66	
107-02-8	Acrolein	ND	8.6	1.3	ND	3.7	0.56	
67-64-1	Acetone	**32**	46	10	**13**	19	4.3	**J**
75-69-4	Trichlorofluoromethane (CFC 11)	**1.1**	4.5	0.69	**0.20**	0.81	0.12	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**2.5**	18	1.9	**1.0**	7.3	0.77	**J**
107-13-1	Acrylonitrile	ND	4.4	0.94	ND	2.0	0.43	
75-35-4	1,1-Dichloroethene	**3.8**	4.6	0.63	**0.96**	1.2	0.16	**J**
75-09-2	Methylene Chloride	**1.6**	4.6	1.3	**0.47**	1.3	0.37	**J**
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	4.5	0.62	ND	1.4	0.20	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	4.5	0.65	ND	0.59	0.085	
75-15-0	Carbon Disulfide	ND	9.4	1.4	ND	3.0	0.44	
156-60-5	trans-1,2-Dichloroethene	ND	4.5	0.63	ND	1.1	0.16	
75-34-3	1,1-Dichloroethane	**2.1**	4.4	0.67	**0.51**	1.1	0.16	**J**
1634-04-4	Methyl tert-Butyl Ether	ND	4.6	0.54	ND	1.3	0.15	
108-05-4	Vinyl Acetate	ND	45	10	ND	13	2.9	
78-93-3	2-Butanone (MEK)	**2.3**	8.6	0.94	**0.77**	2.9	0.32	**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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-06** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-006

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/28/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.20 Liter(s)
Test Notes:
Container ID: 1SS00865

Initial Pressure (psig): -2.64 Final Pressure (psig): 5.89

Container Dilution Factor: 1.71

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	4.5	0.64	ND	1.1	0.16	
141-78-6	Ethyl Acetate	**16**	9.4	2.4	**4.6**	2.6	0.66	
110-54-3	n-Hexane	ND	4.6	0.94	ND	1.3	0.27	
67-66-3	Chloroform	ND	4.6	0.61	ND	0.95	0.12	
109-99-9	Tetrahydrofuran (THF)	ND	4.5	0.57	ND	1.5	0.19	
107-06-2	1,2-Dichloroethane	ND	4.5	0.50	ND	1.1	0.12	
71-55-6	1,1,1-Trichloroethane	**35**	4.6	0.56	**6.5**	0.85	0.10	
71-43-2	Benzene	ND	4.4	0.66	ND	1.4	0.21	
56-23-5	Carbon Tetrachloride	ND	4.4	0.63	ND	0.71	0.10	
110-82-7	Cyclohexane	ND	8.6	1.3	ND	2.5	0.37	
78-87-5	1,2-Dichloropropane	ND	4.6	0.56	ND	1.0	0.12	
75-27-4	Bromodichloromethane	ND	4.5	0.66	ND	0.68	0.098	
79-01-6	Trichloroethene	ND	4.5	0.62	ND	0.84	0.11	
123-91-1	1,4-Dioxane	ND	4.5	0.54	ND	1.3	0.15	
80-62-6	Methyl Methacrylate	ND	9.4	1.6	ND	2.3	0.40	
142-82-5	n-Heptane	ND	4.6	0.73	ND	1.1	0.18	
10061-01-5	cis-1,3-Dichloropropene	ND	4.8	0.71	ND	1.1	0.16	
108-10-1	4-Methyl-2-pentanone	**1.3**	4.5	0.62	**0.32**	1.1	0.15	**J**
10061-02-6	trans-1,3-Dichloropropene	ND	4.5	0.94	ND	1.0	0.21	
79-00-5	1,1,2-Trichloroethane	ND	4.6	0.46	ND	0.85	0.085	
108-88-3	Toluene	**8.3**	4.5	0.56	**2.2**	1.2	0.15	
591-78-6	2-Hexanone	**0.97**	4.6	0.56	**0.24**	1.1	0.14	**J**
124-48-1	Dibromochloromethane	ND	4.6	0.60	ND	0.54	0.070	
106-93-4	1,2-Dibromoethane	ND	4.6	0.53	ND	0.60	0.069	
123-86-4	n-Butyl Acetate	**4.2**	4.6	0.62	**0.88**	0.97	0.13	**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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-06** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-006

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/28/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.20 Liter(s)
Test Notes:
Container ID: 1SS00865

Initial Pressure (psig): -2.64 Final Pressure (psig): 5.89

Container Dilution Factor: 1.71

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	4.6	1.0	ND	0.99	0.22	
127-18-4	Tetrachloroethene	**2.2**	4.5	0.59	**0.33**	0.67	0.087	**J**
108-90-7	Chlorobenzene	ND	4.5	0.61	ND	0.98	0.13	
100-41-4	Ethylbenzene	**14**	4.4	0.64	**3.2**	1.0	0.15	
179601-23-1	m,p-Xylenes	**77**	9.4	1.2	**18**	2.2	0.28	
75-25-2	Bromoform	ND	4.5	0.94	ND	0.44	0.091	
100-42-5	Styrene	**1.9**	4.5	0.74	**0.46**	1.1	0.17	**J**
95-47-6	o-Xylene	**36**	4.5	0.66	**8.2**	1.0	0.15	
111-84-2	n-Nonane	**1.5**	4.6	0.76	**0.28**	0.88	0.15	**J**
79-34-5	1,1,2,2-Tetrachloroethane	ND	4.5	0.63	ND	0.66	0.092	
98-82-8	Cumene	**1.5**	4.5	0.66	**0.30**	0.92	0.13	**J**
80-56-8	alpha-Pinene	**1.6**	4.4	0.70	**0.29**	0.80	0.13	**J**
103-65-1	n-Propylbenzene	**5.3**	4.6	0.66	**1.1**	0.94	0.13	
622-96-8	4-Ethyltoluene	**8.7**	4.5	0.73	**1.8**	0.92	0.15	
108-67-8	1,3,5-Trimethylbenzene	**9.2**	4.5	0.66	**1.9**	0.92	0.13	
95-63-6	1,2,4-Trimethylbenzene	**89**	4.5	0.63	**18**	0.92	0.13	
100-44-7	Benzyl Chloride	ND	9.4	1.0	ND	1.8	0.20	
541-73-1	1,3-Dichlorobenzene	ND	4.6	0.68	ND	0.77	0.11	
106-46-7	1,4-Dichlorobenzene	ND	4.6	0.70	ND	0.77	0.12	
95-50-1	1,2-Dichlorobenzene	ND	4.6	0.68	ND	0.77	0.11	
5989-27-5	d-Limonene	**2.9**	4.4	0.94	**0.52**	0.78	0.17	**J**
96-12-8	1,2-Dibromo-3-chloropropane	ND	4.4	0.86	ND	0.46	0.088	
120-82-1	1,2,4-Trichlorobenzene	ND	4.5	1.1	ND	0.61	0.15	
91-20-3	Naphthalene	**11**	4.4	1.1	**2.1**	0.83	0.21	**V**
87-68-3	Hexachlorobutadiene	ND	4.5	0.94	ND	0.43	0.088	

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-07** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-007

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/28/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SS00005

Initial Pressure (psig): 0.22 Final Pressure (psig): 6.02

Container Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**12**	1.8	0.45	**7.0**	1.1	0.26	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.4**	1.8	0.30	**0.48**	0.37	0.061	
74-87-3	Chloromethane	**0.73**	1.7	0.30	**0.35**	0.84	0.14	**J**
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	1.8	0.29	ND	0.25	0.042	
75-01-4	Vinyl Chloride	ND	1.8	0.20	ND	0.72	0.078	
106-99-0	1,3-Butadiene	ND	1.8	0.31	ND	0.82	0.14	
74-83-9	Bromomethane	ND	1.7	0.26	ND	0.45	0.066	
75-00-3	Chloroethane	ND	1.8	0.23	ND	0.67	0.087	
64-17-5	Ethanol	**190**	18	1.3	**100**	9.4	0.68	**B**
75-05-8	Acetonitrile	**0.49**	1.8	0.45	**0.29**	1.1	0.27	**J**
107-02-8	Acrolein	**3.5**	3.5	0.52	**1.5**	1.5	0.23	
67-64-1	Acetone	**58**	19	4.2	**25**	7.9	1.8	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.2**	1.8	0.28	**0.22**	0.33	0.050	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**45**	7.3	0.76	**18**	3.0	0.31	
107-13-1	Acrylonitrile	ND	1.8	0.38	ND	0.83	0.18	
75-35-4	1,1-Dichloroethene	ND	1.9	0.26	ND	0.47	0.065	
75-09-2	Methylene Chloride	ND	1.9	0.52	ND	0.54	0.15	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	1.8	0.25	ND	0.59	0.080	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**0.52**	1.8	0.26	**0.068**	0.24	0.034	**J**
75-15-0	Carbon Disulfide	**1.2**	3.8	0.56	**0.38**	1.2	0.18	**J**
156-60-5	trans-1,2-Dichloroethene	ND	1.8	0.26	ND	0.46	0.065	
75-34-3	1,1-Dichloroethane	ND	1.8	0.27	ND	0.45	0.067	
1634-04-4	Methyl tert-Butyl Ether	ND	1.9	0.22	ND	0.52	0.061	
108-05-4	Vinyl Acetate	**12**	18	4.2	**3.5**	5.2	1.2	**J**
78-93-3	2-Butanone (MEK)	**4.8**	3.5	0.38	**1.6**	1.2	0.13	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **SVE-OBS-07** ALS Project ID: P1804807

Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-007

Test Code: EPA TO-15 Date Collected: 9/10/18

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18

Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/28/18

Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)

Test Notes:

Container ID: 1SS00005

Initial Pressure (psig): 0.22 Final Pressure (psig): 6.02

Container Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	1.8	0.26	ND	0.46	0.066	
141-78-6	Ethyl Acetate	**470**	3.8	0.97	**130**	1.1	0.27	
110-54-3	n-Hexane	**1.0**	1.9	0.38	**0.29**	0.53	0.11	**J**
67-66-3	Chloroform	**0.47**	1.9	0.25	**0.097**	0.38	0.051	**J**
109-99-9	Tetrahydrofuran (THF)	**0.24**	1.8	0.23	**0.081**	0.62	0.079	**J**
107-06-2	1,2-Dichloroethane	**1.2**	1.8	0.21	**0.29**	0.46	0.051	**J**
71-55-6	1,1,1-Trichloroethane	ND	1.9	0.23	ND	0.34	0.042	
71-43-2	Benzene	**2.0**	1.8	0.27	**0.64**	0.57	0.084	
56-23-5	Carbon Tetrachloride	**0.42**	1.8	0.26	**0.067**	0.29	0.041	**J**
110-82-7	Cyclohexane	**1.4**	3.5	0.52	**0.40**	1.0	0.15	**J**
78-87-5	1,2-Dichloropropane	ND	1.9	0.23	ND	0.41	0.050	
75-27-4	Bromodichloromethane	ND	1.8	0.27	ND	0.28	0.040	
79-01-6	Trichloroethene	ND	1.8	0.25	ND	0.34	0.047	
123-91-1	1,4-Dioxane	ND	1.8	0.22	ND	0.51	0.061	
80-62-6	Methyl Methacrylate	ND	3.8	0.66	ND	0.93	0.16	
142-82-5	n-Heptane	**1.9**	1.9	0.30	**0.47**	0.46	0.072	
10061-01-5	cis-1,3-Dichloropropene	ND	1.9	0.29	ND	0.43	0.064	
108-10-1	4-Methyl-2-pentanone	**0.50**	1.8	0.25	**0.12**	0.45	0.062	**J**
10061-02-6	trans-1,3-Dichloropropene	ND	1.8	0.38	ND	0.41	0.084	
79-00-5	1,1,2-Trichloroethane	ND	1.9	0.19	ND	0.34	0.034	
108-88-3	Toluene	**21**	1.8	0.23	**5.6**	0.49	0.060	
591-78-6	2-Hexanone	**0.78**	1.9	0.23	**0.19**	0.46	0.056	**J**
124-48-1	Dibromochloromethane	ND	1.9	0.24	ND	0.22	0.029	
106-93-4	1,2-Dibromoethane	ND	1.9	0.22	ND	0.24	0.028	
123-86-4	n-Butyl Acetate	**3.9**	1.9	0.25	**0.82**	0.40	0.053	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-07** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-007

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/28/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SS00005

Initial Pressure (psig): 0.22 Final Pressure (psig): 6.02

Container Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	**2.3**	1.9	0.42	**0.49**	0.40	0.089	
127-18-4	Tetrachloroethene	**0.52**	1.8	0.24	**0.077**	0.27	0.035	**J**
108-90-7	Chlorobenzene	ND	1.8	0.25	ND	0.40	0.054	
100-41-4	Ethylbenzene	**2.0**	1.8	0.26	**0.46**	0.42	0.060	
179601-23-1	m,p-Xylenes	**7.1**	3.8	0.49	**1.6**	0.88	0.11	
75-25-2	Bromoform	ND	1.8	0.38	ND	0.18	0.037	
100-42-5	Styrene	**4.6**	1.8	0.30	**1.1**	0.43	0.070	
95-47-6	o-Xylene	**2.7**	1.8	0.27	**0.63**	0.42	0.062	
111-84-2	n-Nonane	**1.2**	1.9	0.31	**0.22**	0.36	0.059	**J**
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.8	0.26	ND	0.27	0.037	
98-82-8	Cumene	**0.30**	1.8	0.27	**0.060**	0.37	0.054	**J**
80-56-8	alpha-Pinene	**21**	1.8	0.28	**3.8**	0.32	0.051	
103-65-1	n-Propylbenzene	**0.51**	1.9	0.27	**0.10**	0.38	0.054	**J**
622-96-8	4-Ethyltoluene	**0.65**	1.8	0.30	**0.13**	0.37	0.060	**J**
108-67-8	1,3,5-Trimethylbenzene	**0.74**	1.8	0.27	**0.15**	0.37	0.054	**J**
95-63-6	1,2,4-Trimethylbenzene	**2.8**	1.8	0.26	**0.56**	0.37	0.052	
100-44-7	Benzyl Chloride	ND	3.8	0.42	ND	0.74	0.081	
541-73-1	1,3-Dichlorobenzene	ND	1.9	0.28	ND	0.31	0.046	
106-46-7	1,4-Dichlorobenzene	ND	1.9	0.28	ND	0.31	0.047	
95-50-1	1,2-Dichlorobenzene	ND	1.9	0.27	ND	0.31	0.046	
5989-27-5	d-Limonene	**9.8**	1.8	0.38	**1.8**	0.32	0.069	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.8	0.35	ND	0.19	0.036	
120-82-1	1,2,4-Trichlorobenzene	ND	1.8	0.45	ND	0.25	0.061	
91-20-3	Naphthalene	**0.57**	1.8	0.45	**0.11**	0.34	0.086	**J, V**
87-68-3	Hexachlorobutadiene	ND	1.8	0.38	ND	0.17	0.036	

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-08** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-008

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/28/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SS00003

Initial Pressure (psig): 0.10 Final Pressure (psig): 5.83

Container Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**6.9**	1.8	0.45	**4.0**	1.1	0.26	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.4**	1.8	0.30	**0.49**	0.37	0.061	
74-87-3	Chloromethane	ND	1.7	0.30	ND	0.84	0.14	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	1.8	0.29	ND	0.25	0.042	
75-01-4	Vinyl Chloride	ND	1.8	0.20	ND	0.72	0.078	
106-99-0	1,3-Butadiene	ND	1.8	0.31	ND	0.82	0.14	
74-83-9	Bromomethane	ND	1.7	0.26	ND	0.45	0.066	
75-00-3	Chloroethane	ND	1.8	0.23	ND	0.67	0.087	
64-17-5	Ethanol	**28**	18	1.3	**15**	9.4	0.68	**B**
75-05-8	Acetonitrile	ND	1.8	0.45	ND	1.1	0.27	
107-02-8	Acrolein	**0.87**	3.5	0.52	**0.38**	1.5	0.23	**J**
67-64-1	Acetone	**16**	19	4.2	**6.6**	7.9	1.8	**J**
75-69-4	Trichlorofluoromethane (CFC 11)	**1.2**	1.8	0.28	**0.22**	0.33	0.050	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**4.7**	7.3	0.76	**1.9**	3.0	0.31	**J**
107-13-1	Acrylonitrile	ND	1.8	0.38	ND	0.83	0.18	
75-35-4	1,1-Dichloroethene	**210**	1.9	0.26	**52**	0.47	0.065	
75-09-2	Methylene Chloride	**0.87**	1.9	0.52	**0.25**	0.54	0.15	**J**
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	1.8	0.25	ND	0.59	0.080	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**0.50**	1.8	0.26	**0.065**	0.24	0.034	**J**
75-15-0	Carbon Disulfide	**1.4**	3.8	0.56	**0.46**	1.2	0.18	**J**
156-60-5	trans-1,2-Dichloroethene	ND	1.8	0.26	ND	0.46	0.065	
75-34-3	1,1-Dichloroethane	**14**	1.8	0.27	**3.4**	0.45	0.067	
1634-04-4	Methyl tert-Butyl Ether	ND	1.9	0.22	ND	0.52	0.061	
108-05-4	Vinyl Acetate	ND	18	4.2	ND	5.2	1.2	
78-93-3	2-Butanone (MEK)	**2.6**	3.5	0.38	**0.88**	1.2	0.13	**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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **SVE-OBS-08** ALS Project ID: P1804807

Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-008

Test Code:	EPA TO-15	Date Collected:	9/10/18
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16	Date Received:	9/14/18
Analyst:	Lusine Hakobyan/Topacio De Leon	Date Analyzed:	9/28/18
Sample Type:	1.0 L Silonite Summa Canister	Volume(s) Analyzed:	0.40 Liter(s)
Test Notes:			
Container ID:	1SS00003		

Initial Pressure (psig): 0.10 Final Pressure (psig): 5.83

Container Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**0.58**	1.8	0.26	**0.15**	0.46	0.066	**J**
141-78-6	Ethyl Acetate	**82**	3.8	0.97	**23**	1.1	0.27	
110-54-3	n-Hexane	ND	1.9	0.38	ND	0.53	0.11	
67-66-3	Chloroform	**0.66**	1.9	0.25	**0.14**	0.38	0.051	**J**
109-99-9	Tetrahydrofuran (THF)	ND	1.8	0.23	ND	0.62	0.079	
107-06-2	1,2-Dichloroethane	ND	1.8	0.21	ND	0.46	0.051	
71-55-6	1,1,1-Trichloroethane	**19**	1.9	0.23	**3.5**	0.34	0.042	
71-43-2	Benzene	**0.65**	1.8	0.27	**0.20**	0.57	0.084	**J**
56-23-5	Carbon Tetrachloride	**0.37**	1.8	0.26	**0.059**	0.29	0.041	**J**
110-82-7	Cyclohexane	ND	3.5	0.52	ND	1.0	0.15	
78-87-5	1,2-Dichloropropane	ND	1.9	0.23	ND	0.41	0.050	
75-27-4	Bromodichloromethane	ND	1.8	0.27	ND	0.28	0.040	
79-01-6	Trichloroethene	**0.88**	1.8	0.25	**0.16**	0.34	0.047	**J**
123-91-1	1,4-Dioxane	ND	1.8	0.22	ND	0.51	0.061	
80-62-6	Methyl Methacrylate	ND	3.8	0.66	ND	0.93	0.16	
142-82-5	n-Heptane	**0.34**	1.9	0.30	**0.084**	0.46	0.072	**J**
10061-01-5	cis-1,3-Dichloropropene	ND	1.9	0.29	ND	0.43	0.064	
108-10-1	4-Methyl-2-pentanone	**0.42**	1.8	0.25	**0.10**	0.45	0.062	**J**
10061-02-6	trans-1,3-Dichloropropene	ND	1.8	0.38	ND	0.41	0.084	
79-00-5	1,1,2-Trichloroethane	ND	1.9	0.19	ND	0.34	0.034	
108-88-3	Toluene	**10**	1.8	0.23	**2.7**	0.49	0.060	
591-78-6	2-Hexanone	**0.32**	1.9	0.23	**0.078**	0.46	0.056	**J**
124-48-1	Dibromochloromethane	ND	1.9	0.24	ND	0.22	0.029	
106-93-4	1,2-Dibromoethane	ND	1.9	0.22	ND	0.24	0.028	
123-86-4	n-Butyl Acetate	**2.3**	1.9	0.25	**0.49**	0.40	0.053	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-08** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-008

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/28/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SS00003

Initial Pressure (psig): 0.10 Final Pressure (psig): 5.83

Container Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	1.9	0.42	ND	0.40	0.089	
127-18-4	Tetrachloroethene	**2.7**	1.8	0.24	**0.40**	0.27	0.035	
108-90-7	Chlorobenzene	ND	1.8	0.25	ND	0.40	0.054	
100-41-4	Ethylbenzene	**5.2**	1.8	0.26	**1.2**	0.42	0.060	
179601-23-1	m,p-Xylenes	**28**	3.8	0.49	**6.4**	0.88	0.11	
75-25-2	Bromoform	ND	1.8	0.38	ND	0.18	0.037	
100-42-5	Styrene	**1.1**	1.8	0.30	**0.26**	0.43	0.070	**J**
95-47-6	o-Xylene	**10**	1.8	0.27	**2.3**	0.42	0.062	
111-84-2	n-Nonane	**0.44**	1.9	0.31	**0.084**	0.36	0.059	**J**
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.8	0.26	ND	0.27	0.037	
98-82-8	Cumene	ND	1.8	0.27	ND	0.37	0.054	
80-56-8	alpha-Pinene	**4.5**	1.8	0.28	**0.80**	0.32	0.051	
103-65-1	n-Propylbenzene	**0.80**	1.9	0.27	**0.16**	0.38	0.054	**J**
622-96-8	4-Ethyltoluene	**1.4**	1.8	0.30	**0.29**	0.37	0.060	**J**
108-67-8	1,3,5-Trimethylbenzene	**1.3**	1.8	0.27	**0.27**	0.37	0.054	**J**
95-63-6	1,2,4-Trimethylbenzene	**5.1**	1.8	0.26	**1.0**	0.37	0.052	
100-44-7	Benzyl Chloride	ND	3.8	0.42	ND	0.74	0.081	
541-73-1	1,3-Dichlorobenzene	ND	1.9	0.28	ND	0.31	0.046	
106-46-7	1,4-Dichlorobenzene	ND	1.9	0.28	ND	0.31	0.047	
95-50-1	1,2-Dichlorobenzene	ND	1.9	0.27	ND	0.31	0.046	
5989-27-5	d-Limonene	**2.6**	1.8	0.38	**0.47**	0.32	0.069	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.8	0.35	ND	0.19	0.036	
120-82-1	1,2,4-Trichlorobenzene	ND	1.8	0.45	ND	0.25	0.061	
91-20-3	Naphthalene	**1.8**	1.8	0.45	**0.34**	0.34	0.086	**V**
87-68-3	Hexachlorobutadiene	ND	1.8	0.38	ND	0.17	0.036	

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-09** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-009

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/27/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.012 Liter(s)
Test Notes: 0.0040 Liter(s)
Container ID: 1SS00059

Initial Pressure (psig): 0.17 Final Pressure (psig): 5.21

Container Dilution Factor: 1.34

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	ND	58	15	ND	34	8.4	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	58	9.7	ND	12	2.0	
74-87-3	Chloromethane	ND	56	9.6	ND	27	4.7	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	57	9.4	ND	8.2	1.3	
75-01-4	Vinyl Chloride	ND	59	6.4	ND	23	2.5	
106-99-0	1,3-Butadiene	ND	58	9.8	ND	26	4.4	
74-83-9	Bromomethane	ND	56	8.3	ND	14	2.1	
75-00-3	Chloroethane	ND	57	7.4	ND	22	2.8	
64-17-5	Ethanol	**130**	570	41	**71**	300	22	**J, B**
75-05-8	Acetonitrile	ND	58	15	ND	35	8.6	
107-02-8	Acrolein	ND	110	17	ND	49	7.3	
67-64-1	Acetone	ND	600	130	ND	250	56	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	59	9.0	ND	11	1.6	
67-63-0	2-Propanol (Isopropyl Alcohol)	**120**	230	25	**50**	95	10	**J**
107-13-1	Acrylonitrile	ND	58	12	ND	27	5.7	
75-35-4	1,1-Dichloroethene	ND	60	8.3	ND	15	2.1	
75-09-2	Methylene Chloride	ND	60	17	ND	17	4.8	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	59	8.0	ND	19	2.6	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	59	8.5	ND	7.7	1.1	
75-15-0	Carbon Disulfide	ND	120	18	ND	39	5.7	
156-60-5	trans-1,2-Dichloroethene	ND	59	8.3	ND	15	2.1	
75-34-3	1,1-Dichloroethane	ND	58	8.7	ND	14	2.2	
1634-04-4	Methyl tert-Butyl Ether	ND	60	7.0	ND	17	2.0	
108-05-4	Vinyl Acetate	**570**	590	130	**160**	170	38	**J**
78-93-3	2-Butanone (MEK)	**13**	110	12	**4.5**	38	4.2	**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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-09** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-009

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/27/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.012 Liter(s)
Test Notes: 0.0040 Liter(s)
Container ID: 1SS00059

Initial Pressure (psig): 0.17 Final Pressure (psig): 5.21

Container Dilution Factor: 1.34

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**32**	59	8.4	**8.2**	15	2.1	**J**
141-78-6	Ethyl Acetate	**35,000**	370	94	**9,700**	100	26	**D**
110-54-3	n-Hexane	ND	60	12	ND	17	3.5	
67-66-3	Chloroform	ND	60	7.9	ND	12	1.6	
109-99-9	Tetrahydrofuran (THF)	ND	59	7.5	ND	20	2.5	
107-06-2	1,2-Dichloroethane	ND	59	6.6	ND	15	1.6	
71-55-6	1,1,1-Trichloroethane	ND	60	7.4	ND	11	1.4	
71-43-2	Benzene	**150**	58	8.6	**46**	18	2.7	
56-23-5	Carbon Tetrachloride	ND	58	8.3	ND	9.2	1.3	
110-82-7	Cyclohexane	ND	110	17	ND	32	4.9	
78-87-5	1,2-Dichloropropane	ND	60	7.4	ND	13	1.6	
75-27-4	Bromodichloromethane	ND	59	8.6	ND	8.8	1.3	
79-01-6	Trichloroethene	**15**	59	8.0	**2.7**	11	1.5	**J**
123-91-1	1,4-Dioxane	ND	59	7.0	ND	16	2.0	
80-62-6	Methyl Methacrylate	ND	120	21	ND	30	5.2	
142-82-5	n-Heptane	ND	60	9.5	ND	15	2.3	
10061-01-5	cis-1,3-Dichloropropene	ND	63	9.3	ND	14	2.0	
108-10-1	4-Methyl-2-pentanone	ND	59	8.2	ND	14	2.0	
10061-02-6	trans-1,3-Dichloropropene	ND	59	12	ND	13	2.7	
79-00-5	1,1,2-Trichloroethane	ND	60	6.0	ND	11	1.1	
108-88-3	Toluene	**580**	59	7.3	**150**	16	1.9	
591-78-6	2-Hexanone	ND	60	7.4	ND	15	1.8	
124-48-1	Dibromochloromethane	ND	60	7.8	ND	7.1	0.92	
106-93-4	1,2-Dibromoethane	ND	60	6.9	ND	7.8	0.90	
123-86-4	n-Butyl Acetate	**53**	60	8.2	**11**	13	1.7	**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.
D = The reported result is from a dilution.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-09** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1804807-009

Test Code: EPA TO-15 Date Collected: 9/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 9/14/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/27/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.012 Liter(s)
Test Notes: 0.0040 Liter(s)
Container ID: 1SS00059

Initial Pressure (psig): 0.17 Final Pressure (psig): 5.21

Container Dilution Factor: 1.34

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	60	13	ND	13	2.9	
127-18-4	Tetrachloroethene	**24**	59	7.7	**3.6**	8.7	1.1	**J**
108-90-7	Chlorobenzene	ND	59	7.9	ND	13	1.7	
100-41-4	Ethylbenzene	ND	58	8.4	ND	13	1.9	
179601-23-1	m,p-Xylenes	ND	120	16	ND	28	3.6	
75-25-2	Bromoform	ND	59	12	ND	5.7	1.2	
100-42-5	Styrene	ND	59	9.6	ND	14	2.3	
95-47-6	o-Xylene	ND	59	8.6	ND	14	2.0	
111-84-2	n-Nonane	ND	60	9.9	ND	11	1.9	
79-34-5	1,1,2,2-Tetrachloroethane	ND	59	8.3	ND	8.6	1.2	
98-82-8	Cumene	ND	59	8.6	ND	12	1.7	
80-56-8	alpha-Pinene	ND	58	9.2	ND	10	1.6	
103-65-1	n-Propylbenzene	ND	60	8.6	ND	12	1.7	
622-96-8	4-Ethyltoluene	ND	59	9.5	ND	12	1.9	
108-67-8	1,3,5-Trimethylbenzene	ND	59	8.6	ND	12	1.7	
95-63-6	1,2,4-Trimethylbenzene	ND	59	8.3	ND	12	1.7	
100-44-7	Benzyl Chloride	ND	120	13	ND	24	2.6	
541-73-1	1,3-Dichlorobenzene	ND	60	8.9	ND	10	1.5	
106-46-7	1,4-Dichlorobenzene	ND	60	9.2	ND	10	1.5	
95-50-1	1,2-Dichlorobenzene	ND	60	8.8	ND	10	1.5	
5989-27-5	d-Limonene	ND	57	12	ND	10	2.2	
96-12-8	1,2-Dibromo-3-chloropropane	ND	58	11	ND	6.0	1.2	
120-82-1	1,2,4-Trichlorobenzene	ND	59	15	ND	8.0	2.0	
91-20-3	Naphthalene	ND	57	15	ND	11	2.8	
87-68-3	Hexachlorobutadiene	ND	59	12	ND	5.6	1.2	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P180927-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/27/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	ND	0.52	0.13	ND	0.30	0.076	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.52	0.087	ND	0.11	0.018	
74-87-3	Chloromethane	ND	0.50	0.086	ND	0.24	0.042	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.51	0.084	ND	0.073	0.012	
75-01-4	Vinyl Chloride	ND	0.53	0.057	ND	0.21	0.022	
106-99-0	1,3-Butadiene	ND	0.52	0.088	ND	0.24	0.040	
74-83-9	Bromomethane	ND	0.50	0.074	ND	0.13	0.019	
75-00-3	Chloroethane	ND	0.51	0.066	ND	0.19	0.025	
64-17-5	Ethanol	**0.46**	5.1	0.37	**0.24**	2.7	0.20	**J**
75-05-8	Acetonitrile	ND	0.52	0.13	ND	0.31	0.077	
107-02-8	Acrolein	ND	1.0	0.15	ND	0.44	0.065	
67-64-1	Acetone	ND	5.4	1.2	ND	2.3	0.51	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.53	0.081	ND	0.094	0.014	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	0.22	ND	0.85	0.090	
107-13-1	Acrylonitrile	ND	0.52	0.11	ND	0.24	0.051	
75-35-4	1,1-Dichloroethene	ND	0.54	0.074	ND	0.14	0.019	
75-09-2	Methylene Chloride	ND	0.54	0.15	ND	0.16	0.043	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.53	0.072	ND	0.17	0.023	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.53	0.076	ND	0.069	0.0099	
75-15-0	Carbon Disulfide	ND	1.1	0.16	ND	0.35	0.051	
156-60-5	trans-1,2-Dichloroethene	ND	0.53	0.074	ND	0.13	0.019	
75-34-3	1,1-Dichloroethane	ND	0.52	0.078	ND	0.13	0.019	
1634-04-4	Methyl tert-Butyl Ether	ND	0.54	0.063	ND	0.15	0.017	
108-05-4	Vinyl Acetate	ND	5.3	1.2	ND	1.5	0.34	
78-93-3	2-Butanone (MEK)	ND	1.0	0.11	ND	0.34	0.037	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **Method Blank** ALS Project ID: P1804807

Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P180927-MB

Test Code: EPA TO-15 Date Collected: NA

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

Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/27/18

Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.53	0.075	ND	0.13	0.019	
141-78-6	Ethyl Acetate	ND	1.1	0.28	ND	0.31	0.078	
110-54-3	n-Hexane	ND	0.54	0.11	ND	0.15	0.031	
67-66-3	Chloroform	ND	0.54	0.071	ND	0.11	0.015	
109-99-9	Tetrahydrofuran (THF)	ND	0.53	0.067	ND	0.18	0.023	
107-06-2	1,2-Dichloroethane	ND	0.53	0.059	ND	0.13	0.015	
71-55-6	1,1,1-Trichloroethane	ND	0.54	0.066	ND	0.099	0.012	
71-43-2	Benzene	ND	0.52	0.077	ND	0.16	0.024	
56-23-5	Carbon Tetrachloride	ND	0.52	0.074	ND	0.083	0.012	
110-82-7	Cyclohexane	ND	1.0	0.15	ND	0.29	0.044	
78-87-5	1,2-Dichloropropane	ND	0.54	0.066	ND	0.12	0.014	
75-27-4	Bromodichloromethane	ND	0.53	0.077	ND	0.079	0.011	
79-01-6	Trichloroethene	ND	0.53	0.072	ND	0.099	0.013	
123-91-1	1,4-Dioxane	ND	0.53	0.063	ND	0.15	0.017	
80-62-6	Methyl Methacrylate	ND	1.1	0.19	ND	0.27	0.046	
142-82-5	n-Heptane	ND	0.54	0.085	ND	0.13	0.021	
10061-01-5	cis-1,3-Dichloropropene	ND	0.56	0.083	ND	0.12	0.018	
108-10-1	4-Methyl-2-pentanone	ND	0.53	0.073	ND	0.13	0.018	
10061-02-6	trans-1,3-Dichloropropene	ND	0.53	0.11	ND	0.12	0.024	
79-00-5	1,1,2-Trichloroethane	ND	0.54	0.054	ND	0.099	0.0099	
108-88-3	Toluene	ND	0.53	0.065	ND	0.14	0.017	
591-78-6	2-Hexanone	ND	0.54	0.066	ND	0.13	0.016	
124-48-1	Dibromochloromethane	ND	0.54	0.070	ND	0.063	0.0082	
106-93-4	1,2-Dibromoethane	ND	0.54	0.062	ND	0.070	0.0081	
123-86-4	n-Butyl Acetate	ND	0.54	0.073	ND	0.11	0.015	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **Method Blank** ALS Project ID: P1804807

Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P180927-MB

Test Code:	EPA TO-15	Date Collected:	NA
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16	Date Received:	NA
Analyst:	Lusine Hakobyan/Topacio De Leon	Date Analyzed:	9/27/18
Sample Type:	1.0 L Silonite Summa Canister	Volume(s) Analyzed:	1.00 Liter(s)
Test Notes:			

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.54	0.12	ND	0.12	0.026	
127-18-4	Tetrachloroethene	ND	0.53	0.069	ND	0.078	0.010	
108-90-7	Chlorobenzene	ND	0.53	0.071	ND	0.12	0.015	
100-41-4	Ethylbenzene	ND	0.52	0.075	ND	0.12	0.017	
179601-23-1	m,p-Xylenes	ND	1.1	0.14	ND	0.25	0.032	
75-25-2	Bromoform	ND	0.53	0.11	ND	0.051	0.011	
100-42-5	Styrene	ND	0.53	0.086	ND	0.12	0.020	
95-47-6	o-Xylene	ND	0.53	0.077	ND	0.12	0.018	
111-84-2	n-Nonane	ND	0.54	0.089	ND	0.10	0.017	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.53	0.074	ND	0.077	0.011	
98-82-8	Cumene	ND	0.53	0.077	ND	0.11	0.016	
80-56-8	alpha-Pinene	ND	0.52	0.082	ND	0.093	0.015	
103-65-1	n-Propylbenzene	ND	0.54	0.077	ND	0.11	0.016	
622-96-8	4-Ethyltoluene	ND	0.53	0.085	ND	0.11	0.017	
108-67-8	1,3,5-Trimethylbenzene	ND	0.53	0.077	ND	0.11	0.016	
95-63-6	1,2,4-Trimethylbenzene	ND	0.53	0.074	ND	0.11	0.015	
100-44-7	Benzyl Chloride	ND	1.1	0.12	ND	0.21	0.023	
541-73-1	1,3-Dichlorobenzene	ND	0.54	0.080	ND	0.090	0.013	
106-46-7	1,4-Dichlorobenzene	ND	0.54	0.082	ND	0.090	0.014	
95-50-1	1,2-Dichlorobenzene	ND	0.54	0.079	ND	0.090	0.013	
5989-27-5	d-Limonene	ND	0.51	0.11	ND	0.092	0.020	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.52	0.10	ND	0.054	0.010	
120-82-1	1,2,4-Trichlorobenzene	ND	0.53	0.13	ND	0.071	0.018	
91-20-3	Naphthalene	ND	0.51	0.13	ND	0.097	0.025	
87-68-3	Hexachlorobutadiene	ND	0.53	0.11	ND	0.050	0.010	

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: **Environmental Management Services, Inc.**
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Project ID: P1804807

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Collected: 9/10/18
Analyst: Lusine Hakobyan/Topacio De Leon Date(s) Received: 9/14/18
Sample Type: 1.0 L Silonite Summa Canister(s) / 1.0 L Summa Canister(s) Date(s) Analyzed: 9/27 - 9/28/18
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	P180927-MB	**98**	**115**	**114**	70-130	
Lab Control Sample	P180927-LCS	**97**	**112**	**115**	70-130	
SVE-OBS-01	P1804807-001	**97**	**112**	**117**	70-130	
SVE-OBS-02	P1804807-002	**98**	**112**	**116**	70-130	
SVE-OBS-03	P1804807-003	**96**	**112**	**116**	70-130	
SVE-OBS-04	P1804807-004	**98**	**112**	**117**	70-130	
SVE-OBS-05	P1804807-005	**99**	**113**	**117**	70-130	
SVE-OBS-06	P1804807-006	**99**	**115**	**114**	70-130	
SVE-OBS-07	P1804807-007	**98**	**113**	**114**	70-130	
SVE-OBS-08	P1804807-008	**98**	**114**	**116**	70-130	
SVE-OBS-09	P1804807-009	**98**	**114**	**115**	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: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P180927-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/27/18
Sample Type: 1.0 L Silonite Summa 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	211	**155**	**73**	54-133	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	**196**	**93**	64-115	
74-87-3	Chloromethane	211	**199**	**94**	47-140	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	211	**213**	**101**	60-112	
75-01-4	Vinyl Chloride	214	**199**	**93**	63-127	
106-99-0	1,3-Butadiene	210	**191**	**91**	57-149	
74-83-9	Bromomethane	212	**195**	**92**	63-132	
75-00-3	Chloroethane	214	**177**	**83**	68-129	
64-17-5	Ethanol	1,020	**889**	**87**	62-131	
75-05-8	Acetonitrile	206	**170**	**83**	56-136	
107-02-8	Acrolein	205	**173**	**84**	60-132	
67-64-1	Acetone	1,060	**875**	**83**	63-124	
75-69-4	Trichlorofluoromethane (CFC 11)	211	**197**	**93**	65-113	
67-63-0	2-Propanol (Isopropyl Alcohol)	413	**379**	**92**	62-135	
107-13-1	Acrylonitrile	207	**183**	**88**	68-138	
75-35-4	1,1-Dichloroethene	218	**197**	**90**	72-118	
75-09-2	Methylene Chloride	217	**190**	**88**	67-116	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	**188**	**87**	61-143	
76-13-1	Trichlorotrifluoroethane (CFC 113)	216	**207**	**96**	68-113	
75-15-0	Carbon Disulfide	218	**191**	**88**	68-120	
156-60-5	trans-1,2-Dichloroethene	214	**188**	**88**	71-125	
75-34-3	1,1-Dichloroethane	216	**186**	**86**	68-118	
1634-04-4	Methyl tert-Butyl Ether	214	**198**	**93**	60-123	
108-05-4	Vinyl Acetate	1,060	**1050**	**99**	73-135	
78-93-3	2-Butanone (MEK)	208	**193**	**93**	70-129	

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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P180927-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/27/18
Sample Type: 1.0 L Silonite Summa 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	211	**185**	**88**	69-121	
141-78-6	Ethyl Acetate	436	**383**	**88**	66-140	
110-54-3	n-Hexane	216	**171**	**79**	61-124	
67-66-3	Chloroform	217	**197**	**91**	69-113	
109-99-9	Tetrahydrofuran (THF)	216	**189**	**88**	66-121	
107-06-2	1,2-Dichloroethane	215	**197**	**92**	62-120	
71-55-6	1,1,1-Trichloroethane	215	**209**	**97**	65-116	
71-43-2	Benzene	211	**187**	**89**	66-111	
56-23-5	Carbon Tetrachloride	212	**207**	**98**	64-122	
110-82-7	Cyclohexane	416	**380**	**91**	69-115	
78-87-5	1,2-Dichloropropane	216	**189**	**88**	69-121	
75-27-4	Bromodichloromethane	215	**211**	**98**	69-123	
79-01-6	Trichloroethene	213	**205**	**96**	69-112	
123-91-1	1,4-Dioxane	214	**204**	**95**	74-123	
80-62-6	Methyl Methacrylate	431	**415**	**96**	75-125	
142-82-5	n-Heptane	215	**185**	**86**	68-118	
10061-01-5	cis-1,3-Dichloropropene	214	**205**	**96**	74-129	
108-10-1	4-Methyl-2-pentanone	209	**191**	**91**	66-138	
10061-02-6	trans-1,3-Dichloropropene	213	**212**	**100**	75-130	
79-00-5	1,1,2-Trichloroethane	215	**208**	**97**	73-117	
108-88-3	Toluene	212	**184**	**87**	66-114	
591-78-6	2-Hexanone	214	**185**	**86**	58-146	
124-48-1	Dibromochloromethane	213	**221**	**104**	67-130	
106-93-4	1,2-Dibromoethane	216	**209**	**97**	70-127	
123-86-4	n-Butyl Acetate	219	**189**	**86**	62-140	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1804807
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P180927-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 9/27/18
Sample Type: 1.0 L Silonite Summa 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	217	**178**	**82**	65-121	
127-18-4	Tetrachloroethene	213	**204**	**96**	62-119	
108-90-7	Chlorobenzene	215	**197**	**92**	66-115	
100-41-4	Ethylbenzene	212	**189**	**89**	69-117	
179601-23-1	m,p-Xylenes	426	**385**	**90**	67-117	
75-25-2	Bromoform	213	**232**	**109**	67-135	
100-42-5	Styrene	212	**208**	**98**	70-128	
95-47-6	o-Xylene	214	**194**	**91**	67-118	
111-84-2	n-Nonane	215	**177**	**82**	61-127	
79-34-5	1,1,2,2-Tetrachloroethane	214	**198**	**93**	70-125	
98-82-8	Cumene	214	**198**	**93**	68-116	
80-56-8	alpha-Pinene	211	**199**	**94**	69-122	
103-65-1	n-Propylbenzene	218	**202**	**93**	70-118	
622-96-8	4-Ethyltoluene	214	**203**	**95**	69-124	
108-67-8	1,3,5-Trimethylbenzene	214	**198**	**93**	65-117	
95-63-6	1,2,4-Trimethylbenzene	215	**202**	**94**	67-124	
100-44-7	Benzyl Chloride	217	**222**	**102**	75-142	
541-73-1	1,3-Dichlorobenzene	216	**212**	**98**	70-124	
106-46-7	1,4-Dichlorobenzene	216	**212**	**98**	63-124	
95-50-1	1,2-Dichlorobenzene	216	**214**	**99**	66-125	
5989-27-5	d-Limonene	211	**205**	**97**	64-135	
96-12-8	1,2-Dibromo-3-chloropropane	209	**229**	**110**	73-136	
120-82-1	1,2,4-Trichlorobenzene	214	**243**	**114**	70-141	
91-20-3	Naphthalene	203	**248**	**122**	71-146	
87-68-3	Hexachlorobutadiene	209	**219**	**105**	63-126	

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.

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

LABORATORY REPORT

January 10, 2019

Jeremy Van Slyke
Environmental Management Services, Inc.
P.O. Box 15369
Hattiesburg, MS 39404

RE: SVE Performance Monitoring / KUHO-18-010

Dear Jeremy:

Enclosed are the results of the samples submitted to our laboratory on December 21, 2018. For your reference, these analyses have been assigned our service request number P1807037.

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

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

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 5:09 pm, Jan 10, 2019

Sue Anderson
Project Manager

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

Client: Environmental Management Services, Inc. Service Request No: P1807037
Project: SVE Performance Monitoring / KUHO-18-010

CASE NARRATIVE

The samples were received intact under chain of custody on December 21, 2018 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 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. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. 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
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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1521096
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-005
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272018-9
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: Environmental Management Services, Inc. Service Request: P1807037

Project ID: SVE Performance Monitoring / KUHO-18-010

Date Received: 12/21/2018

Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans
SVE-OBS-01	P1807037-001	Air	12/17/2018	12:17	1SS00998	-0.43	5.22	X
SVE-OBS-02	P1807037-002	Air	12/17/2018	12:10	1SS00145	-0.30	5.16	X
SVE-OBS-03	P1807037-003	Air	12/17/2018	12:27	1SS00915	-0.69	5.08	X
SVE-OBS-04	P1807037-004	Air	12/17/2018	12:36	1SC01010	-0.01	5.29	X
SVE-OBS-05	P1807037-005	Air	12/17/2018	12:47	1SS01028	-0.27	5.29	X
SVE-OBS-06	P1807037-006	Air	12/17/2018	13:02	1SC00942	-0.97	5.26	X
SVE-OBS-07	P1807037-007	Air	12/17/2018	13:14	1SC00878	-0.24	5.11	X
SVE-OBS-08	P1807037-008	Air	12/17/2018	13:21	1SC00853	-0.22	5.31	X
SVE-OBS-09	P1807037-009	Air	12/17/2018	13:35	1SS00958	-0.57	5.34	X

Air - Chain of Custody Record & Analytical Service Request

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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. P180 7037

Company Name & Address (Reporting Information)	Environmental Management Services PO Box 15369 Hattiesburg MS 39404
Project Manager	Jeremy Van Slyke
Phone	6015443674
Fax	6015442504
Email Address for Result Reporting	jvanslyke@env-mgt.com
Project Name	SVE Performance Monitoring
Project Number	KUHO-18-010
P.O. # / Billing Information	KUHO-18-010 Same As Reporting
Sampler (Print & Sign)	Jeremy Van Slyke /
ALS Contact:	

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		Comments e.g. Actual Preservative or specific instructions
SVE-OBS-01	1	12.17.18	1217	ISS00998							
SVE-OBS-02	2	12.17.18	1210	ISS00145							
SVE-OBS-03	3	12.17.18	1227	ISS00915							
SVE-OBS-04	4	12.17.18	1236	ISC01010							
SVE-OBS-05	5	12.17.18	1247	ISS01028							
SVE-OBS-06	6	12.17.18	1302	ISC00942							
SVE-OBS-07	7	12.17.18	1314	ISC00878							
SVE-OBS-08	8	12.17.18	1321	ISC00853							
SVE-OBS-09	9	12.17.18	1335	ISS00958							

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Report Tier Levels - please select

Tier I - Results (Default if not specified) _____
Tier II (Results + QC Summaries) X
Tier III (Results + QC & Calibration Summaries) _____
Tier IV (Data 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: 12-18-18	Time: 1700	Received by: (Signature) Fed Ex	Date:	Time:	
Relinquished by: (Signature) Fed Ex	Date:	Time:	Received by: (Signature)	Date: 12-21-18	Time: 0930	Cooler / Blank Temperature ____ °C

ALS Environmental

Sample Acceptance Check Form

Client: Environmental Management Services, Inc. Work order: P1807037

Project: SVE Performance Monitoring / KUHO-18-010

Sample(s) received on: 12/21/18 Date opened: 12/21/18 by: ADAVID

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 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
P1807037-001.01	1.0 L Source Silonite Canister					
P1807037-002.01	1.0 L Source Silonite Canister					
P1807037-003.01	1.0 L Source Silonite Canister					
P1807037-004.01	1.0 L Source Can					
P1807037-005.01	1.0 L Source Silonite Canister					
P1807037-006.01	1.0 L Source Can					
P1807037-007.01	1.0 L Source Can					
P1807037-008.01	1.0 L Source Can					
P1807037-009.01	1.0 L Source Silonite Canister					

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-01** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-001

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.14 Liter(s)
Test Notes:
Container ID: 1SS00998

Initial Pressure (psig): -0.43 Final Pressure (psig): 5.22

Container Dilution Factor: 1.40

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**48**	5.2	1.3	**28**	3.0	0.76	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.3**	5.2	0.87	**0.47**	1.1	0.18	**J**
74-87-3	Chloromethane	ND	5.0	0.86	ND	2.4	0.42	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	5.1	0.84	ND	0.73	0.12	
75-01-4	Vinyl Chloride	ND	5.3	0.57	ND	2.1	0.22	
106-99-0	1,3-Butadiene	ND	5.2	0.88	ND	2.4	0.40	
74-83-9	Bromomethane	ND	5.0	0.74	ND	1.3	0.19	
75-00-3	Chloroethane	ND	5.1	0.66	ND	1.9	0.25	
64-17-5	Ethanol	ND	51	3.7	ND	27	2.0	
75-05-8	Acetonitrile	ND	5.2	1.3	ND	3.1	0.77	
107-02-8	Acrolein	ND	10	1.5	ND	4.4	0.65	
67-64-1	Acetone	ND	54	12	ND	23	5.1	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.2**	5.3	0.81	**0.21**	0.94	0.14	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	21	2.2	ND	8.5	0.90	
107-13-1	Acrylonitrile	ND	5.2	1.1	ND	2.4	0.51	
75-35-4	1,1-Dichloroethene	**13**	5.4	0.74	**3.4**	1.4	0.19	
75-09-2	Methylene Chloride	ND	5.4	1.5	ND	1.6	0.43	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	5.3	0.72	ND	1.7	0.23	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**0.95**	5.3	0.76	**0.12**	0.69	0.099	**J**
75-15-0	Carbon Disulfide	ND	11	1.6	ND	3.5	0.51	
156-60-5	trans-1,2-Dichloroethene	ND	5.3	0.74	ND	1.3	0.19	
75-34-3	1,1-Dichloroethane	ND	5.2	0.78	ND	1.3	0.19	
1634-04-4	Methyl tert-Butyl Ether	ND	5.4	0.63	ND	1.5	0.17	
108-05-4	Vinyl Acetate	ND	53	12	ND	15	3.4	
78-93-3	2-Butanone (MEK)	**1.8**	10	1.1	**0.62**	3.4	0.37	**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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-01** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-001

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.14 Liter(s)
Test Notes:
Container ID: 1SS00998

Initial Pressure (psig): -0.43 Final Pressure (psig): 5.22

Container Dilution Factor: 1.40

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	5.3	0.75	ND	1.3	0.19	
141-78-6	Ethyl Acetate	ND	11	2.8	ND	3.1	0.78	
110-54-3	n-Hexane	ND	5.4	1.1	ND	1.5	0.31	
67-66-3	Chloroform	ND	5.4	0.71	ND	1.1	0.15	
109-99-9	Tetrahydrofuran (THF)	ND	5.3	0.67	ND	1.8	0.23	
107-06-2	1,2-Dichloroethane	ND	5.3	0.59	ND	1.3	0.15	
71-55-6	1,1,1-Trichloroethane	**9.6**	5.4	0.66	**1.8**	0.99	0.12	
71-43-2	Benzene	ND	5.2	0.77	ND	1.6	0.24	
56-23-5	Carbon Tetrachloride	ND	5.2	0.74	ND	0.83	0.12	
110-82-7	Cyclohexane	ND	10	1.5	ND	2.9	0.44	
78-87-5	1,2-Dichloropropane	ND	5.4	0.66	ND	1.2	0.14	
75-27-4	Bromodichloromethane	ND	5.3	0.77	ND	0.79	0.11	
79-01-6	Trichloroethene	ND	5.3	0.72	ND	0.99	0.13	
123-91-1	1,4-Dioxane	**3.7**	5.3	0.63	**1.0**	1.5	0.17	**J**
80-62-6	Methyl Methacrylate	ND	11	1.9	ND	2.7	0.46	
142-82-5	n-Heptane	ND	5.4	0.85	ND	1.3	0.21	
10061-01-5	cis-1,3-Dichloropropene	ND	5.6	0.83	ND	1.2	0.18	
108-10-1	4-Methyl-2-pentanone	ND	5.3	0.73	ND	1.3	0.18	
10061-02-6	trans-1,3-Dichloropropene	ND	5.3	1.1	ND	1.2	0.24	
79-00-5	1,1,2-Trichloroethane	ND	5.4	0.54	ND	0.99	0.099	
108-88-3	Toluene	**8.5**	5.3	0.65	**2.3**	1.4	0.17	
591-78-6	2-Hexanone	ND	5.4	0.66	ND	1.3	0.16	
124-48-1	Dibromochloromethane	ND	5.4	0.70	ND	0.63	0.082	
106-93-4	1,2-Dibromoethane	ND	5.4	0.62	ND	0.70	0.081	
123-86-4	n-Butyl Acetate	ND	5.4	0.73	ND	1.1	0.15	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-01** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-001

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.14 Liter(s)
Test Notes:
Container ID: 1SS00998

Initial Pressure (psig): -0.43 Final Pressure (psig): 5.22

Container Dilution Factor: 1.40

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	5.4	1.2	ND	1.2	0.26	
127-18-4	Tetrachloroethene	**2.0**	5.3	0.69	**0.30**	0.78	0.10	**J**
108-90-7	Chlorobenzene	ND	5.3	0.71	ND	1.2	0.15	
100-41-4	Ethylbenzene	**1.2**	5.2	0.75	**0.28**	1.2	0.17	**J**
179601-23-1	m,p-Xylenes	**6.6**	11	1.4	**1.5**	2.5	0.32	**J**
75-25-2	Bromoform	ND	5.3	1.1	ND	0.51	0.11	
100-42-5	Styrene	ND	5.3	0.86	ND	1.2	0.20	
95-47-6	o-Xylene	**4.5**	5.3	0.77	**1.0**	1.2	0.18	**J**
111-84-2	n-Nonane	ND	5.4	0.89	ND	1.0	0.17	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.3	0.74	ND	0.77	0.11	
98-82-8	Cumene	ND	5.3	0.77	ND	1.1	0.16	
80-56-8	alpha-Pinene	ND	5.2	0.82	ND	0.93	0.15	
103-65-1	n-Propylbenzene	ND	5.4	0.77	ND	1.1	0.16	
622-96-8	4-Ethyltoluene	**0.91**	5.3	0.85	**0.19**	1.1	0.17	**J**
108-67-8	1,3,5-Trimethylbenzene	**0.93**	5.3	0.77	**0.19**	1.1	0.16	**J**
95-63-6	1,2,4-Trimethylbenzene	**2.9**	5.3	0.74	**0.59**	1.1	0.15	**J**
100-44-7	Benzyl Chloride	ND	11	1.2	ND	2.1	0.23	
541-73-1	1,3-Dichlorobenzene	ND	5.4	0.80	ND	0.90	0.13	
106-46-7	1,4-Dichlorobenzene	ND	5.4	0.82	ND	0.90	0.14	
95-50-1	1,2-Dichlorobenzene	ND	5.4	0.79	ND	0.90	0.13	
5989-27-5	d-Limonene	**6.8**	5.1	1.1	**1.2**	0.92	0.20	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.2	1.0	ND	0.54	0.10	
120-82-1	1,2,4-Trichlorobenzene	ND	5.3	1.3	ND	0.71	0.18	
91-20-3	Naphthalene	ND	5.1	1.3	ND	0.97	0.25	
87-68-3	Hexachlorobutadiene	ND	5.3	1.1	ND	0.50	0.10	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-02** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-002

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.13 Liter(s)
Test Notes:
Container ID: 1SS00145

Initial Pressure (psig): -0.30 Final Pressure (psig): 5.16

Container Dilution Factor: 1.38

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**46**	5.5	1.4	**27**	3.2	0.80	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.7**	5.5	0.92	**0.55**	1.1	0.19	**J**
74-87-3	Chloromethane	ND	5.3	0.91	ND	2.6	0.44	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	5.4	0.89	ND	0.77	0.13	
75-01-4	Vinyl Chloride	ND	5.6	0.61	ND	2.2	0.24	
106-99-0	1,3-Butadiene	ND	5.5	0.93	ND	2.5	0.42	
74-83-9	Bromomethane	ND	5.3	0.79	ND	1.4	0.20	
75-00-3	Chloroethane	ND	5.4	0.70	ND	2.1	0.27	
64-17-5	Ethanol	**8.7**	54	3.9	**4.6**	29	2.1	**J**
75-05-8	Acetonitrile	**4.5**	5.5	1.4	**2.7**	3.3	0.82	**J**
107-02-8	Acrolein	ND	11	1.6	ND	4.6	0.69	
67-64-1	Acetone	**28**	57	13	**12**	24	5.4	**J**
75-69-4	Trichlorofluoromethane (CFC 11)	**1.4**	5.6	0.86	**0.26**	1.0	0.15	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**2.9**	22	2.3	**1.2**	9.1	0.95	**J**
107-13-1	Acrylonitrile	ND	5.5	1.2	ND	2.5	0.54	
75-35-4	1,1-Dichloroethene	**1.1**	5.7	0.79	**0.28**	1.4	0.20	**J**
75-09-2	Methylene Chloride	**12**	5.7	1.6	**3.3**	1.7	0.46	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	5.6	0.76	ND	1.8	0.24	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	5.6	0.81	ND	0.73	0.11	
75-15-0	Carbon Disulfide	**5.5**	12	1.7	**1.8**	3.8	0.55	**J**
156-60-5	trans-1,2-Dichloroethene	ND	5.6	0.79	ND	1.4	0.20	
75-34-3	1,1-Dichloroethane	ND	5.5	0.83	ND	1.4	0.20	
1634-04-4	Methyl tert-Butyl Ether	ND	5.7	0.67	ND	1.6	0.19	
108-05-4	Vinyl Acetate	ND	56	13	ND	16	3.6	
78-93-3	2-Butanone (MEK)	**3.9**	11	1.2	**1.3**	3.6	0.40	**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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-02** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-002

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.13 Liter(s)
Test Notes:
Container ID: 1SS00145

Initial Pressure (psig): -0.30 Final Pressure (psig): 5.16

Container Dilution Factor: 1.38

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	5.6	0.80	ND	1.4	0.20	
141-78-6	Ethyl Acetate	ND	12	3.0	ND	3.2	0.83	
110-54-3	n-Hexane	**1.4**	5.7	1.2	**0.39**	1.6	0.33	**J**
67-66-3	Chloroform	ND	5.7	0.75	ND	1.2	0.15	
109-99-9	Tetrahydrofuran (THF)	**1.3**	5.6	0.71	**0.45**	1.9	0.24	**J**
107-06-2	1,2-Dichloroethane	ND	5.6	0.63	ND	1.4	0.15	
71-55-6	1,1,1-Trichloroethane	**3.5**	5.7	0.70	**0.65**	1.1	0.13	**J**
71-43-2	Benzene	**3.0**	5.5	0.82	**0.95**	1.7	0.26	**J**
56-23-5	Carbon Tetrachloride	ND	5.5	0.79	ND	0.88	0.12	
110-82-7	Cyclohexane	ND	11	1.6	ND	3.1	0.46	
78-87-5	1,2-Dichloropropane	ND	5.7	0.70	ND	1.2	0.15	
75-27-4	Bromodichloromethane	ND	5.6	0.82	ND	0.84	0.12	
79-01-6	Trichloroethene	ND	5.6	0.76	ND	1.0	0.14	
123-91-1	1,4-Dioxane	**1.8**	5.6	0.67	**0.50**	1.6	0.19	**J**
80-62-6	Methyl Methacrylate	ND	12	2.0	ND	2.9	0.49	
142-82-5	n-Heptane	ND	5.7	0.90	ND	1.4	0.22	
10061-01-5	cis-1,3-Dichloropropene	ND	5.9	0.88	ND	1.3	0.19	
108-10-1	4-Methyl-2-pentanone	**1.1**	5.6	0.77	**0.27**	1.4	0.19	**J**
10061-02-6	trans-1,3-Dichloropropene	ND	5.6	1.2	ND	1.2	0.26	
79-00-5	1,1,2-Trichloroethane	ND	5.7	0.57	ND	1.1	0.11	
108-88-3	Toluene	**16**	5.6	0.69	**4.3**	1.5	0.18	
591-78-6	2-Hexanone	ND	5.7	0.70	ND	1.4	0.17	
124-48-1	Dibromochloromethane	ND	5.7	0.74	ND	0.67	0.087	
106-93-4	1,2-Dibromoethane	ND	5.7	0.66	ND	0.75	0.086	
123-86-4	n-Butyl Acetate	**1.3**	5.7	0.77	**0.28**	1.2	0.16	**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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-02** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-002

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.13 Liter(s)
Test Notes:
Container ID: 1SS00145

Initial Pressure (psig): -0.30 Final Pressure (psig): 5.16

Container Dilution Factor: 1.38

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	5.7	1.3	ND	1.2	0.27	
127-18-4	Tetrachloroethene	**1.3**	5.6	0.73	**0.20**	0.83	0.11	**J**
108-90-7	Chlorobenzene	ND	5.6	0.75	ND	1.2	0.16	
100-41-4	Ethylbenzene	**1.9**	5.5	0.80	**0.43**	1.3	0.18	**J**
179601-23-1	m,p-Xylenes	**9.3**	12	1.5	**2.1**	2.7	0.34	**J**
75-25-2	Bromoform	ND	5.6	1.2	ND	0.54	0.11	
100-42-5	Styrene	ND	5.6	0.91	ND	1.3	0.21	
95-47-6	o-Xylene	**6.9**	5.6	0.82	**1.6**	1.3	0.19	
111-84-2	n-Nonane	**1.5**	5.7	0.94	**0.29**	1.1	0.18	**J**
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.6	0.79	ND	0.82	0.11	
98-82-8	Cumene	ND	5.6	0.82	ND	1.1	0.17	
80-56-8	alpha-Pinene	**1.7**	5.5	0.87	**0.31**	0.99	0.16	**J**
103-65-1	n-Propylbenzene	**0.86**	5.7	0.82	**0.17**	1.2	0.17	**J**
622-96-8	4-Ethyltoluene	**1.3**	5.6	0.90	**0.26**	1.1	0.18	**J**
108-67-8	1,3,5-Trimethylbenzene	**1.9**	5.6	0.82	**0.39**	1.1	0.17	**J**
95-63-6	1,2,4-Trimethylbenzene	**5.0**	5.6	0.79	**1.0**	1.1	0.16	**J**
100-44-7	Benzyl Chloride	ND	12	1.3	ND	2.3	0.25	
541-73-1	1,3-Dichlorobenzene	ND	5.7	0.85	ND	0.95	0.14	
106-46-7	1,4-Dichlorobenzene	ND	5.7	0.87	ND	0.95	0.14	
95-50-1	1,2-Dichlorobenzene	ND	5.7	0.84	ND	0.95	0.14	
5989-27-5	d-Limonene	**9.4**	5.4	1.2	**1.7**	0.97	0.21	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.5	1.1	ND	0.57	0.11	
120-82-1	1,2,4-Trichlorobenzene	ND	5.6	1.4	ND	0.76	0.19	
91-20-3	Naphthalene	ND	5.4	1.4	ND	1.0	0.26	
87-68-3	Hexachlorobutadiene	ND	5.6	1.2	ND	0.53	0.11	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-03** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-003

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:
Container ID: 1SS00915

Initial Pressure (psig): -0.69 Final Pressure (psig): 5.08

Container Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**4.6**	7.3	1.8	**2.7**	4.3	1.1	**J**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.1**	7.3	1.2	**0.42**	1.5	0.25	**J**
74-87-3	Chloromethane	ND	7.1	1.2	ND	3.4	0.59	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	7.2	1.2	ND	1.0	0.17	
75-01-4	Vinyl Chloride	ND	7.5	0.80	ND	2.9	0.31	
106-99-0	1,3-Butadiene	ND	7.3	1.2	ND	3.3	0.56	
74-83-9	Bromomethane	ND	7.1	1.0	ND	1.8	0.27	
75-00-3	Chloroethane	ND	7.2	0.93	ND	2.7	0.35	
64-17-5	Ethanol	ND	72	5.2	ND	38	2.8	
75-05-8	Acetonitrile	ND	7.3	1.8	ND	4.4	1.1	
107-02-8	Acrolein	ND	14	2.1	ND	6.2	0.92	
67-64-1	Acetone	ND	76	17	ND	32	7.1	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	7.5	1.1	ND	1.3	0.20	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	30	3.1	ND	12	1.3	
107-13-1	Acrylonitrile	ND	7.3	1.6	ND	3.4	0.71	
75-35-4	1,1-Dichloroethene	**3.2**	7.6	1.0	**0.80**	1.9	0.26	**J**
75-09-2	Methylene Chloride	ND	7.6	2.1	ND	2.2	0.61	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	7.5	1.0	ND	2.4	0.32	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	7.5	1.1	ND	0.98	0.14	
75-15-0	Carbon Disulfide	**2.7**	16	2.3	**0.88**	5.0	0.72	**J**
156-60-5	trans-1,2-Dichloroethene	ND	7.5	1.0	ND	1.9	0.26	
75-34-3	1,1-Dichloroethane	ND	7.3	1.1	ND	1.8	0.27	
1634-04-4	Methyl tert-Butyl Ether	ND	7.6	0.89	ND	2.1	0.25	
108-05-4	Vinyl Acetate	ND	75	17	ND	21	4.8	
78-93-3	2-Butanone (MEK)	**1.7**	14	1.6	**0.59**	4.8	0.53	**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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-03** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-003

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:
Container ID: 1SS00915

Initial Pressure (psig): -0.69 Final Pressure (psig): 5.08

Container Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	7.5	1.1	ND	1.9	0.27	
141-78-6	Ethyl Acetate	ND	16	3.9	ND	4.3	1.1	
110-54-3	n-Hexane	ND	7.6	1.6	ND	2.2	0.44	
67-66-3	Chloroform	ND	7.6	1.0	ND	1.6	0.21	
109-99-9	Tetrahydrofuran (THF)	ND	7.5	0.94	ND	2.5	0.32	
107-06-2	1,2-Dichloroethane	ND	7.5	0.83	ND	1.8	0.21	
71-55-6	1,1,1-Trichloroethane	**2.2**	7.6	0.93	**0.41**	1.4	0.17	**J**
71-43-2	Benzene	ND	7.3	1.1	ND	2.3	0.34	
56-23-5	Carbon Tetrachloride	ND	7.3	1.0	ND	1.2	0.17	
110-82-7	Cyclohexane	ND	14	2.1	ND	4.1	0.61	
78-87-5	1,2-Dichloropropane	ND	7.6	0.93	ND	1.6	0.20	
75-27-4	Bromodichloromethane	ND	7.5	1.1	ND	1.1	0.16	
79-01-6	Trichloroethene	**10**	7.5	1.0	**1.9**	1.4	0.19	
123-91-1	1,4-Dioxane	**2.4**	7.5	0.89	**0.65**	2.1	0.25	**J**
80-62-6	Methyl Methacrylate	ND	16	2.7	ND	3.8	0.65	
142-82-5	n-Heptane	ND	7.6	1.2	ND	1.9	0.29	
10061-01-5	cis-1,3-Dichloropropene	ND	7.9	1.2	ND	1.7	0.26	
108-10-1	4-Methyl-2-pentanone	**1.9**	7.5	1.0	**0.46**	1.8	0.25	**J**
10061-02-6	trans-1,3-Dichloropropene	ND	7.5	1.6	ND	1.6	0.34	
79-00-5	1,1,2-Trichloroethane	ND	7.6	0.76	ND	1.4	0.14	
108-88-3	Toluene	**3.7**	7.5	0.92	**0.98**	2.0	0.24	**J**
591-78-6	2-Hexanone	ND	7.6	0.93	ND	1.9	0.23	
124-48-1	Dibromochloromethane	ND	7.6	0.99	ND	0.89	0.12	
106-93-4	1,2-Dibromoethane	ND	7.6	0.87	ND	0.99	0.11	
123-86-4	n-Butyl Acetate	ND	7.6	1.0	ND	1.6	0.22	

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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-03** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-003

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:
Container ID: 1SS00915

Initial Pressure (psig): -0.69 Final Pressure (psig): 5.08

Container Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	7.6	1.7	ND	1.6	0.36	
127-18-4	Tetrachloroethene	**1.7**	7.5	0.97	**0.25**	1.1	0.14	**J**
108-90-7	Chlorobenzene	ND	7.5	1.0	ND	1.6	0.22	
100-41-4	Ethylbenzene	**3.0**	7.3	1.1	**0.70**	1.7	0.24	**J**
179601-23-1	m,p-Xylenes	**15**	16	2.0	**3.5**	3.6	0.45	**J**
75-25-2	Bromoform	ND	7.5	1.6	ND	0.72	0.15	
100-42-5	Styrene	ND	7.5	1.2	ND	1.8	0.28	
95-47-6	o-Xylene	**12**	7.5	1.1	**2.8**	1.7	0.25	
111-84-2	n-Nonane	ND	7.6	1.3	ND	1.5	0.24	
79-34-5	1,1,2,2-Tetrachloroethane	ND	7.5	1.0	ND	1.1	0.15	
98-82-8	Cumene	ND	7.5	1.1	ND	1.5	0.22	
80-56-8	alpha-Pinene	**1.4**	7.3	1.2	**0.25**	1.3	0.21	**J**
103-65-1	n-Propylbenzene	**1.3**	7.6	1.1	**0.26**	1.5	0.22	**J**
622-96-8	4-Ethyltoluene	**2.1**	7.5	1.2	**0.42**	1.5	0.24	**J**
108-67-8	1,3,5-Trimethylbenzene	**1.6**	7.5	1.1	**0.33**	1.5	0.22	**J**
95-63-6	1,2,4-Trimethylbenzene	**5.7**	7.5	1.0	**1.2**	1.5	0.21	**J**
100-44-7	Benzyl Chloride	ND	16	1.7	ND	3.0	0.33	
541-73-1	1,3-Dichlorobenzene	ND	7.6	1.1	ND	1.3	0.19	
106-46-7	1,4-Dichlorobenzene	ND	7.6	1.2	ND	1.3	0.19	
95-50-1	1,2-Dichlorobenzene	ND	7.6	1.1	ND	1.3	0.19	
5989-27-5	d-Limonene	**6.8**	7.2	1.6	**1.2**	1.3	0.28	**J**
96-12-8	1,2-Dibromo-3-chloropropane	ND	7.3	1.4	ND	0.76	0.15	
120-82-1	1,2,4-Trichlorobenzene	ND	7.5	1.8	ND	1.0	0.25	
91-20-3	Naphthalene	ND	7.2	1.8	ND	1.4	0.35	
87-68-3	Hexachlorobutadiene	ND	7.5	1.6	ND	0.70	0.15	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-04** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-004

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:
Container ID: 1SC01010

Initial Pressure (psig): -0.01 Final Pressure (psig): 5.29

Container Dilution Factor: 1.36

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**5.8**	7.1	1.8	**3.4**	4.1	1.0	**J**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.2**	7.1	1.2	**0.45**	1.4	0.24	**J**
74-87-3	Chloromethane	ND	6.8	1.2	ND	3.3	0.57	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	6.9	1.1	ND	0.99	0.16	
75-01-4	Vinyl Chloride	ND	7.2	0.78	ND	2.8	0.30	
106-99-0	1,3-Butadiene	ND	7.1	1.2	ND	3.2	0.54	
74-83-9	Bromomethane	ND	6.8	1.0	ND	1.8	0.26	
75-00-3	Chloroethane	ND	6.9	0.90	ND	2.6	0.34	
64-17-5	Ethanol	**9.6**	69	5.0	**5.1**	37	2.7	**J**
75-05-8	Acetonitrile	ND	7.1	1.8	ND	4.2	1.1	
107-02-8	Acrolein	**2.4**	14	2.0	**1.1**	5.9	0.89	**J**
67-64-1	Acetone	**29**	73	16	**12**	31	6.9	**J**
75-69-4	Trichlorofluoromethane (CFC 11)	**1.2**	7.2	1.1	**0.21**	1.3	0.20	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	29	3.0	ND	12	1.2	
107-13-1	Acrylonitrile	ND	7.1	1.5	ND	3.3	0.69	
75-35-4	1,1-Dichloroethene	ND	7.3	1.0	ND	1.9	0.25	
75-09-2	Methylene Chloride	ND	7.3	2.0	ND	2.1	0.59	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	7.2	0.98	ND	2.3	0.31	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**3.6**	7.2	1.0	**0.47**	0.94	0.13	**J**
75-15-0	Carbon Disulfide	**6.8**	15	2.2	**2.2**	4.8	0.70	**J**
156-60-5	trans-1,2-Dichloroethene	ND	7.2	1.0	ND	1.8	0.25	
75-34-3	1,1-Dichloroethane	ND	7.1	1.1	ND	1.7	0.26	
1634-04-4	Methyl tert-Butyl Ether	ND	7.3	0.86	ND	2.0	0.24	
108-05-4	Vinyl Acetate	ND	72	16	ND	20	4.6	
78-93-3	2-Butanone (MEK)	**5.7**	14	1.5	**1.9**	4.6	0.51	**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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-04** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-004

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:
Container ID: 1SC01010

Initial Pressure (psig): -0.01 Final Pressure (psig): 5.29

Container Dilution Factor: 1.36

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	7.2	1.0	ND	1.8	0.26	
141-78-6	Ethyl Acetate	ND	15	3.8	ND	4.2	1.1	
110-54-3	n-Hexane	ND	7.3	1.5	ND	2.1	0.42	
67-66-3	Chloroform	ND	7.3	0.97	ND	1.5	0.20	
109-99-9	Tetrahydrofuran (THF)	ND	7.2	0.91	ND	2.4	0.31	
107-06-2	1,2-Dichloroethane	ND	7.2	0.80	ND	1.8	0.20	
71-55-6	1,1,1-Trichloroethane	**2.7**	7.3	0.90	**0.50**	1.3	0.16	**J**
71-43-2	Benzene	ND	7.1	1.0	ND	2.2	0.33	
56-23-5	Carbon Tetrachloride	ND	7.1	1.0	ND	1.1	0.16	
110-82-7	Cyclohexane	ND	14	2.0	ND	4.0	0.59	
78-87-5	1,2-Dichloropropane	ND	7.3	0.90	ND	1.6	0.19	
75-27-4	Bromodichloromethane	ND	7.2	1.0	ND	1.1	0.16	
79-01-6	Trichloroethene	ND	7.2	0.98	ND	1.3	0.18	
123-91-1	1,4-Dioxane	ND	7.2	0.86	ND	2.0	0.24	
80-62-6	Methyl Methacrylate	ND	15	2.6	ND	3.7	0.63	
142-82-5	n-Heptane	ND	7.3	1.2	ND	1.8	0.28	
10061-01-5	cis-1,3-Dichloropropene	ND	7.6	1.1	ND	1.7	0.25	
108-10-1	4-Methyl-2-pentanone	**1.3**	7.2	0.99	**0.31**	1.8	0.24	**J**
10061-02-6	trans-1,3-Dichloropropene	ND	7.2	1.5	ND	1.6	0.33	
79-00-5	1,1,2-Trichloroethane	ND	7.3	0.73	ND	1.3	0.13	
108-88-3	Toluene	**2.7**	7.2	0.88	**0.72**	1.9	0.23	**J**
591-78-6	2-Hexanone	ND	7.3	0.90	ND	1.8	0.22	
124-48-1	Dibromochloromethane	ND	7.3	0.95	ND	0.86	0.11	
106-93-4	1,2-Dibromoethane	ND	7.3	0.84	ND	0.96	0.11	
123-86-4	n-Butyl Acetate	ND	7.3	0.99	ND	1.5	0.21	

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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-04** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-004

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:
Container ID: 1SC01010

Initial Pressure (psig): -0.01 Final Pressure (psig): 5.29

Container Dilution Factor: 1.36

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	7.3	1.6	ND	1.6	0.35	
127-18-4	Tetrachloroethene	**2.4**	7.2	0.94	**0.35**	1.1	0.14	**J**
108-90-7	Chlorobenzene	ND	7.2	0.97	ND	1.6	0.21	
100-41-4	Ethylbenzene	**1.6**	7.1	1.0	**0.38**	1.6	0.23	**J**
179601-23-1	m,p-Xylenes	**7.5**	15	1.9	**1.7**	3.4	0.44	**J**
75-25-2	Bromoform	ND	7.2	1.5	ND	0.70	0.14	
100-42-5	Styrene	ND	7.2	1.2	ND	1.7	0.27	
95-47-6	o-Xylene	**5.8**	7.2	1.0	**1.3**	1.7	0.24	**J**
111-84-2	n-Nonane	ND	7.3	1.2	ND	1.4	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	ND	7.2	1.0	ND	1.1	0.15	
98-82-8	Cumene	ND	7.2	1.0	ND	1.5	0.21	
80-56-8	alpha-Pinene	ND	7.1	1.1	ND	1.3	0.20	
103-65-1	n-Propylbenzene	**1.2**	7.3	1.0	**0.24**	1.5	0.21	**J**
622-96-8	4-Ethyltoluene	**1.5**	7.2	1.2	**0.31**	1.5	0.24	**J**
108-67-8	1,3,5-Trimethylbenzene	**1.6**	7.2	1.0	**0.33**	1.5	0.21	**J**
95-63-6	1,2,4-Trimethylbenzene	**5.0**	7.2	1.0	**1.0**	1.5	0.20	**J**
100-44-7	Benzyl Chloride	ND	15	1.6	ND	2.9	0.32	
541-73-1	1,3-Dichlorobenzene	ND	7.3	1.1	ND	1.2	0.18	
106-46-7	1,4-Dichlorobenzene	ND	7.3	1.1	ND	1.2	0.19	
95-50-1	1,2-Dichlorobenzene	ND	7.3	1.1	ND	1.2	0.18	
5989-27-5	d-Limonene	**6.5**	6.9	1.5	**1.2**	1.2	0.27	**J**
96-12-8	1,2-Dibromo-3-chloropropane	ND	7.1	1.4	ND	0.73	0.14	
120-82-1	1,2,4-Trichlorobenzene	ND	7.2	1.8	ND	0.97	0.24	
91-20-3	Naphthalene	ND	6.9	1.8	ND	1.3	0.34	
87-68-3	Hexachlorobutadiene	ND	7.2	1.5	ND	0.68	0.14	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-05** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-005

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.075 Liter(s)
Test Notes:
Container ID: 1SS01028

Initial Pressure (psig): -0.27 Final Pressure (psig): 5.29

Container Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**5.0**	9.6	2.4	**2.9**	5.6	1.4	**J**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.1**	9.6	1.6	**0.42**	1.9	0.33	**J**
74-87-3	Chloromethane	ND	9.3	1.6	ND	4.5	0.77	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	9.5	1.6	ND	1.4	0.22	
75-01-4	Vinyl Chloride	ND	9.8	1.1	ND	3.8	0.41	
106-99-0	1,3-Butadiene	ND	9.6	1.6	ND	4.4	0.74	
74-83-9	Bromomethane	ND	9.3	1.4	ND	2.4	0.35	
75-00-3	Chloroethane	ND	9.5	1.2	ND	3.6	0.46	
64-17-5	Ethanol	ND	95	6.9	ND	50	3.6	
75-05-8	Acetonitrile	ND	9.6	2.4	ND	5.7	1.4	
107-02-8	Acrolein	ND	19	2.8	ND	8.1	1.2	
67-64-1	Acetone	ND	100	22	ND	42	9.4	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	9.8	1.5	ND	1.7	0.27	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	39	4.1	ND	16	1.7	
107-13-1	Acrylonitrile	ND	9.6	2.0	ND	4.4	0.94	
75-35-4	1,1-Dichloroethene	ND	10	1.4	ND	2.5	0.35	
75-09-2	Methylene Chloride	ND	10	2.8	ND	2.9	0.80	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	9.8	1.3	ND	3.1	0.43	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	9.8	1.4	ND	1.3	0.18	
75-15-0	Carbon Disulfide	**3.8**	20	3.0	**1.2**	6.5	0.95	**J**
156-60-5	trans-1,2-Dichloroethene	ND	9.8	1.4	ND	2.5	0.35	
75-34-3	1,1-Dichloroethane	ND	9.6	1.4	ND	2.4	0.36	
1634-04-4	Methyl tert-Butyl Ether	ND	10	1.2	ND	2.8	0.32	
108-05-4	Vinyl Acetate	ND	98	22	ND	28	6.3	
78-93-3	2-Butanone (MEK)	ND	19	2.0	ND	6.3	0.69	

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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-05** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-005

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.075 Liter(s)
Test Notes:
Container ID: 1SS01028

Initial Pressure (psig): -0.27 Final Pressure (psig): 5.29

Container Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	9.8	1.4	ND	2.5	0.35	
141-78-6	Ethyl Acetate	ND	20	5.2	ND	5.7	1.4	
110-54-3	n-Hexane	ND	10	2.0	ND	2.8	0.58	
67-66-3	Chloroform	ND	10	1.3	ND	2.1	0.27	
109-99-9	Tetrahydrofuran (THF)	ND	9.8	1.2	ND	3.3	0.42	
107-06-2	1,2-Dichloroethane	ND	9.8	1.1	ND	2.4	0.27	
71-55-6	1,1,1-Trichloroethane	ND	10	1.2	ND	1.8	0.22	
71-43-2	Benzene	ND	9.6	1.4	ND	3.0	0.45	
56-23-5	Carbon Tetrachloride	ND	9.6	1.4	ND	1.5	0.22	
110-82-7	Cyclohexane	ND	19	2.8	ND	5.4	0.81	
78-87-5	1,2-Dichloropropane	ND	10	1.2	ND	2.2	0.26	
75-27-4	Bromodichloromethane	ND	9.8	1.4	ND	1.5	0.21	
79-01-6	Trichloroethene	ND	9.8	1.3	ND	1.8	0.25	
123-91-1	1,4-Dioxane	ND	9.8	1.2	ND	2.7	0.32	
80-62-6	Methyl Methacrylate	ND	20	3.5	ND	5.0	0.86	
142-82-5	n-Heptane	ND	10	1.6	ND	2.4	0.38	
10061-01-5	cis-1,3-Dichloropropene	ND	10	1.5	ND	2.3	0.34	
108-10-1	4-Methyl-2-pentanone	ND	9.8	1.4	ND	2.4	0.33	
10061-02-6	trans-1,3-Dichloropropene	ND	9.8	2.0	ND	2.2	0.45	
79-00-5	1,1,2-Trichloroethane	ND	10	1.0	ND	1.8	0.18	
108-88-3	Toluene	**2.8**	9.8	1.2	**0.74**	2.6	0.32	**J**
591-78-6	2-Hexanone	ND	10	1.2	ND	2.4	0.30	
124-48-1	Dibromochloromethane	ND	10	1.3	ND	1.2	0.15	
106-93-4	1,2-Dibromoethane	ND	10	1.1	ND	1.3	0.15	
123-86-4	n-Butyl Acetate	ND	10	1.4	ND	2.1	0.28	

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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-05** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-005

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.075 Liter(s)
Test Notes:
Container ID: 1SS01028

Initial Pressure (psig): -0.27 Final Pressure (psig): 5.29

Container Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	10	2.2	ND	2.1	0.48	
127-18-4	Tetrachloroethene	ND	9.8	1.3	ND	1.4	0.19	
108-90-7	Chlorobenzene	ND	9.8	1.3	ND	2.1	0.29	
100-41-4	Ethylbenzene	ND	9.6	1.4	ND	2.2	0.32	
179601-23-1	m,p-Xylenes	**5.4**	20	2.6	**1.2**	4.7	0.60	**J**
75-25-2	Bromoform	ND	9.8	2.0	ND	0.95	0.20	
100-42-5	Styrene	ND	9.8	1.6	ND	2.3	0.37	
95-47-6	o-Xylene	**4.0**	9.8	1.4	**0.93**	2.3	0.33	**J**
111-84-2	n-Nonane	ND	10	1.6	ND	1.9	0.31	
79-34-5	1,1,2,2-Tetrachloroethane	ND	9.8	1.4	ND	1.4	0.20	
98-82-8	Cumene	ND	9.8	1.4	ND	2.0	0.29	
80-56-8	alpha-Pinene	ND	9.6	1.5	ND	1.7	0.27	
103-65-1	n-Propylbenzene	ND	10	1.4	ND	2.0	0.29	
622-96-8	4-Ethyltoluene	ND	9.8	1.6	ND	2.0	0.32	
108-67-8	1,3,5-Trimethylbenzene	ND	9.8	1.4	ND	2.0	0.29	
95-63-6	1,2,4-Trimethylbenzene	**2.4**	9.8	1.4	**0.49**	2.0	0.28	**J**
100-44-7	Benzyl Chloride	ND	20	2.2	ND	3.9	0.43	
541-73-1	1,3-Dichlorobenzene	ND	10	1.5	ND	1.7	0.25	
106-46-7	1,4-Dichlorobenzene	ND	10	1.5	ND	1.7	0.25	
95-50-1	1,2-Dichlorobenzene	ND	10	1.5	ND	1.7	0.24	
5989-27-5	d-Limonene	**6.2**	9.5	2.0	**1.1**	1.7	0.37	**J**
96-12-8	1,2-Dibromo-3-chloropropane	ND	9.6	1.9	ND	1.0	0.19	
120-82-1	1,2,4-Trichlorobenzene	ND	9.8	2.4	ND	1.3	0.32	
91-20-3	Naphthalene	ND	9.5	2.4	ND	1.8	0.46	
87-68-3	Hexachlorobutadiene	ND	9.8	2.0	ND	0.92	0.19	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-06** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-006

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:
Container ID: 1SC00942

Initial Pressure (psig): -0.97 Final Pressure (psig): 5.26

Container Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**8.1**	7.5	1.9	**4.7**	4.4	1.1	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.3**	7.5	1.3	**0.46**	1.5	0.26	**J**
74-87-3	Chloromethane	ND	7.3	1.2	ND	3.5	0.60	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	7.4	1.2	ND	1.1	0.17	
75-01-4	Vinyl Chloride	ND	7.7	0.83	ND	3.0	0.32	
106-99-0	1,3-Butadiene	ND	7.5	1.3	ND	3.4	0.58	
74-83-9	Bromomethane	ND	7.3	1.1	ND	1.9	0.28	
75-00-3	Chloroethane	ND	7.4	0.96	ND	2.8	0.36	
64-17-5	Ethanol	**27**	74	5.4	**14**	39	2.8	**J**
75-05-8	Acetonitrile	ND	7.5	1.9	ND	4.5	1.1	
107-02-8	Acrolein	**4.9**	15	2.2	**2.2**	6.3	0.95	**J**
67-64-1	Acetone	**24**	78	17	**10**	33	7.3	**J**
75-69-4	Trichlorofluoromethane (CFC 11)	ND	7.7	1.2	ND	1.4	0.21	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	30	3.2	ND	12	1.3	
107-13-1	Acrylonitrile	ND	7.5	1.6	ND	3.5	0.74	
75-35-4	1,1-Dichloroethene	**4.9**	7.8	1.1	**1.2**	2.0	0.27	**J**
75-09-2	Methylene Chloride	ND	7.8	2.2	ND	2.3	0.63	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	7.7	1.0	ND	2.5	0.33	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	7.7	1.1	ND	1.0	0.14	
75-15-0	Carbon Disulfide	**22**	16	2.3	**7.1**	5.1	0.75	
156-60-5	trans-1,2-Dichloroethene	ND	7.7	1.1	ND	1.9	0.27	
75-34-3	1,1-Dichloroethane	**2.6**	7.5	1.1	**0.64**	1.9	0.28	**J**
1634-04-4	Methyl tert-Butyl Ether	ND	7.8	0.91	ND	2.2	0.25	
108-05-4	Vinyl Acetate	ND	77	17	ND	22	4.9	
78-93-3	2-Butanone (MEK)	**5.7**	15	1.6	**1.9**	4.9	0.54	**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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-06** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-006

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:
Container ID: 1SC00942

Initial Pressure (psig): -0.97 Final Pressure (psig): 5.26

Container Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	7.7	1.1	ND	1.9	0.27	
141-78-6	Ethyl Acetate	ND	16	4.1	ND	4.4	1.1	
110-54-3	n-Hexane	ND	7.8	1.6	ND	2.2	0.45	
67-66-3	Chloroform	ND	7.8	1.0	ND	1.6	0.21	
109-99-9	Tetrahydrofuran (THF)	ND	7.7	0.97	ND	2.6	0.33	
107-06-2	1,2-Dichloroethane	ND	7.7	0.86	ND	1.9	0.21	
71-55-6	1,1,1-Trichloroethane	**39**	7.8	0.96	**7.2**	1.4	0.18	
71-43-2	Benzene	ND	7.5	1.1	ND	2.4	0.35	
56-23-5	Carbon Tetrachloride	ND	7.5	1.1	ND	1.2	0.17	
110-82-7	Cyclohexane	ND	15	2.2	ND	4.2	0.63	
78-87-5	1,2-Dichloropropane	ND	7.8	0.96	ND	1.7	0.21	
75-27-4	Bromodichloromethane	ND	7.7	1.1	ND	1.1	0.17	
79-01-6	Trichloroethene	ND	7.7	1.0	ND	1.4	0.19	
123-91-1	1,4-Dioxane	ND	7.7	0.91	ND	2.1	0.25	
80-62-6	Methyl Methacrylate	ND	16	2.8	ND	3.9	0.67	
142-82-5	n-Heptane	ND	7.8	1.2	ND	1.9	0.30	
10061-01-5	cis-1,3-Dichloropropene	ND	8.1	1.2	ND	1.8	0.27	
108-10-1	4-Methyl-2-pentanone	ND	7.7	1.1	ND	1.9	0.26	
10061-02-6	trans-1,3-Dichloropropene	ND	7.7	1.6	ND	1.7	0.35	
79-00-5	1,1,2-Trichloroethane	ND	7.8	0.78	ND	1.4	0.14	
108-88-3	Toluene	**2.3**	7.7	0.94	**0.60**	2.0	0.25	**J**
591-78-6	2-Hexanone	ND	7.8	0.96	ND	1.9	0.23	
124-48-1	Dibromochloromethane	ND	7.8	1.0	ND	0.92	0.12	
106-93-4	1,2-Dibromoethane	ND	7.8	0.90	ND	1.0	0.12	
123-86-4	n-Butyl Acetate	**2.2**	7.8	1.1	**0.46**	1.6	0.22	**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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-06** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-006

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:
Container ID: 1SC00942

Initial Pressure (psig): -0.97 Final Pressure (psig): 5.26

Container Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	7.8	1.7	ND	1.7	0.37	
127-18-4	Tetrachloroethene	**4.6**	7.7	1.0	**0.67**	1.1	0.15	**J**
108-90-7	Chlorobenzene	ND	7.7	1.0	ND	1.7	0.22	
100-41-4	Ethylbenzene	ND	7.5	1.1	ND	1.7	0.25	
179601-23-1	m,p-Xylenes	**4.8**	16	2.0	**1.1**	3.7	0.47	**J**
75-25-2	Bromoform	ND	7.7	1.6	ND	0.74	0.15	
100-42-5	Styrene	ND	7.7	1.2	ND	1.8	0.29	
95-47-6	o-Xylene	**3.0**	7.7	1.1	**0.70**	1.8	0.26	**J**
111-84-2	n-Nonane	ND	7.8	1.3	ND	1.5	0.25	
79-34-5	1,1,2,2-Tetrachloroethane	ND	7.7	1.1	ND	1.1	0.16	
98-82-8	Cumene	ND	7.7	1.1	ND	1.6	0.23	
80-56-8	alpha-Pinene	ND	7.5	1.2	ND	1.4	0.21	
103-65-1	n-Propylbenzene	ND	7.8	1.1	ND	1.6	0.23	
622-96-8	4-Ethyltoluene	ND	7.7	1.2	ND	1.6	0.25	
108-67-8	1,3,5-Trimethylbenzene	ND	7.7	1.1	ND	1.6	0.23	
95-63-6	1,2,4-Trimethylbenzene	**2.2**	7.7	1.1	**0.45**	1.6	0.22	**J**
100-44-7	Benzyl Chloride	ND	16	1.7	ND	3.1	0.34	
541-73-1	1,3-Dichlorobenzene	ND	7.8	1.2	ND	1.3	0.19	
106-46-7	1,4-Dichlorobenzene	ND	7.8	1.2	ND	1.3	0.20	
95-50-1	1,2-Dichlorobenzene	ND	7.8	1.1	ND	1.3	0.19	
5989-27-5	d-Limonene	**7.3**	7.4	1.6	**1.3**	1.3	0.29	**J**
96-12-8	1,2-Dibromo-3-chloropropane	ND	7.5	1.5	ND	0.78	0.15	
120-82-1	1,2,4-Trichlorobenzene	ND	7.7	1.9	ND	1.0	0.25	
91-20-3	Naphthalene	ND	7.4	1.9	ND	1.4	0.36	
87-68-3	Hexachlorobutadiene	ND	7.7	1.6	ND	0.72	0.15	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-07** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-007

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:
Container ID: 1SC00878

Initial Pressure (psig): -0.24 Final Pressure (psig): 5.11

Container Dilution Factor: 1.37

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**31**	7.1	1.8	**18**	4.1	1.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.2**	7.1	1.2	**0.45**	1.4	0.24	**J**
74-87-3	Chloromethane	ND	6.9	1.2	ND	3.3	0.57	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	7.0	1.2	ND	1.0	0.16	
75-01-4	Vinyl Chloride	ND	7.3	0.78	ND	2.8	0.31	
106-99-0	1,3-Butadiene	ND	7.1	1.2	ND	3.2	0.55	
74-83-9	Bromomethane	ND	6.9	1.0	ND	1.8	0.26	
75-00-3	Chloroethane	ND	7.0	0.90	ND	2.6	0.34	
64-17-5	Ethanol	ND	70	5.1	ND	37	2.7	
75-05-8	Acetonitrile	ND	7.1	1.8	ND	4.2	1.1	
107-02-8	Acrolein	ND	14	2.1	ND	6.0	0.90	
67-64-1	Acetone	**56**	74	16	**24**	31	6.9	**J**
75-69-4	Trichlorofluoromethane (CFC 11)	**1.1**	7.3	1.1	**0.20**	1.3	0.20	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**3.8**	29	3.0	**1.6**	12	1.2	**J**
107-13-1	Acrylonitrile	ND	7.1	1.5	ND	3.3	0.69	
75-35-4	1,1-Dichloroethene	**42**	7.4	1.0	**11**	1.9	0.26	
75-09-2	Methylene Chloride	ND	7.4	2.1	ND	2.1	0.59	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	7.3	0.99	ND	2.3	0.32	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	7.3	1.0	ND	0.95	0.14	
75-15-0	Carbon Disulfide	**28**	15	2.2	**8.9**	4.8	0.70	
156-60-5	trans-1,2-Dichloroethene	ND	7.3	1.0	ND	1.8	0.26	
75-34-3	1,1-Dichloroethane	**1.3**	7.1	1.1	**0.33**	1.8	0.26	**J**
1634-04-4	Methyl tert-Butyl Ether	ND	7.4	0.86	ND	2.1	0.24	
108-05-4	Vinyl Acetate	**18**	73	16	**5.1**	21	4.7	**J**
78-93-3	2-Butanone (MEK)	**16**	14	1.5	**5.3**	4.6	0.51	

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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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-07** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-007

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:
Container ID: 1SC00878

Initial Pressure (psig): -0.24 Final Pressure (psig): 5.11

Container Dilution Factor: 1.37

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	7.3	1.0	ND	1.8	0.26	
141-78-6	Ethyl Acetate	ND	15	3.8	ND	4.2	1.1	
110-54-3	n-Hexane	ND	7.4	1.5	ND	2.1	0.43	
67-66-3	Chloroform	ND	7.4	0.97	ND	1.5	0.20	
109-99-9	Tetrahydrofuran (THF)	ND	7.3	0.92	ND	2.5	0.31	
107-06-2	1,2-Dichloroethane	ND	7.3	0.81	ND	1.8	0.20	
71-55-6	1,1,1-Trichloroethane	**2.6**	7.4	0.90	**0.48**	1.4	0.17	**J**
71-43-2	Benzene	ND	7.1	1.1	ND	2.2	0.33	
56-23-5	Carbon Tetrachloride	ND	7.1	1.0	ND	1.1	0.16	
110-82-7	Cyclohexane	ND	14	2.1	ND	4.0	0.60	
78-87-5	1,2-Dichloropropane	ND	7.4	0.90	ND	1.6	0.20	
75-27-4	Bromodichloromethane	ND	7.3	1.1	ND	1.1	0.16	
79-01-6	Trichloroethene	ND	7.3	0.99	ND	1.4	0.18	
123-91-1	1,4-Dioxane	**0.90**	7.3	0.86	**0.25**	2.0	0.24	**J**
80-62-6	Methyl Methacrylate	ND	15	2.6	ND	3.7	0.64	
142-82-5	n-Heptane	ND	7.4	1.2	ND	1.8	0.28	
10061-01-5	cis-1,3-Dichloropropene	ND	7.7	1.1	ND	1.7	0.25	
108-10-1	4-Methyl-2-pentanone	**1.2**	7.3	1.0	**0.29**	1.8	0.24	**J**
10061-02-6	trans-1,3-Dichloropropene	ND	7.3	1.5	ND	1.6	0.33	
79-00-5	1,1,2-Trichloroethane	**1.4**	7.4	0.74	**0.26**	1.4	0.14	**J**
108-88-3	Toluene	**7.5**	7.3	0.89	**2.0**	1.9	0.24	
591-78-6	2-Hexanone	**2.3**	7.4	0.90	**0.56**	1.8	0.22	**J**
124-48-1	Dibromochloromethane	ND	7.4	0.96	ND	0.87	0.11	
106-93-4	1,2-Dibromoethane	ND	7.4	0.85	ND	0.96	0.11	
123-86-4	n-Butyl Acetate	ND	7.4	1.0	ND	1.6	0.21	

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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-07** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-007

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:
Container ID: 1SC00878

Initial Pressure (psig): -0.24 Final Pressure (psig): 5.11

Container Dilution Factor: 1.37

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	7.4	1.6	ND	1.6	0.35	
127-18-4	Tetrachloroethene	ND	7.3	0.95	ND	1.1	0.14	
108-90-7	Chlorobenzene	ND	7.3	0.97	ND	1.6	0.21	
100-41-4	Ethylbenzene	**1.4**	7.1	1.0	**0.32**	1.6	0.24	**J**
179601-23-1	m,p-Xylenes	**7.5**	15	1.9	**1.7**	3.5	0.44	**J**
75-25-2	Bromoform	ND	7.3	1.5	ND	0.70	0.15	
100-42-5	Styrene	ND	7.3	1.2	ND	1.7	0.28	
95-47-6	o-Xylene	**5.1**	7.3	1.1	**1.2**	1.7	0.24	**J**
111-84-2	n-Nonane	**1.6**	7.4	1.2	**0.30**	1.4	0.23	**J**
79-34-5	1,1,2,2-Tetrachloroethane	ND	7.3	1.0	ND	1.1	0.15	
98-82-8	Cumene	ND	7.3	1.1	ND	1.5	0.21	
80-56-8	alpha-Pinene	ND	7.1	1.1	ND	1.3	0.20	
103-65-1	n-Propylbenzene	ND	7.4	1.1	ND	1.5	0.21	
622-96-8	4-Ethyltoluene	ND	7.3	1.2	ND	1.5	0.24	
108-67-8	1,3,5-Trimethylbenzene	**1.1**	7.3	1.1	**0.22**	1.5	0.21	**J**
95-63-6	1,2,4-Trimethylbenzene	**3.5**	7.3	1.0	**0.71**	1.5	0.21	**J**
100-44-7	Benzyl Chloride	ND	15	1.6	ND	2.9	0.32	
541-73-1	1,3-Dichlorobenzene	ND	7.4	1.1	ND	1.2	0.18	
106-46-7	1,4-Dichlorobenzene	ND	7.4	1.1	ND	1.2	0.19	
95-50-1	1,2-Dichlorobenzene	ND	7.4	1.1	ND	1.2	0.18	
5989-27-5	d-Limonene	**10**	7.0	1.5	**1.8**	1.3	0.27	
96-12-8	1,2-Dibromo-3-chloropropane	ND	7.1	1.4	ND	0.74	0.14	
120-82-1	1,2,4-Trichlorobenzene	ND	7.3	1.8	ND	0.98	0.24	
91-20-3	Naphthalene	ND	7.0	1.8	ND	1.3	0.34	
87-68-3	Hexachlorobutadiene	ND	7.3	1.5	ND	0.68	0.14	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-08** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-008

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.12 Liter(s)
Test Notes:
Container ID: 1SC00853

Initial Pressure (psig): -0.22 Final Pressure (psig): 5.31

Container Dilution Factor: 1.38

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**46**	6.0	1.5	**27**	3.5	0.87	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.2**	6.0	1.0	**0.45**	1.2	0.20	**J**
74-87-3	Chloromethane	ND	5.8	0.99	ND	2.8	0.48	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	5.9	0.97	ND	0.84	0.14	
75-01-4	Vinyl Chloride	ND	6.1	0.66	ND	2.4	0.26	
106-99-0	1,3-Butadiene	ND	6.0	1.0	ND	2.7	0.46	
74-83-9	Bromomethane	ND	5.8	0.85	ND	1.5	0.22	
75-00-3	Chloroethane	ND	5.9	0.76	ND	2.2	0.29	
64-17-5	Ethanol	**17**	59	4.3	**9.2**	31	2.3	**J**
75-05-8	Acetonitrile	ND	6.0	1.5	ND	3.6	0.89	
107-02-8	Acrolein	**2.1**	12	1.7	**0.90**	5.0	0.75	**J**
67-64-1	Acetone	**20**	62	14	**8.5**	26	5.8	**J**
75-69-4	Trichlorofluoromethane (CFC 11)	**1.1**	6.1	0.93	**0.20**	1.1	0.17	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**2.7**	24	2.5	**1.1**	9.8	1.0	**J**
107-13-1	Acrylonitrile	ND	6.0	1.3	ND	2.8	0.58	
75-35-4	1,1-Dichloroethene	**230**	6.2	0.85	**58**	1.6	0.21	
75-09-2	Methylene Chloride	ND	6.2	1.7	ND	1.8	0.50	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	6.1	0.83	ND	1.9	0.26	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	6.1	0.87	ND	0.80	0.11	
75-15-0	Carbon Disulfide	**38**	13	1.8	**12**	4.1	0.59	
156-60-5	trans-1,2-Dichloroethene	ND	6.1	0.85	ND	1.5	0.21	
75-34-3	1,1-Dichloroethane	**11**	6.0	0.90	**2.6**	1.5	0.22	
1634-04-4	Methyl tert-Butyl Ether	ND	6.2	0.72	ND	1.7	0.20	
108-05-4	Vinyl Acetate	ND	61	14	ND	17	3.9	
78-93-3	2-Butanone (MEK)	**4.0**	12	1.3	**1.4**	3.9	0.43	**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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-08** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-008

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.12 Liter(s)
Test Notes:
Container ID: 1SC00853

Initial Pressure (psig): -0.22 Final Pressure (psig): 5.31

Container Dilution Factor: 1.38

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	6.1	0.86	ND	1.5	0.22	
141-78-6	Ethyl Acetate	ND	13	3.2	ND	3.5	0.89	
110-54-3	n-Hexane	ND	6.2	1.3	ND	1.8	0.36	
67-66-3	Chloroform	ND	6.2	0.82	ND	1.3	0.17	
109-99-9	Tetrahydrofuran (THF)	ND	6.1	0.77	ND	2.1	0.26	
107-06-2	1,2-Dichloroethane	ND	6.1	0.68	ND	1.5	0.17	
71-55-6	1,1,1-Trichloroethane	**21**	6.2	0.76	**3.9**	1.1	0.14	
71-43-2	Benzene	ND	6.0	0.89	ND	1.9	0.28	
56-23-5	Carbon Tetrachloride	ND	6.0	0.85	ND	0.95	0.14	
110-82-7	Cyclohexane	ND	12	1.7	ND	3.3	0.50	
78-87-5	1,2-Dichloropropane	ND	6.2	0.76	ND	1.3	0.16	
75-27-4	Bromodichloromethane	ND	6.1	0.89	ND	0.91	0.13	
79-01-6	Trichloroethene	ND	6.1	0.83	ND	1.1	0.15	
123-91-1	1,4-Dioxane	ND	6.1	0.72	ND	1.7	0.20	
80-62-6	Methyl Methacrylate	ND	13	2.2	ND	3.1	0.53	
142-82-5	n-Heptane	ND	6.2	0.98	ND	1.5	0.24	
10061-01-5	cis-1,3-Dichloropropene	ND	6.4	0.95	ND	1.4	0.21	
108-10-1	4-Methyl-2-pentanone	**1.0**	6.1	0.84	**0.25**	1.5	0.20	**J**
10061-02-6	trans-1,3-Dichloropropene	ND	6.1	1.3	ND	1.3	0.28	
79-00-5	1,1,2-Trichloroethane	ND	6.2	0.62	ND	1.1	0.11	
108-88-3	Toluene	**8.8**	6.1	0.75	**2.3**	1.6	0.20	
591-78-6	2-Hexanone	ND	6.2	0.76	ND	1.5	0.19	
124-48-1	Dibromochloromethane	ND	6.2	0.81	ND	0.73	0.095	
106-93-4	1,2-Dibromoethane	ND	6.2	0.71	ND	0.81	0.093	
123-86-4	n-Butyl Acetate	**1.3**	6.2	0.84	**0.26**	1.3	0.18	**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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-08** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-008

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.12 Liter(s)
Test Notes:
Container ID: 1SC00853

Initial Pressure (psig): -0.22 Final Pressure (psig): 5.31

Container Dilution Factor: 1.38

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	6.2	1.4	ND	1.3	0.30	
127-18-4	Tetrachloroethene	**4.4**	6.1	0.79	**0.65**	0.90	0.12	**J**
108-90-7	Chlorobenzene	ND	6.1	0.82	ND	1.3	0.18	
100-41-4	Ethylbenzene	**1.8**	6.0	0.86	**0.41**	1.4	0.20	**J**
179601-23-1	m,p-Xylenes	**10**	13	1.6	**2.3**	2.9	0.37	**J**
75-25-2	Bromoform	ND	6.1	1.3	ND	0.59	0.12	
100-42-5	Styrene	ND	6.1	0.99	ND	1.4	0.23	
95-47-6	o-Xylene	**7.2**	6.1	0.89	**1.7**	1.4	0.20	
111-84-2	n-Nonane	**1.0**	6.2	1.0	**0.20**	1.2	0.20	**J**
79-34-5	1,1,2,2-Tetrachloroethane	ND	6.1	0.85	ND	0.89	0.12	
98-82-8	Cumene	ND	6.1	0.89	ND	1.2	0.18	
80-56-8	alpha-Pinene	**1.3**	6.0	0.94	**0.23**	1.1	0.17	**J**
103-65-1	n-Propylbenzene	**0.90**	6.2	0.89	**0.18**	1.3	0.18	**J**
622-96-8	4-Ethyltoluene	**1.5**	6.1	0.98	**0.31**	1.2	0.20	**J**
108-67-8	1,3,5-Trimethylbenzene	**1.5**	6.1	0.89	**0.31**	1.2	0.18	**J**
95-63-6	1,2,4-Trimethylbenzene	**5.2**	6.1	0.85	**1.0**	1.2	0.17	**J**
100-44-7	Benzyl Chloride	ND	13	1.4	ND	2.4	0.27	
541-73-1	1,3-Dichlorobenzene	ND	6.2	0.92	ND	1.0	0.15	
106-46-7	1,4-Dichlorobenzene	ND	6.2	0.94	ND	1.0	0.16	
95-50-1	1,2-Dichlorobenzene	ND	6.2	0.91	ND	1.0	0.15	
5989-27-5	d-Limonene	**5.2**	5.9	1.3	**0.93**	1.1	0.23	**J**
96-12-8	1,2-Dibromo-3-chloropropane	ND	6.0	1.2	ND	0.62	0.12	
120-82-1	1,2,4-Trichlorobenzene	ND	6.1	1.5	ND	0.82	0.20	
91-20-3	Naphthalene	ND	5.9	1.5	ND	1.1	0.29	
87-68-3	Hexachlorobutadiene	ND	6.1	1.3	ND	0.57	0.12	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-09** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-009

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.080 Liter(s)
Test Notes:
Container ID: 1SS00958

Initial Pressure (psig): -0.57 Final Pressure (psig): 5.34

Container Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**71**	9.2	2.3	**41**	5.4	1.3	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.1**	9.2	1.5	**0.42**	1.9	0.31	**J**
74-87-3	Chloromethane	ND	8.9	1.5	ND	4.3	0.74	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	9.1	1.5	ND	1.3	0.21	
75-01-4	Vinyl Chloride	ND	9.4	1.0	ND	3.7	0.40	
106-99-0	1,3-Butadiene	ND	9.2	1.6	ND	4.2	0.71	
74-83-9	Bromomethane	ND	8.9	1.3	ND	2.3	0.34	
75-00-3	Chloroethane	ND	9.1	1.2	ND	3.4	0.44	
64-17-5	Ethanol	**24**	91	6.6	**13**	48	3.5	**J**
75-05-8	Acetonitrile	ND	9.2	2.3	ND	5.5	1.4	
107-02-8	Acrolein	ND	18	2.7	ND	7.7	1.2	
67-64-1	Acetone	**28**	96	21	**12**	40	9.0	**J**
75-69-4	Trichlorofluoromethane (CFC 11)	ND	9.4	1.4	ND	1.7	0.26	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	37	3.9	ND	15	1.6	
107-13-1	Acrylonitrile	ND	9.2	2.0	ND	4.3	0.90	
75-35-4	1,1-Dichloroethene	**4.5**	9.6	1.3	**1.1**	2.4	0.33	**J**
75-09-2	Methylene Chloride	ND	9.6	2.7	ND	2.8	0.77	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	9.4	1.3	ND	3.0	0.41	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	9.4	1.3	ND	1.2	0.18	
75-15-0	Carbon Disulfide	**8.6**	20	2.8	**2.8**	6.3	0.91	**J**
156-60-5	trans-1,2-Dichloroethene	ND	9.4	1.3	ND	2.4	0.33	
75-34-3	1,1-Dichloroethane	ND	9.2	1.4	ND	2.3	0.34	
1634-04-4	Methyl tert-Butyl Ether	ND	9.6	1.1	ND	2.7	0.31	
108-05-4	Vinyl Acetate	ND	94	21	ND	27	6.1	
78-93-3	2-Butanone (MEK)	**5.0**	18	2.0	**1.7**	6.0	0.66	**J**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
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J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **SVE-OBS-09** ALS Project ID: P1807037

Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-009

Test Code: EPA TO-15 Date Collected: 12/17/18

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18

Analyst: Lusine Hakobyan Date Analyzed: 1/9/19

Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.080 Liter(s)

Test Notes:

Container ID: 1SS00958

Initial Pressure (psig): -0.57 Final Pressure (psig): 5.34

Container Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	9.4	1.3	ND	2.4	0.34	
141-78-6	Ethyl Acetate	ND	20	5.0	ND	5.4	1.4	
110-54-3	n-Hexane	ND	9.6	2.0	ND	2.7	0.55	
67-66-3	Chloroform	ND	9.6	1.3	ND	2.0	0.26	
109-99-9	Tetrahydrofuran (THF)	ND	9.4	1.2	ND	3.2	0.40	
107-06-2	1,2-Dichloroethane	ND	9.4	1.0	ND	2.3	0.26	
71-55-6	1,1,1-Trichloroethane	**3.6**	9.6	1.2	**0.66**	1.8	0.21	**J**
71-43-2	Benzene	**2.1**	9.2	1.4	**0.67**	2.9	0.43	**J**
56-23-5	Carbon Tetrachloride	ND	9.2	1.3	ND	1.5	0.21	
110-82-7	Cyclohexane	ND	18	2.7	ND	5.2	0.77	
78-87-5	1,2-Dichloropropane	ND	9.6	1.2	ND	2.1	0.25	
75-27-4	Bromodichloromethane	ND	9.4	1.4	ND	1.4	0.20	
79-01-6	Trichloroethene	ND	9.4	1.3	ND	1.8	0.24	
123-91-1	1,4-Dioxane	ND	9.4	1.1	ND	2.6	0.31	
80-62-6	Methyl Methacrylate	ND	20	3.4	ND	4.8	0.82	
142-82-5	n-Heptane	ND	9.6	1.5	ND	2.3	0.37	
10061-01-5	cis-1,3-Dichloropropene	ND	9.9	1.5	ND	2.2	0.32	
108-10-1	4-Methyl-2-pentanone	ND	9.4	1.3	ND	2.3	0.32	
10061-02-6	trans-1,3-Dichloropropene	ND	9.4	2.0	ND	2.1	0.43	
79-00-5	1,1,2-Trichloroethane	ND	9.6	0.96	ND	1.8	0.18	
108-88-3	Toluene	**9.9**	9.4	1.2	**2.6**	2.5	0.31	
591-78-6	2-Hexanone	**1.2**	9.6	1.2	**0.30**	2.3	0.29	**J**
124-48-1	Dibromochloromethane	ND	9.6	1.2	ND	1.1	0.15	
106-93-4	1,2-Dibromoethane	ND	9.6	1.1	ND	1.2	0.14	
123-86-4	n-Butyl Acetate	ND	9.6	1.3	ND	2.0	0.27	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **SVE-OBS-09** ALS Project ID: P1807037

Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-009

Test Code:	EPA TO-15	Date Collected:	12/17/18
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16	Date Received:	12/21/18
Analyst:	Lusine Hakobyan	Date Analyzed:	1/9/19
Sample Type:	1.0 L Silonite Summa Canister	Volume(s) Analyzed:	0.080 Liter(s)
Test Notes:			
Container ID:	1SS00958		

Initial Pressure (psig): -0.57 Final Pressure (psig): 5.34

Container Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	9.6	2.1	ND	2.1	0.46	
127-18-4	Tetrachloroethene	**3.2**	9.4	1.2	**0.47**	1.4	0.18	**J**
108-90-7	Chlorobenzene	ND	9.4	1.3	ND	2.0	0.27	
100-41-4	Ethylbenzene	**1.4**	9.2	1.3	**0.32**	2.1	0.31	**J**
179601-23-1	m,p-Xylenes	**7.1**	20	2.5	**1.6**	4.5	0.57	**J**
75-25-2	Bromoform	ND	9.4	2.0	ND	0.91	0.19	
100-42-5	Styrene	ND	9.4	1.5	ND	2.2	0.36	
95-47-6	o-Xylene	**4.4**	9.4	1.4	**1.0**	2.2	0.31	**J**
111-84-2	n-Nonane	**2.0**	9.6	1.6	**0.39**	1.8	0.30	**J**
79-34-5	1,1,2,2-Tetrachloroethane	ND	9.4	1.3	ND	1.4	0.19	
98-82-8	Cumene	ND	9.4	1.4	ND	1.9	0.28	
80-56-8	alpha-Pinene	ND	9.2	1.5	ND	1.7	0.26	
103-65-1	n-Propylbenzene	ND	9.6	1.4	ND	2.0	0.28	
622-96-8	4-Ethyltoluene	ND	9.4	1.5	ND	1.9	0.31	
108-67-8	1,3,5-Trimethylbenzene	ND	9.4	1.4	ND	1.9	0.28	
95-63-6	1,2,4-Trimethylbenzene	**4.1**	9.4	1.3	**0.83**	1.9	0.27	**J**
100-44-7	Benzyl Chloride	ND	20	2.1	ND	3.8	0.41	
541-73-1	1,3-Dichlorobenzene	ND	9.6	1.4	ND	1.6	0.24	
106-46-7	1,4-Dichlorobenzene	ND	9.6	1.5	ND	1.6	0.24	
95-50-1	1,2-Dichlorobenzene	ND	9.6	1.4	ND	1.6	0.23	
5989-27-5	d-Limonene	**4.8**	9.1	2.0	**0.86**	1.6	0.35	**J**
96-12-8	1,2-Dibromo-3-chloropropane	ND	9.2	1.8	ND	0.96	0.18	
120-82-1	1,2,4-Trichlorobenzene	ND	9.4	2.3	ND	1.3	0.31	
91-20-3	Naphthalene	**2.7**	9.1	2.3	**0.51**	1.7	0.44	**J**
87-68-3	Hexachlorobutadiene	ND	9.4	2.0	ND	0.88	0.18	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P190109-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	ND	0.52	0.13	ND	0.30	0.076	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.52	0.087	ND	0.11	0.018	
74-87-3	Chloromethane	ND	0.50	0.086	ND	0.24	0.042	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.51	0.084	ND	0.073	0.012	
75-01-4	Vinyl Chloride	ND	0.53	0.057	ND	0.21	0.022	
106-99-0	1,3-Butadiene	ND	0.52	0.088	ND	0.24	0.040	
74-83-9	Bromomethane	ND	0.50	0.074	ND	0.13	0.019	
75-00-3	Chloroethane	ND	0.51	0.066	ND	0.19	0.025	
64-17-5	Ethanol	ND	5.1	0.37	ND	2.7	0.20	
75-05-8	Acetonitrile	ND	0.52	0.13	ND	0.31	0.077	
107-02-8	Acrolein	ND	1.0	0.15	ND	0.44	0.065	
67-64-1	Acetone	ND	5.4	1.2	ND	2.3	0.51	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.53	0.081	ND	0.094	0.014	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	0.22	ND	0.85	0.090	
107-13-1	Acrylonitrile	ND	0.52	0.11	ND	0.24	0.051	
75-35-4	1,1-Dichloroethene	ND	0.54	0.074	ND	0.14	0.019	
75-09-2	Methylene Chloride	ND	0.54	0.15	ND	0.16	0.043	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.53	0.072	ND	0.17	0.023	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.53	0.076	ND	0.069	0.0099	
75-15-0	Carbon Disulfide	ND	1.1	0.16	ND	0.35	0.051	
156-60-5	trans-1,2-Dichloroethene	ND	0.53	0.074	ND	0.13	0.019	
75-34-3	1,1-Dichloroethane	ND	0.52	0.078	ND	0.13	0.019	
1634-04-4	Methyl tert-Butyl Ether	ND	0.54	0.063	ND	0.15	0.017	
108-05-4	Vinyl Acetate	ND	5.3	1.2	ND	1.5	0.34	
78-93-3	2-Butanone (MEK)	ND	1.0	0.11	ND	0.34	0.037	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **Method Blank** ALS Project ID: P1807037

Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P190109-MB

Test Code: EPA TO-15 Date Collected: NA

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

Analyst: Lusine Hakobyan Date Analyzed: 1/9/19

Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.53	0.075	ND	0.13	0.019	
141-78-6	Ethyl Acetate	ND	1.1	0.28	ND	0.31	0.078	
110-54-3	n-Hexane	ND	0.54	0.11	ND	0.15	0.031	
67-66-3	Chloroform	ND	0.54	0.071	ND	0.11	0.015	
109-99-9	Tetrahydrofuran (THF)	ND	0.53	0.067	ND	0.18	0.023	
107-06-2	1,2-Dichloroethane	ND	0.53	0.059	ND	0.13	0.015	
71-55-6	1,1,1-Trichloroethane	ND	0.54	0.066	ND	0.099	0.012	
71-43-2	Benzene	ND	0.52	0.077	ND	0.16	0.024	
56-23-5	Carbon Tetrachloride	ND	0.52	0.074	ND	0.083	0.012	
110-82-7	Cyclohexane	ND	1.0	0.15	ND	0.29	0.044	
78-87-5	1,2-Dichloropropane	ND	0.54	0.066	ND	0.12	0.014	
75-27-4	Bromodichloromethane	ND	0.53	0.077	ND	0.079	0.011	
79-01-6	Trichloroethene	ND	0.53	0.072	ND	0.099	0.013	
123-91-1	1,4-Dioxane	ND	0.53	0.063	ND	0.15	0.017	
80-62-6	Methyl Methacrylate	ND	1.1	0.19	ND	0.27	0.046	
142-82-5	n-Heptane	ND	0.54	0.085	ND	0.13	0.021	
10061-01-5	cis-1,3-Dichloropropene	ND	0.56	0.083	ND	0.12	0.018	
108-10-1	4-Methyl-2-pentanone	ND	0.53	0.073	ND	0.13	0.018	
10061-02-6	trans-1,3-Dichloropropene	ND	0.53	0.11	ND	0.12	0.024	
79-00-5	1,1,2-Trichloroethane	ND	0.54	0.054	ND	0.099	0.0099	
108-88-3	Toluene	ND	0.53	0.065	ND	0.14	0.017	
591-78-6	2-Hexanone	ND	0.54	0.066	ND	0.13	0.016	
124-48-1	Dibromochloromethane	ND	0.54	0.070	ND	0.063	0.0082	
106-93-4	1,2-Dibromoethane	ND	0.54	0.062	ND	0.070	0.0081	
123-86-4	n-Butyl Acetate	ND	0.54	0.073	ND	0.11	0.015	

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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P190109-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.54	0.12	ND	0.12	0.026	
127-18-4	Tetrachloroethene	ND	0.53	0.069	ND	0.078	0.010	
108-90-7	Chlorobenzene	ND	0.53	0.071	ND	0.12	0.015	
100-41-4	Ethylbenzene	ND	0.52	0.075	ND	0.12	0.017	
179601-23-1	m,p-Xylenes	ND	1.1	0.14	ND	0.25	0.032	
75-25-2	Bromoform	ND	0.53	0.11	ND	0.051	0.011	
100-42-5	Styrene	ND	0.53	0.086	ND	0.12	0.020	
95-47-6	o-Xylene	ND	0.53	0.077	ND	0.12	0.018	
111-84-2	n-Nonane	ND	0.54	0.089	ND	0.10	0.017	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.53	0.074	ND	0.077	0.011	
98-82-8	Cumene	ND	0.53	0.077	ND	0.11	0.016	
80-56-8	alpha-Pinene	ND	0.52	0.082	ND	0.093	0.015	
103-65-1	n-Propylbenzene	ND	0.54	0.077	ND	0.11	0.016	
622-96-8	4-Ethyltoluene	ND	0.53	0.085	ND	0.11	0.017	
108-67-8	1,3,5-Trimethylbenzene	ND	0.53	0.077	ND	0.11	0.016	
95-63-6	1,2,4-Trimethylbenzene	ND	0.53	0.074	ND	0.11	0.015	
100-44-7	Benzyl Chloride	ND	1.1	0.12	ND	0.21	0.023	
541-73-1	1,3-Dichlorobenzene	ND	0.54	0.080	ND	0.090	0.013	
106-46-7	1,4-Dichlorobenzene	ND	0.54	0.082	ND	0.090	0.014	
95-50-1	1,2-Dichlorobenzene	ND	0.54	0.079	ND	0.090	0.013	
5989-27-5	d-Limonene	ND	0.51	0.11	ND	0.092	0.020	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.52	0.10	ND	0.054	0.010	
120-82-1	1,2,4-Trichlorobenzene	ND	0.53	0.13	ND	0.071	0.018	
91-20-3	Naphthalene	ND	0.51	0.13	ND	0.097	0.025	
87-68-3	Hexachlorobutadiene	ND	0.53	0.11	ND	0.050	0.010	

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: **Environmental Management Services, Inc.**
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Project ID: P1807037

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Collected: 12/17/18
Analyst: Lusine Hakobyan Date(s) Received: 12/21/18
Sample Type: 1.0 L Silonite Summa Canister(s) / 1.0 L Summa Canister(s) Date(s) Analyzed: 1/9/19
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	P190109-MB	**98**	**103**	**99**	70-130	
Lab Control Sample	P190109-LCS	**95**	**102**	**101**	70-130	
SVE-OBS-01	P1807037-001	**98**	**97**	**106**	70-130	
SVE-OBS-02	P1807037-002	**97**	**96**	**106**	70-130	
SVE-OBS-03	P1807037-003	**98**	**97**	**105**	70-130	
SVE-OBS-04	P1807037-004	**98**	**97**	**105**	70-130	
SVE-OBS-05	P1807037-005	**97**	**94**	**105**	70-130	
SVE-OBS-05	P1807037-005DUP	**97**	**95**	**105**	70-130	
SVE-OBS-06	P1807037-006	**99**	**97**	**106**	70-130	
SVE-OBS-07	P1807037-007	**99**	**97**	**105**	70-130	
SVE-OBS-08	P1807037-008	**100**	**97**	**104**	70-130	
SVE-OBS-09	P1807037-009	**96**	**95**	**105**	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: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P190109-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa 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	211	**192**	**91**	53-112	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	**198**	**94**	62-103	
74-87-3	Chloromethane	211	**203**	**96**	51-121	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	211	**205**	**97**	56-111	
75-01-4	Vinyl Chloride	214	**205**	**96**	57-117	
106-99-0	1,3-Butadiene	210	**206**	**98**	53-134	
74-83-9	Bromomethane	212	**212**	**100**	65-110	
75-00-3	Chloroethane	214	**205**	**96**	64-111	
64-17-5	Ethanol	1,020	**961**	**94**	57-124	
75-05-8	Acetonitrile	206	**191**	**93**	57-126	
107-02-8	Acrolein	205	**182**	**89**	62-121	
67-64-1	Acetone	1,060	**927**	**87**	60-113	
75-69-4	Trichlorofluoromethane (CFC 11)	211	**198**	**94**	63-104	
67-63-0	2-Propanol (Isopropyl Alcohol)	413	**412**	**100**	60-124	
107-13-1	Acrylonitrile	207	**201**	**97**	66-125	
75-35-4	1,1-Dichloroethene	218	**211**	**97**	68-107	
75-09-2	Methylene Chloride	217	**199**	**92**	66-105	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	**211**	**98**	63-127	
76-13-1	Trichlorotrifluoroethane (CFC 113)	216	**207**	**96**	59-109	
75-15-0	Carbon Disulfide	218	**211**	**97**	67-109	
156-60-5	trans-1,2-Dichloroethene	214	**204**	**95**	70-115	
75-34-3	1,1-Dichloroethane	216	**203**	**94**	66-106	
1634-04-4	Methyl tert-Butyl Ether	214	**206**	**96**	67-109	
108-05-4	Vinyl Acetate	1,060	**1130**	**107**	68-136	
78-93-3	2-Butanone (MEK)	208	**203**	**98**	71-116	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P190109-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa 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	211	**199**	**94**	67-110	
141-78-6	Ethyl Acetate	436	**432**	**99**	64-127	
110-54-3	n-Hexane	216	**194**	**90**	60-115	
67-66-3	Chloroform	217	**201**	**93**	66-105	
109-99-9	Tetrahydrofuran (THF)	216	**201**	**93**	65-110	
107-06-2	1,2-Dichloroethane	215	**196**	**91**	60-110	
71-55-6	1,1,1-Trichloroethane	215	**206**	**96**	64-108	
71-43-2	Benzene	211	**182**	**86**	67-106	
56-23-5	Carbon Tetrachloride	212	**208**	**98**	64-112	
110-82-7	Cyclohexane	416	**407**	**98**	67-110	
78-87-5	1,2-Dichloropropane	216	**202**	**94**	66-112	
75-27-4	Bromodichloromethane	215	**215**	**100**	67-113	
79-01-6	Trichloroethene	213	**207**	**97**	66-108	
123-91-1	1,4-Dioxane	214	**199**	**93**	70-116	
80-62-6	Methyl Methacrylate	431	**439**	**102**	73-118	
142-82-5	n-Heptane	215	**192**	**89**	66-110	
10061-01-5	cis-1,3-Dichloropropene	214	**219**	**102**	75-120	
108-10-1	4-Methyl-2-pentanone	209	**207**	**99**	65-124	
10061-02-6	trans-1,3-Dichloropropene	213	**224**	**105**	77-123	
79-00-5	1,1,2-Trichloroethane	215	**209**	**97**	68-112	
108-88-3	Toluene	212	**207**	**98**	62-111	
591-78-6	2-Hexanone	214	**208**	**97**	59-128	
124-48-1	Dibromochloromethane	213	**234**	**110**	67-123	
106-93-4	1,2-Dibromoethane	216	**221**	**102**	66-122	
123-86-4	n-Butyl Acetate	219	**227**	**104**	64-128	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P190109-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa 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	217	**206**	**95**	65-114	
127-18-4	Tetrachloroethene	213	**211**	**99**	55-120	
108-90-7	Chlorobenzene	215	**212**	**99**	61-114	
100-41-4	Ethylbenzene	212	**205**	**97**	64-113	
179601-23-1	m,p-Xylenes	426	**415**	**97**	64-114	
75-25-2	Bromoform	213	**246**	**115**	65-132	
100-42-5	Styrene	212	**223**	**105**	67-124	
95-47-6	o-Xylene	214	**210**	**98**	65-114	
111-84-2	n-Nonane	215	**203**	**94**	64-117	
79-34-5	1,1,2,2-Tetrachloroethane	214	**218**	**102**	66-119	
98-82-8	Cumene	214	**210**	**98**	61-116	
80-56-8	alpha-Pinene	211	**215**	**102**	65-120	
103-65-1	n-Propylbenzene	218	**214**	**98**	63-117	
622-96-8	4-Ethyltoluene	214	**229**	**107**	63-124	
108-67-8	1,3,5-Trimethylbenzene	214	**208**	**97**	60-117	
95-63-6	1,2,4-Trimethylbenzene	215	**214**	**100**	61-122	
100-44-7	Benzyl Chloride	217	**267**	**123**	77-142	
541-73-1	1,3-Dichlorobenzene	216	**222**	**103**	61-125	
106-46-7	1,4-Dichlorobenzene	216	**219**	**101**	59-123	
95-50-1	1,2-Dichlorobenzene	216	**220**	**102**	61-126	
5989-27-5	d-Limonene	211	**222**	**105**	66-124	
96-12-8	1,2-Dibromo-3-chloropropane	209	**242**	**116**	67-138	
120-82-1	1,2,4-Trichlorobenzene	214	**239**	**112**	62-141	
91-20-3	Naphthalene	203	**223**	**110**	62-145	
87-68-3	Hexachlorobutadiene	209	**216**	**103**	49-131	

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 DUPLICATE SUMMARY RESULTS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-05** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-005DUP

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.075 Liter(s)
Test Notes:
Container ID: 1SS01028

Initial Pressure (psig): -0.27 Final Pressure (psig): 5.29

Container Dilution Factor: 1.39

Compound	Sample Result µg/m³	Sample Result ppbV	**Duplicate Sample Result µg/m³**	**Duplicate Sample Result** ppbV	Average µg/m³	**% RPD**	RPD Limit	**Data Qualifier**
Propene	4.99	2.90	5.56	3.23	5.275	**11**	25	**J**
Dichlorodifluoromethane (CFC 12)	2.09	0.424	2.11	0.427	2.1	**1**	25	**J**
Chloromethane	ND	ND	ND	ND	-	-	25	
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	ND	ND	ND	-	-	25	
Vinyl Chloride	ND	ND	ND	ND	-	-	25	
1,3-Butadiene	ND	ND	ND	ND	-	-	25	
Bromomethane	ND	ND	ND	ND	-	-	25	
Chloroethane	ND	ND	ND	ND	-	-	25	
Ethanol	ND	ND	ND	ND	-	-	25	
Acetonitrile	ND	ND	ND	ND	-	-	25	
Acrolein	ND	ND	ND	ND	-	-	25	
Acetone	ND	ND	ND	ND	-	-	25	
Trichlorofluoromethane	ND	ND	ND	ND	-	-	25	
2-Propanol (Isopropyl Alcohol)	ND	ND	ND	ND	-	-	25	
Acrylonitrile	ND	ND	ND	ND	-	-	25	
1,1-Dichloroethene	ND	ND	ND	ND	-	-	25	
Methylene Chloride	ND	ND	ND	ND	-	-	25	
3-Chloro-1-propene (Allyl Chloride)	ND	ND	ND	ND	-	-	25	
Trichlorotrifluoroethane	ND	ND	ND	ND	-	-	25	
Carbon Disulfide	3.76	1.21	3.67	1.18	3.715	**2**	25	**J**
trans-1,2-Dichloroethene	ND	ND	ND	ND	-	-	25	
1,1-Dichloroethane	ND	ND	ND	ND	-	-	25	
Methyl tert-Butyl Ether	ND	ND	ND	ND	-	-	25	
Vinyl Acetate	ND	ND	ND	ND	-	-	25	
2-Butanone (MEK)	ND	ND	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-05** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-005DUP

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.075 Liter(s)
Test Notes:
Container ID: 1SS01028

Initial Pressure (psig): -0.27 Final Pressure (psig): 5.29

Container Dilution Factor: 1.39

Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result µg/m³	Duplicate Sample Result ppbV	Average µg/m³	% RPD	RPD Limit	Data Qualifier
cis-1,2-Dichloroethene	ND	ND	ND	ND	-	-	25	
Ethyl Acetate	ND	ND	ND	ND	-	-	25	
n-Hexane	ND	ND	ND	ND	-	-	25	
Chloroform	ND	ND	ND	ND	-	-	25	
Tetrahydrofuran (THF)	ND	ND	ND	ND	-	-	25	
1,2-Dichloroethane	ND	ND	ND	ND	-	-	25	
1,1,1-Trichloroethane	ND	ND	ND	ND	-	-	25	
Benzene	ND	ND	1.48	0.464	-	-	25	**J**
Carbon Tetrachloride	ND	ND	ND	ND	-	-	25	
Cyclohexane	ND	ND	ND	ND	-	-	25	
1,2-Dichloropropane	ND	ND	ND	ND	-	-	25	
Bromodichloromethane	ND	ND	ND	ND	-	-	25	
Trichloroethene	ND	ND	ND	ND	-	-	25	
1,4-Dioxane	ND	ND	ND	ND	-	-	25	
Methyl Methacrylate	ND	ND	ND	ND	-	-	25	
n-Heptane	ND	ND	ND	ND	-	-	25	
cis-1,3-Dichloropropene	ND	ND	ND	ND	-	-	25	
4-Methyl-2-pentanone	ND	ND	ND	ND	-	-	25	
trans-1,3-Dichloropropene	ND	ND	ND	ND	-	-	25	
1,1,2-Trichloroethane	ND	ND	ND	ND	-	-	25	
Toluene	2.80	0.743	2.87	0.763	2.835	**2**	25	**J**
2-Hexanone	ND	ND	ND	ND	-	-	25	
Dibromochloromethane	ND	ND	ND	ND	-	-	25	
1,2-Dibromoethane	ND	ND	ND	ND	-	-	25	
n-Butyl Acetate	ND	ND	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE-OBS-05** ALS Project ID: P1807037
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1807037-005DUP

Test Code: EPA TO-15 Date Collected: 12/17/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/21/18
Analyst: Lusine Hakobyan Date Analyzed: 1/9/19
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.075 Liter(s)
Test Notes:
Container ID: 1SS01028

Initial Pressure (psig): -0.27 Final Pressure (psig): 5.29

Container Dilution Factor: 1.39

Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result **µg/m³**	Duplicate Sample Result **ppbV**	Average µg/m³	**% RPD**	RPD Limit	**Data Qualifier**
n-Octane	ND	ND	ND	ND	-	-	25	
Tetrachloroethene	ND	ND	ND	ND	-	-	25	
Chlorobenzene	ND	ND	ND	ND	-	-	25	
Ethylbenzene	ND	ND	ND	ND	-	-	25	
m,p-Xylenes	5.41	1.25	5.50	1.27	5.455	**2**	25	**J**
Bromoform	ND	ND	ND	ND	-	-	25	
Styrene	ND	ND	ND	ND	-	-	25	
o-Xylene	4.02	0.926	4.10	0.943	4.06	**2**	25	**J**
n-Nonane	ND	ND	ND	ND	-	-	25	
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	-	-	25	
Cumene	ND	ND	ND	ND	-	-	25	
alpha-Pinene	ND	ND	ND	ND	-	-	25	
n-Propylbenzene	ND	ND	ND	ND	-	-	25	
4-Ethyltoluene	ND	ND	ND	ND	-	-	25	
1,3,5-Trimethylbenzene	ND	ND	ND	ND	-	-	25	
1,2,4-Trimethylbenzene	2.43	0.494	2.50	0.509	2.465	**3**	25	**J**
Benzyl Chloride	ND	ND	ND	ND	-	-	25	
1,3-Dichlorobenzene	ND	ND	ND	ND	-	-	25	
1,4-Dichlorobenzene	ND	ND	ND	ND	-	-	25	
1,2-Dichlorobenzene	ND	ND	ND	ND	-	-	25	
d-Limonene	6.19	1.11	6.73	1.21	6.46	**8**	25	**J**
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	-	-	25	
1,2,4-Trichlorobenzene	ND	ND	ND	ND	-	-	25	
Naphthalene	ND	ND	ND	ND	-	-	25	
Hexachlorobutadiene	ND	ND	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Appendix B

SVE Laboratory Analytical Results and Mass Removal Calculations

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

August 24, 2018

Jeremy Van Slyke
Environmental Management Services, Inc.
P.O. Box 15369
Hattiesburg, MS 39404

RE: SVE Performance Monitoring / KUH0-18-010

Dear Jeremy:

Enclosed are the results of the samples submitted to our laboratory on August 13, 2018. For your reference, these analyses have been assigned our service request number P1804190.

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

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

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 6:29 pm, Aug 24, 2018

Sue Anderson
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: Environmental Management Services, Inc. Service Request No: P1804190
Project: SVE Performance Monitoring / KUH0-18-010

CASE NARRATIVE

The samples were received intact under chain of custody on August 13, 2018 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 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. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. 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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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1347317
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-005
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272017-8
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: Environmental Management Services, Inc. Service Request: P1804190

Project ID: SVE Performance Monitoring / KUH0-18-010

Date Received: 8/13/2018

Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans
SVE Exhaust	P1804190-001	Air	8/7/2018	09:11	1SC01362	-0.21	5.47	X
SVE Carbon 1	P1804190-002	Air	8/7/2018	09:14	1SC00340	0.13	5.44	X
SVE Carbon 2	P1804190-003	Air	8/7/2018	09:16	1SC00152	-0.48	6.40	X

Air - Chain of Custody Record & Analytical Service Request

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: P1804190

Company Name & Address (Reporting Information)
Environmental Management Services, Inc.
PO Box 15369
Hattiesburg, MS 39404

Project Name: SVE Performance Monitoring

Project Number: KUHO-18-010

Project Manager: Jeremy Van Slyke

P.O. # / Billing Information: KUHO-18-010/Same as Reporting

Phone: 601-544-3674 Fax: 601-544-0504

Email Address for Result Reporting: jvanslyke@env-mgt.com

Sampler (Print & Sign): Jeremy Van Slyke

ALS Contact:

Analysis Method

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	TO-15		Comments e.g. Actual Preservative or specific instructions
SVE Exhaust		8.7.18	0911	ISC01362					X		
SVE Carbon 1		8.7.18	0914	ISC00340					X		
SVE Carbon 2		8.7.18	0916	ISC00152					X		

5 of 22

Report Tier Levels - please select

Tier I - Results (Default in not specified) ____ Tier III (Results + QC & Calibration Summaries) ____

Tier II (Results + QC Summaries X 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:
Jeremy Van Slyke FED EX	8.8.18	1653	FED EX		
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
FED EX				8/13/18	0930

Cooler / Blank Temperature ____ °C

ALS Environmental

Sample Acceptance Check Form

Client: Environmental Management Services, Inc. Work order: P1804190

Project: SVE Performance Monitoring / KUH0-18-010

Sample(s) received on: 8/13/18 Date opened: 8/13/18 by: AARON GONZALEZ

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 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
P1804190-001.01	1.0 L Source Can					
P1804190-002.01	1.0 L Source Can					
P1804190-003.01	1.0 L Source 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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE Exhaust** ALS Project ID: P1804190
Client Project ID: **SVE Performance Monitoring / KUH0-18-010** ALS Sample ID: P1804190-001

Test Code: EPA TO-15 Date Collected: 8/7/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/13/18
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.040 Liter(s)
Test Notes:
Container ID: 1SC01362

Initial Pressure (psig): -0.21 Final Pressure (psig): 5.47

Container Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**79**	18	4.5	**46**	11	2.6	
75-71-8	Dichlorodifluoromethane (CFC 12)	**4.6**	18	3.0	**0.93**	3.7	0.61	**J**
74-87-3	Chloromethane	ND	17	3.0	ND	8.4	1.4	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	18	2.9	ND	2.5	0.42	
75-01-4	Vinyl Chloride	ND	18	2.0	ND	7.1	0.78	
106-99-0	1,3-Butadiene	ND	18	3.1	ND	8.3	1.4	
74-83-9	Bromomethane	ND	17	2.6	ND	4.5	0.66	
75-00-3	Chloroethane	ND	18	2.3	ND	6.7	0.87	
64-17-5	Ethanol	**24**	180	13	**13**	98	6.8	**J**
75-05-8	Acetonitrile	ND	18	4.5	ND	11	2.7	
107-02-8	Acrolein	ND	38	5.2	ND	17	2.3	
67-64-1	Acetone	**47**	180	42	**20**	78	18	**J**
75-69-4	Trichlorofluoromethane (CFC 11)	ND	18	2.8	ND	3.3	0.50	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	73	7.6	ND	30	3.1	
107-13-1	Acrylonitrile	ND	18	3.8	ND	8.5	1.8	
75-35-4	1,1-Dichloroethene	**120**	18	2.6	**29**	4.6	0.65	
75-09-2	Methylene Chloride	ND	18	5.2	ND	5.3	1.5	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	18	2.5	ND	5.9	0.80	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**4.4**	18	2.6	**0.58**	2.4	0.34	**J**
75-15-0	Carbon Disulfide	ND	38	5.6	ND	12	1.8	
156-60-5	trans-1,2-Dichloroethene	ND	19	2.6	ND	4.7	0.65	
75-34-3	1,1-Dichloroethane	ND	18	2.7	ND	4.4	0.67	
1634-04-4	Methyl tert-Butyl Ether	ND	19	2.2	ND	5.2	0.61	
108-05-4	Vinyl Acetate	ND	180	42	ND	52	12	
78-93-3	2-Butanone (MEK)	ND	38	3.8	ND	13	1.3	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE Exhaust** ALS Project ID: P1804190
Client Project ID: **SVE Performance Monitoring / KUH0-18-010** ALS Sample ID: P1804190-001

Test Code: EPA TO-15 Date Collected: 8/7/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/13/18
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.040 Liter(s)
Test Notes:
Container ID: 1SC01362

Initial Pressure (psig): -0.21 Final Pressure (psig): 5.47

Container Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	18	2.6	ND	4.6	0.66	
141-78-6	Ethyl Acetate	ND	38	9.7	ND	11	2.7	
110-54-3	n-Hexane	ND	18	3.8	ND	5.2	1.1	
67-66-3	Chloroform	**3.8**	18	2.5	**0.78**	3.8	0.51	**J**
109-99-9	Tetrahydrofuran (THF)	**3.2**	18	2.3	**1.1**	6.2	0.79	**J**
107-06-2	1,2-Dichloroethane	ND	18	2.1	ND	4.6	0.51	
71-55-6	1,1,1-Trichloroethane	**33**	19	2.3	**6.1**	3.4	0.42	
71-43-2	Benzene	ND	18	2.7	ND	5.8	0.84	
56-23-5	Carbon Tetrachloride	ND	18	2.6	ND	2.9	0.41	
110-82-7	Cyclohexane	ND	38	5.2	ND	11	1.5	
78-87-5	1,2-Dichloropropane	ND	18	2.3	ND	4.0	0.50	
75-27-4	Bromodichloromethane	ND	18	2.7	ND	2.8	0.40	
79-01-6	Trichloroethene	ND	18	2.5	ND	3.4	0.47	
123-91-1	1,4-Dioxane	**2,600**	18	2.2	**720**	5.1	0.61	
80-62-6	Methyl Methacrylate	ND	38	6.6	ND	9.3	1.6	
142-82-5	n-Heptane	ND	18	3.0	ND	4.5	0.72	
10061-01-5	cis-1,3-Dichloropropene	ND	19	2.9	ND	4.3	0.64	
108-10-1	4-Methyl-2-pentanone	ND	18	2.5	ND	4.5	0.62	
10061-02-6	trans-1,3-Dichloropropene	ND	18	3.8	ND	4.1	0.84	
79-00-5	1,1,2-Trichloroethane	ND	18	1.9	ND	3.4	0.34	
108-88-3	Toluene	**6.6**	18	2.3	**1.8**	4.9	0.60	**J**
591-78-6	2-Hexanone	ND	18	2.3	ND	4.5	0.56	
124-48-1	Dibromochloromethane	ND	18	2.4	ND	2.2	0.29	
106-93-4	1,2-Dibromoethane	ND	18	2.2	ND	2.4	0.28	
123-86-4	n-Butyl Acetate	ND	18	2.5	ND	3.9	0.53	

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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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE Exhaust** ALS Project ID: P1804190
Client Project ID: **SVE Performance Monitoring / KUH0-18-010** ALS Sample ID: P1804190-001

Test Code: EPA TO-15 Date Collected: 8/7/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/13/18
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.040 Liter(s)
Test Notes:
Container ID: 1SC01362

Initial Pressure (psig): -0.21 Final Pressure (psig): 5.47

Container Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	18	4.2	ND	3.9	0.89	
127-18-4	Tetrachloroethene	**19**	18	2.4	**2.8**	2.7	0.35	
108-90-7	Chlorobenzene	ND	18	2.5	ND	4.0	0.54	
100-41-4	Ethylbenzene	**5.2**	18	2.6	**1.2**	4.2	0.60	**J**
179601-23-1	m,p-Xylenes	**19**	38	4.9	**4.5**	8.8	1.1	**J**
75-25-2	Bromoform	ND	18	3.8	ND	1.8	0.37	
100-42-5	Styrene	ND	18	3.0	ND	4.3	0.70	
95-47-6	o-Xylene	**13**	18	2.7	**3.0**	4.2	0.62	**J**
111-84-2	n-Nonane	ND	18	3.1	ND	3.5	0.59	
79-34-5	1,1,2,2-Tetrachloroethane	ND	18	2.6	ND	2.7	0.37	
98-82-8	Cumene	**3.1**	18	2.7	**0.64**	3.7	0.54	**J**
80-56-8	alpha-Pinene	ND	18	2.8	ND	3.2	0.51	
103-65-1	n-Propylbenzene	ND	18	2.7	ND	3.7	0.54	
622-96-8	4-Ethyltoluene	ND	18	3.0	ND	3.7	0.60	
108-67-8	1,3,5-Trimethylbenzene	**4.1**	18	2.7	**0.83**	3.7	0.54	**J**
95-63-6	1,2,4-Trimethylbenzene	**5.7**	18	2.6	**1.2**	3.7	0.52	**J**
100-44-7	Benzyl Chloride	ND	38	4.2	ND	7.4	0.81	
541-73-1	1,3-Dichlorobenzene	ND	19	2.8	ND	3.1	0.46	
106-46-7	1,4-Dichlorobenzene	ND	18	2.8	ND	3.1	0.47	
95-50-1	1,2-Dichlorobenzene	ND	19	2.7	ND	3.1	0.46	
5989-27-5	d-Limonene	ND	17	3.8	ND	3.1	0.69	
96-12-8	1,2-Dibromo-3-chloropropane	ND	18	3.5	ND	1.9	0.36	
120-82-1	1,2,4-Trichlorobenzene	**5.6**	19	4.5	**0.75**	2.6	0.61	**J**
91-20-3	Naphthalene	**11**	18	4.5	**2.2**	3.5	0.86	**J**
87-68-3	Hexachlorobutadiene	ND	18	3.8	ND	1.7	0.36	

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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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE Carbon 1** ALS Project ID: P1804190
Client Project ID: **SVE Performance Monitoring / KUH0-18-010** ALS Sample ID: P1804190-002

Test Code: EPA TO-15 Date Collected: 8/7/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/13/18
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:
Container ID: 1SC00340

Initial Pressure (psig): 0.13 Final Pressure (psig): 5.44

Container Dilution Factor: 1.36

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**86**	7.1	1.8	**50**	4.1	1.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.9**	7.1	1.2	**0.59**	1.4	0.24	**J**
74-87-3	Chloromethane	ND	6.8	1.2	ND	3.3	0.57	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	6.9	1.1	ND	0.99	0.16	
75-01-4	Vinyl Chloride	ND	7.1	0.78	ND	2.8	0.30	
106-99-0	1,3-Butadiene	ND	7.2	1.2	ND	3.3	0.54	
74-83-9	Bromomethane	ND	6.8	1.0	ND	1.8	0.26	
75-00-3	Chloroethane	ND	6.9	0.90	ND	2.6	0.34	
64-17-5	Ethanol	**140**	72	5.0	**72**	38	2.7	
75-05-8	Acetonitrile	**2.1**	7.2	1.8	**1.2**	4.3	1.1	**J**
107-02-8	Acrolein	ND	15	2.0	ND	6.5	0.89	
67-64-1	Acetone	**170**	72	16	**72**	30	6.9	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.5**	7.2	1.1	**0.27**	1.3	0.20	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	29	3.0	ND	12	1.2	
107-13-1	Acrylonitrile	ND	7.2	1.5	ND	3.3	0.69	
75-35-4	1,1-Dichloroethene	**96**	7.2	1.0	**24**	1.8	0.25	
75-09-2	Methylene Chloride	**24**	7.2	2.0	**6.9**	2.1	0.59	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	7.2	0.98	ND	2.3	0.31	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**1.5**	7.2	1.0	**0.20**	0.94	0.13	**J**
75-15-0	Carbon Disulfide	ND	15	2.2	ND	4.8	0.70	
156-60-5	trans-1,2-Dichloroethene	ND	7.3	1.0	ND	1.9	0.25	
75-34-3	1,1-Dichloroethane	**3.0**	6.9	1.1	**0.74**	1.7	0.26	**J**
1634-04-4	Methyl tert-Butyl Ether	ND	7.3	0.86	ND	2.0	0.24	
108-05-4	Vinyl Acetate	ND	72	16	ND	20	4.6	
78-93-3	2-Butanone (MEK)	**11**	15	1.5	**3.8**	5.1	0.51	**J**

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

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE Carbon 1** ALS Project ID: P1804190
Client Project ID: **SVE Performance Monitoring / KUH0-18-010** ALS Sample ID: P1804190-002

Test Code: EPA TO-15 Date Collected: 8/7/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/13/18
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:
Container ID: 1SC00340

Initial Pressure (psig): 0.13 Final Pressure (psig): 5.44

Container Dilution Factor: 1.36

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	7.2	1.0	ND	1.8	0.26	
141-78-6	Ethyl Acetate	ND	15	3.8	ND	4.2	1.1	
110-54-3	n-Hexane	ND	7.2	1.5	ND	2.0	0.42	
67-66-3	Chloroform	**1.1**	7.2	0.97	**0.23**	1.5	0.20	**J**
109-99-9	Tetrahydrofuran (THF)	**1.1**	7.2	0.91	**0.38**	2.4	0.31	**J**
107-06-2	1,2-Dichloroethane	ND	7.2	0.80	ND	1.8	0.20	
71-55-6	1,1,1-Trichloroethane	ND	7.3	0.90	ND	1.3	0.16	
71-43-2	Benzene	**3.0**	7.2	1.0	**0.95**	2.3	0.33	**J**
56-23-5	Carbon Tetrachloride	ND	7.2	1.0	ND	1.1	0.16	
110-82-7	Cyclohexane	ND	15	2.0	ND	4.3	0.59	
78-87-5	1,2-Dichloropropane	ND	7.2	0.90	ND	1.6	0.19	
75-27-4	Bromodichloromethane	ND	7.2	1.0	ND	1.1	0.16	
79-01-6	Trichloroethene	ND	7.2	0.98	ND	1.3	0.18	
123-91-1	1,4-Dioxane	**61**	7.2	0.86	**17**	2.0	0.24	
80-62-6	Methyl Methacrylate	ND	15	2.6	ND	3.7	0.63	
142-82-5	n-Heptane	ND	7.2	1.2	ND	1.8	0.28	
10061-01-5	cis-1,3-Dichloropropene	ND	7.6	1.1	ND	1.7	0.25	
108-10-1	4-Methyl-2-pentanone	ND	7.2	0.99	ND	1.8	0.24	
10061-02-6	trans-1,3-Dichloropropene	ND	7.2	1.5	ND	1.6	0.33	
79-00-5	1,1,2-Trichloroethane	ND	7.2	0.73	ND	1.3	0.13	
108-88-3	Toluene	**0.98**	7.2	0.88	**0.26**	1.9	0.23	**J**
591-78-6	2-Hexanone	ND	7.2	0.90	ND	1.8	0.22	
124-48-1	Dibromochloromethane	ND	7.2	0.95	ND	0.85	0.11	
106-93-4	1,2-Dibromoethane	ND	7.2	0.84	ND	0.94	0.11	
123-86-4	n-Butyl Acetate	ND	7.2	0.99	ND	1.5	0.21	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE Carbon 1** ALS Project ID: P1804190
Client Project ID: **SVE Performance Monitoring / KUH0-18-010** ALS Sample ID: P1804190-002

Test Code: EPA TO-15 Date Collected: 8/7/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/13/18
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:
Container ID: 1SC00340

Initial Pressure (psig): 0.13 Final Pressure (psig): 5.44

Container Dilution Factor: 1.36

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	7.2	1.6	ND	1.5	0.35	
127-18-4	Tetrachloroethene	ND	7.2	0.94	ND	1.1	0.14	
108-90-7	Chlorobenzene	ND	7.2	0.97	ND	1.6	0.21	
100-41-4	Ethylbenzene	ND	7.2	1.0	ND	1.7	0.23	
179601-23-1	m,p-Xylenes	ND	15	1.9	ND	3.4	0.44	
75-25-2	Bromoform	ND	7.2	1.5	ND	0.70	0.14	
100-42-5	Styrene	ND	7.2	1.2	ND	1.7	0.27	
95-47-6	o-Xylene	ND	7.2	1.0	ND	1.7	0.24	
111-84-2	n-Nonane	ND	7.2	1.2	ND	1.4	0.23	
79-34-5	1,1,2,2-Tetrachloroethane	ND	7.2	1.0	ND	1.1	0.15	
98-82-8	Cumene	ND	7.2	1.0	ND	1.5	0.21	
80-56-8	alpha-Pinene	ND	7.1	1.1	ND	1.3	0.20	
103-65-1	n-Propylbenzene	ND	7.2	1.0	ND	1.5	0.21	
622-96-8	4-Ethyltoluene	ND	7.1	1.2	ND	1.4	0.24	
108-67-8	1,3,5-Trimethylbenzene	ND	7.1	1.0	ND	1.4	0.21	
95-63-6	1,2,4-Trimethylbenzene	ND	7.2	1.0	ND	1.5	0.20	
100-44-7	Benzyl Chloride	ND	15	1.6	ND	2.9	0.32	
541-73-1	1,3-Dichlorobenzene	ND	7.3	1.1	ND	1.2	0.18	
106-46-7	1,4-Dichlorobenzene	ND	7.2	1.1	ND	1.2	0.19	
95-50-1	1,2-Dichlorobenzene	ND	7.3	1.1	ND	1.2	0.18	
5989-27-5	d-Limonene	ND	6.8	1.5	ND	1.2	0.27	
96-12-8	1,2-Dibromo-3-chloropropane	ND	7.2	1.4	ND	0.75	0.14	
120-82-1	1,2,4-Trichlorobenzene	ND	7.5	1.8	ND	1.0	0.24	
91-20-3	Naphthalene	**2.7**	7.2	1.8	**0.52**	1.4	0.34	**J**
87-68-3	Hexachlorobutadiene	ND	7.2	1.5	ND	0.68	0.14	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE Carbon 2** ALS Project ID: P1804190
Client Project ID: **SVE Performance Monitoring / KUH0-18-010** ALS Sample ID: P1804190-003

Test Code: EPA TO-15 Date Collected: 8/7/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/13/18
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC00152

Initial Pressure (psig): -0.48 Final Pressure (psig): 6.40

Container Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**150**	1.9	0.48	**87**	1.1	0.28	
75-71-8	Dichlorodifluoromethane (CFC 12)	**3.3**	1.9	0.32	**0.67**	0.39	0.065	
74-87-3	Chloromethane	**0.53**	1.9	0.32	**0.26**	0.90	0.15	**J**
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	**0.51**	1.9	0.31	**0.073**	0.27	0.044	**J**
75-01-4	Vinyl Chloride	ND	1.9	0.21	ND	0.75	0.083	
106-99-0	1,3-Butadiene	ND	2.0	0.33	ND	0.89	0.15	
74-83-9	Bromomethane	ND	1.9	0.27	ND	0.48	0.071	
75-00-3	Chloroethane	ND	1.9	0.24	ND	0.72	0.093	
64-17-5	Ethanol	**140**	20	1.4	**73**	10	0.73	
75-05-8	Acetonitrile	ND	2.0	0.48	ND	1.2	0.29	
107-02-8	Acrolein	**0.83**	4.1	0.56	**0.36**	1.8	0.24	**J**
67-64-1	Acetone	**100**	20	4.4	**42**	8.3	1.9	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.7**	2.0	0.30	**0.30**	0.35	0.053	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	7.8	0.81	ND	3.2	0.33	
107-13-1	Acrylonitrile	ND	2.0	0.41	ND	0.90	0.19	
75-35-4	1,1-Dichloroethene	**23**	2.0	0.27	**5.8**	0.49	0.069	
75-09-2	Methylene Chloride	**19**	2.0	0.56	**5.5**	0.56	0.16	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	2.0	0.27	ND	0.63	0.085	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	2.0	0.28	ND	0.26	0.037	
75-15-0	Carbon Disulfide	**4.9**	4.1	0.59	**1.6**	1.3	0.19	
156-60-5	trans-1,2-Dichloroethene	ND	2.0	0.27	ND	0.50	0.069	
75-34-3	1,1-Dichloroethane	ND	1.9	0.29	ND	0.47	0.071	
1634-04-4	Methyl tert-Butyl Ether	ND	2.0	0.23	ND	0.55	0.065	
108-05-4	Vinyl Acetate	ND	20	4.4	ND	5.6	1.3	
78-93-3	2-Butanone (MEK)	**3.4**	4.1	0.41	**1.1**	1.4	0.14	**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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **SVE Carbon 2** ALS Project ID: P1804190

Client Project ID: **SVE Performance Monitoring / KUH0-18-010** ALS Sample ID: P1804190-003

Test Code: EPA TO-15 Date Collected: 8/7/18

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/13/18

Analyst: Raneem Sahtah Date Analyzed: 8/15/18

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)

Test Notes:

Container ID: 1SC00152

Initial Pressure (psig): -0.48 Final Pressure (psig): 6.40

Container Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	2.0	0.28	ND	0.49	0.070	
141-78-6	Ethyl Acetate	ND	4.1	1.0	ND	1.1	0.29	
110-54-3	n-Hexane	ND	2.0	0.41	ND	0.56	0.12	
67-66-3	Chloroform	**0.38**	2.0	0.26	**0.078**	0.40	0.054	**J**
109-99-9	Tetrahydrofuran (THF)	ND	2.0	0.25	ND	0.67	0.084	
107-06-2	1,2-Dichloroethane	ND	2.0	0.22	ND	0.48	0.054	
71-55-6	1,1,1-Trichloroethane	ND	2.0	0.24	ND	0.37	0.045	
71-43-2	Benzene	**2.8**	2.0	0.28	**0.87**	0.61	0.089	
56-23-5	Carbon Tetrachloride	ND	2.0	0.27	ND	0.31	0.044	
110-82-7	Cyclohexane	ND	4.1	0.56	ND	1.2	0.16	
78-87-5	1,2-Dichloropropane	ND	2.0	0.24	ND	0.42	0.053	
75-27-4	Bromodichloromethane	ND	2.0	0.28	ND	0.29	0.043	
79-01-6	Trichloroethene	ND	2.0	0.27	ND	0.37	0.050	
123-91-1	1,4-Dioxane	**7.3**	2.0	0.23	**2.0**	0.54	0.065	
80-62-6	Methyl Methacrylate	ND	4.1	0.70	ND	0.99	0.17	
142-82-5	n-Heptane	ND	2.0	0.31	ND	0.48	0.077	
10061-01-5	cis-1,3-Dichloropropene	ND	2.1	0.31	ND	0.46	0.068	
108-10-1	4-Methyl-2-pentanone	ND	2.0	0.27	ND	0.48	0.066	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	0.41	ND	0.43	0.090	
79-00-5	1,1,2-Trichloroethane	ND	2.0	0.20	ND	0.36	0.037	
108-88-3	Toluene	**0.33**	2.0	0.24	**0.087**	0.52	0.064	**J**
591-78-6	2-Hexanone	**0.84**	2.0	0.24	**0.20**	0.48	0.060	**J**
124-48-1	Dibromochloromethane	ND	2.0	0.26	ND	0.23	0.030	
106-93-4	1,2-Dibromoethane	ND	2.0	0.23	ND	0.26	0.030	
123-86-4	n-Butyl Acetate	ND	2.0	0.27	ND	0.41	0.057	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE Carbon 2** ALS Project ID: P1804190
Client Project ID: **SVE Performance Monitoring / KUH0-18-010** ALS Sample ID: P1804190-003

Test Code: EPA TO-15 Date Collected: 8/7/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/13/18
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC00152

Initial Pressure (psig): -0.48 Final Pressure (psig): 6.40

Container Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	2.0	0.44	ND	0.42	0.095	
127-18-4	Tetrachloroethene	ND	2.0	0.26	ND	0.29	0.038	
108-90-7	Chlorobenzene	ND	2.0	0.26	ND	0.43	0.057	
100-41-4	Ethylbenzene	ND	2.0	0.28	ND	0.45	0.064	
179601-23-1	m,p-Xylenes	**0.65**	4.1	0.52	**0.15**	0.94	0.12	**J**
75-25-2	Bromoform	ND	2.0	0.41	ND	0.19	0.039	
100-42-5	Styrene	ND	2.0	0.32	ND	0.46	0.075	
95-47-6	o-Xylene	ND	2.0	0.28	ND	0.45	0.066	
111-84-2	n-Nonane	ND	2.0	0.33	ND	0.37	0.063	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	0.27	ND	0.29	0.040	
98-82-8	Cumene	**0.31**	2.0	0.28	**0.064**	0.40	0.058	**J**
80-56-8	alpha-Pinene	ND	1.9	0.30	ND	0.35	0.054	
103-65-1	n-Propylbenzene	ND	2.0	0.28	ND	0.40	0.058	
622-96-8	4-Ethyltoluene	ND	1.9	0.31	ND	0.39	0.064	
108-67-8	1,3,5-Trimethylbenzene	ND	1.9	0.28	ND	0.39	0.058	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.27	ND	0.40	0.056	
100-44-7	Benzyl Chloride	ND	4.1	0.44	ND	0.79	0.086	
541-73-1	1,3-Dichlorobenzene	ND	2.0	0.30	ND	0.33	0.049	
106-46-7	1,4-Dichlorobenzene	ND	2.0	0.30	ND	0.33	0.050	
95-50-1	1,2-Dichlorobenzene	ND	2.0	0.29	ND	0.33	0.049	
5989-27-5	d-Limonene	**0.57**	1.9	0.41	**0.10**	0.33	0.073	**J**
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.37	ND	0.20	0.038	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	0.48	ND	0.27	0.065	
91-20-3	Naphthalene	**0.49**	2.0	0.48	**0.093**	0.37	0.092	**J**
87-68-3	Hexachlorobutadiene	ND	2.0	0.41	ND	0.18	0.038	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P1804190
Client Project ID: **SVE Performance Monitoring / KUH0-18-010** ALS Sample ID: P180815-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	ND	0.52	0.13	ND	0.30	0.076	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.52	0.087	ND	0.11	0.018	
74-87-3	Chloromethane	ND	0.50	0.086	ND	0.24	0.042	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.51	0.084	ND	0.073	0.012	
75-01-4	Vinyl Chloride	ND	0.52	0.057	ND	0.20	0.022	
106-99-0	1,3-Butadiene	ND	0.53	0.088	ND	0.24	0.040	
74-83-9	Bromomethane	ND	0.50	0.074	ND	0.13	0.019	
75-00-3	Chloroethane	ND	0.51	0.066	ND	0.19	0.025	
64-17-5	Ethanol	ND	5.3	0.37	ND	2.8	0.20	
75-05-8	Acetonitrile	ND	0.53	0.13	ND	0.32	0.077	
107-02-8	Acrolein	ND	1.1	0.15	ND	0.48	0.065	
67-64-1	Acetone	ND	5.3	1.2	ND	2.2	0.51	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.53	0.081	ND	0.094	0.014	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	0.22	ND	0.85	0.090	
107-13-1	Acrylonitrile	ND	0.53	0.11	ND	0.24	0.051	
75-35-4	1,1-Dichloroethene	ND	0.53	0.074	ND	0.13	0.019	
75-09-2	Methylene Chloride	ND	0.53	0.15	ND	0.15	0.043	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.53	0.072	ND	0.17	0.023	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.53	0.076	ND	0.069	0.0099	
75-15-0	Carbon Disulfide	ND	1.1	0.16	ND	0.35	0.051	
156-60-5	trans-1,2-Dichloroethene	ND	0.54	0.074	ND	0.14	0.019	
75-34-3	1,1-Dichloroethane	ND	0.51	0.078	ND	0.13	0.019	
1634-04-4	Methyl tert-Butyl Ether	ND	0.54	0.063	ND	0.15	0.017	
108-05-4	Vinyl Acetate	ND	5.3	1.2	ND	1.5	0.34	
78-93-3	2-Butanone (MEK)	ND	1.1	0.11	ND	0.37	0.037	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **Method Blank** ALS Project ID: P1804190

Client Project ID: **SVE Performance Monitoring / KUH0-18-010** ALS Sample ID: P180815-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA

Analyst: Raneem Sahtah Date Analyzed: 8/15/18

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.53	0.075	ND	0.13	0.019	
141-78-6	Ethyl Acetate	ND	1.1	0.28	ND	0.31	0.078	
110-54-3	n-Hexane	ND	0.53	0.11	ND	0.15	0.031	
67-66-3	Chloroform	ND	0.53	0.071	ND	0.11	0.015	
109-99-9	Tetrahydrofuran (THF)	ND	0.53	0.067	ND	0.18	0.023	
107-06-2	1,2-Dichloroethane	ND	0.53	0.059	ND	0.13	0.015	
71-55-6	1,1,1-Trichloroethane	ND	0.54	0.066	ND	0.099	0.012	
71-43-2	Benzene	ND	0.53	0.077	ND	0.17	0.024	
56-23-5	Carbon Tetrachloride	ND	0.53	0.074	ND	0.084	0.012	
110-82-7	Cyclohexane	ND	1.1	0.15	ND	0.32	0.044	
78-87-5	1,2-Dichloropropane	ND	0.53	0.066	ND	0.11	0.014	
75-27-4	Bromodichloromethane	ND	0.53	0.077	ND	0.079	0.011	
79-01-6	Trichloroethene	ND	0.53	0.072	ND	0.099	0.013	
123-91-1	1,4-Dioxane	ND	0.53	0.063	ND	0.15	0.017	
80-62-6	Methyl Methacrylate	ND	1.1	0.19	ND	0.27	0.046	
142-82-5	n-Heptane	ND	0.53	0.085	ND	0.13	0.021	
10061-01-5	cis-1,3-Dichloropropene	ND	0.56	0.083	ND	0.12	0.018	
108-10-1	4-Methyl-2-pentanone	ND	0.53	0.073	ND	0.13	0.018	
10061-02-6	trans-1,3-Dichloropropene	ND	0.53	0.11	ND	0.12	0.024	
79-00-5	1,1,2-Trichloroethane	ND	0.53	0.054	ND	0.097	0.0099	
108-88-3	Toluene	ND	0.53	0.065	ND	0.14	0.017	
591-78-6	2-Hexanone	ND	0.53	0.066	ND	0.13	0.016	
124-48-1	Dibromochloromethane	ND	0.53	0.070	ND	0.062	0.0082	
106-93-4	1,2-Dibromoethane	ND	0.53	0.062	ND	0.069	0.0081	
123-86-4	n-Butyl Acetate	ND	0.53	0.073	ND	0.11	0.015	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **Method Blank** ALS Project ID: P1804190

Client Project ID: **SVE Performance Monitoring / KUH0-18-010** ALS Sample ID: P180815-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA

Analyst: Raneem Sahtah Date Analyzed: 8/15/18

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.53	0.12	ND	0.11	0.026	
127-18-4	Tetrachloroethene	ND	0.53	0.069	ND	0.078	0.010	
108-90-7	Chlorobenzene	ND	0.53	0.071	ND	0.12	0.015	
100-41-4	Ethylbenzene	ND	0.53	0.075	ND	0.12	0.017	
179601-23-1	m,p-Xylenes	ND	1.1	0.14	ND	0.25	0.032	
75-25-2	Bromoform	ND	0.53	0.11	ND	0.051	0.011	
100-42-5	Styrene	ND	0.53	0.086	ND	0.12	0.020	
95-47-6	o-Xylene	ND	0.53	0.077	ND	0.12	0.018	
111-84-2	n-Nonane	ND	0.53	0.089	ND	0.10	0.017	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.53	0.074	ND	0.077	0.011	
98-82-8	Cumene	ND	0.53	0.077	ND	0.11	0.016	
80-56-8	alpha-Pinene	ND	0.52	0.082	ND	0.093	0.015	
103-65-1	n-Propylbenzene	ND	0.53	0.077	ND	0.11	0.016	
622-96-8	4-Ethyltoluene	ND	0.52	0.085	ND	0.11	0.017	
108-67-8	1,3,5-Trimethylbenzene	ND	0.52	0.077	ND	0.11	0.016	
95-63-6	1,2,4-Trimethylbenzene	ND	0.53	0.074	ND	0.11	0.015	
100-44-7	Benzyl Chloride	ND	1.1	0.12	ND	0.21	0.023	
541-73-1	1,3-Dichlorobenzene	ND	0.54	0.080	ND	0.090	0.013	
106-46-7	1,4-Dichlorobenzene	ND	0.53	0.082	ND	0.088	0.014	
95-50-1	1,2-Dichlorobenzene	ND	0.54	0.079	ND	0.090	0.013	
5989-27-5	d-Limonene	ND	0.50	0.11	ND	0.090	0.020	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.53	0.10	ND	0.055	0.010	
120-82-1	1,2,4-Trichlorobenzene	ND	0.55	0.13	ND	0.074	0.018	
91-20-3	Naphthalene	ND	0.53	0.13	ND	0.10	0.025	
87-68-3	Hexachlorobutadiene	ND	0.53	0.11	ND	0.050	0.010	

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: **Environmental Management Services, Inc.**
Client Project ID: **SVE Performance Monitoring / KUH0-18-010** ALS Project ID: P1804190

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date(s) Collected: 8/7/18
Analyst: Raneem Sahtah Date(s) Received: 8/13/18
Sample Type: 1.0 L Summa Canister(s) Date(s) Analyzed: 8/15/18
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	P180815-MB	**100**	**104**	**102**	70-130	
Lab Control Sample	P180815-LCS	**97**	**103**	**104**	70-130	
SVE Exhaust	P1804190-001	**99**	**105**	**99**	70-130	
SVE Carbon 1	P1804190-002	**98**	**103**	**101**	70-130	
SVE Carbon 2	P1804190-003	**99**	**102**	**100**	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: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1804190
Client Project ID: **SVE Performance Monitoring / KUH0-18-010** ALS Sample ID: P180815-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Summa 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	210	**149**	**71**	54-133	
75-71-8	Dichlorodifluoromethane (CFC 12)	213	**178**	**84**	64-115	
74-87-3	Chloromethane	210	**186**	**89**	47-140	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	211	**203**	**96**	60-112	
75-01-4	Vinyl Chloride	211	**208**	**99**	63-127	
106-99-0	1,3-Butadiene	210	**234**	**111**	57-149	
74-83-9	Bromomethane	210	**188**	**90**	63-132	
75-00-3	Chloroethane	210	**177**	**84**	68-129	
64-17-5	Ethanol	1,040	**966**	**93**	62-131	
75-05-8	Acetonitrile	210	**168**	**80**	56-136	
107-02-8	Acrolein	209	**166**	**79**	60-132	
67-64-1	Acetone	1,050	**921**	**88**	63-124	
75-69-4	Trichlorofluoromethane (CFC 11)	208	**178**	**86**	65-113	
67-63-0	2-Propanol (Isopropyl Alcohol)	422	**374**	**89**	62-135	
107-13-1	Acrylonitrile	212	**197**	**93**	68-138	
75-35-4	1,1-Dichloroethene	213	**182**	**85**	72-118	
75-09-2	Methylene Chloride	213	**187**	**88**	67-116	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	212	**159**	**75**	61-143	
76-13-1	Trichlorotrifluoroethane (CFC 113)	214	**181**	**85**	68-113	
75-15-0	Carbon Disulfide	214	**173**	**81**	68-120	
156-60-5	trans-1,2-Dichloroethene	214	**202**	**94**	71-125	
75-34-3	1,1-Dichloroethane	212	**172**	**81**	68-118	
1634-04-4	Methyl tert-Butyl Ether	213	**171**	**80**	60-123	
108-05-4	Vinyl Acetate	1,060	**1130**	**107**	73-135	
78-93-3	2-Butanone (MEK)	212	**204**	**96**	70-129	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1804190
Client Project ID: **SVE Performance Monitoring / KUH0-18-010** ALS Sample ID: P180815-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Summa 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	212	**180**	**85**	69-121	
141-78-6	Ethyl Acetate	426	**440**	**103**	66-140	
110-54-3	n-Hexane	213	**184**	**86**	61-124	
67-66-3	Chloroform	212	**190**	**90**	69-113	
109-99-9	Tetrahydrofuran (THF)	212	**165**	**78**	66-121	
107-06-2	1,2-Dichloroethane	212	**188**	**89**	62-120	
71-55-6	1,1,1-Trichloroethane	212	**182**	**86**	65-116	
71-43-2	Benzene	213	**192**	**90**	66-111	
56-23-5	Carbon Tetrachloride	214	**188**	**88**	64-122	
110-82-7	Cyclohexane	425	**384**	**90**	69-115	
78-87-5	1,2-Dichloropropane	212	**175**	**83**	69-121	
75-27-4	Bromodichloromethane	214	**199**	**93**	69-123	
79-01-6	Trichloroethene	212	**198**	**93**	69-112	
123-91-1	1,4-Dioxane	213	**211**	**99**	74-123	
80-62-6	Methyl Methacrylate	424	**414**	**98**	75-125	
142-82-5	n-Heptane	213	**182**	**85**	68-118	
10061-01-5	cis-1,3-Dichloropropene	208	**206**	**99**	74-129	
108-10-1	4-Methyl-2-pentanone	213	**200**	**94**	66-138	
10061-02-6	trans-1,3-Dichloropropene	213	**213**	**100**	75-130	
79-00-5	1,1,2-Trichloroethane	212	**199**	**94**	73-117	
108-88-3	Toluene	211	**190**	**90**	66-114	
591-78-6	2-Hexanone	211	**203**	**96**	58-146	
124-48-1	Dibromochloromethane	212	**211**	**100**	67-130	
106-93-4	1,2-Dibromoethane	211	**225**	**107**	70-127	
123-86-4	n-Butyl Acetate	215	**222**	**103**	62-140	

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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1804190
Client Project ID: **SVE Performance Monitoring / KUH0-18-010** ALS Sample ID: P180815-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Summa 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	212	**181**	**85**	65-121	
127-18-4	Tetrachloroethene	212	**197**	**93**	62-119	
108-90-7	Chlorobenzene	212	**193**	**91**	66-115	
100-41-4	Ethylbenzene	212	**198**	**93**	69-117	
179601-23-1	m,p-Xylenes	424	**414**	**98**	67-117	
75-25-2	Bromoform	212	**223**	**105**	67-135	
100-42-5	Styrene	211	**219**	**104**	70-128	
95-47-6	o-Xylene	211	**204**	**97**	67-118	
111-84-2	n-Nonane	212	**183**	**86**	61-127	
79-34-5	1,1,2,2-Tetrachloroethane	212	**210**	**99**	70-125	
98-82-8	Cumene	212	**206**	**97**	68-116	
80-56-8	alpha-Pinene	213	**201**	**94**	69-122	
103-65-1	n-Propylbenzene	214	**215**	**100**	70-118	
622-96-8	4-Ethyltoluene	211	**225**	**107**	69-124	
108-67-8	1,3,5-Trimethylbenzene	212	**199**	**94**	65-117	
95-63-6	1,2,4-Trimethylbenzene	212	**247**	**117**	67-124	
100-44-7	Benzyl Chloride	212	**246**	**116**	75-142	
541-73-1	1,3-Dichlorobenzene	212	**235**	**111**	70-124	
106-46-7	1,4-Dichlorobenzene	214	**216**	**101**	63-124	
95-50-1	1,2-Dichlorobenzene	214	**246**	**115**	66-125	
5989-27-5	d-Limonene	213	**232**	**109**	64-135	
96-12-8	1,2-Dibromo-3-chloropropane	210	**232**	**110**	73-136	
120-82-1	1,2,4-Trichlorobenzene	218	**258**	**118**	70-141	
91-20-3	Naphthalene	209	**275**	**132**	71-146	
87-68-3	Hexachlorobutadiene	212	**216**	**102**	63-126	

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.

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

LABORATORY REPORT

December 12, 2018

Jeremy Van Slyke
Environmental Management Services, Inc.
P.O. Box 15369
Hattiesburg, MS 39404

RE: SVE Performance Monitoring / KUHO-18-010

Dear Jeremy:

Enclosed are the results of the samples submitted to our laboratory on November 19, 2018. For your reference, these analyses have been assigned our service request number P1806369.

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

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

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 5:08 pm, Dec 12, 2018

Sue Anderson
Project Manager

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

Client: Environmental Management Services, Inc. Service Request No: P1806369
Project: SVE Performance Monitoring / KUHO-18-010

CASE NARRATIVE

The samples were received intact under chain of custody on November 19, 2018 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 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. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. 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
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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1347317
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-005
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272018-9
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: Environmental Management Services, Inc. Service Request: P1806369

Project ID: SVE Performance Monitoring / KUHO-18-010

Date Received: 11/19/2018

Time Received: 09:00

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans
SVE Exhaust	P1806369-001	Air	11/13/2018	12:19	1SC00344	0.72	5.76	X
SVE Carbon 1	P1806369-002	Air	11/13/2018	12:24	1SC00636	0.85	5.83	X
SVE Carbon 2	P1806369-003	Air	11/13/2018	12:32	1SC00681	0.65	5.13	X

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

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 P1806369

Company Name & Address (Reporting Information)
Environmental Management Services, Inc.
PO Box 15369
Hattiesburg, MS 39404

Project Name: SVE Performance Monitoring

Project Number: KUHO-18-010

Project Manager: Jeremy Van Slyke

P.O. # / Billing Information: KUHO-18-010 / Same As Reporting

Phone: 601 544 3674

Fax: 601 544 0504

Email Address for Result Reporting: jvanslyke@env-mgt.com

Sampler (Print & Sign): Jeremy Van Slyke

ALS Contact:

Analysis Method

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	TO-15		Comments e.g. Actual Preservative or specific instructions
SVE Exhaust		11-13-18	1219	ISC00344				1 L	X		
SVE Carbon 1		11-13-18	1224	ISC00636				1 L	X		
SVE Carbon 2		11-13-18	1232	ISC00681				1 L	X		

5 of 22

Report Tier Levels - please select

Tier I - Results (Default in not specified) ____ Tier III (Results + QC & Calibration Summaries) ____

Tier II (Results + QC Summaries X 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:
Jeremy Van Slyke FED EX	11-14-18	1454	FED EX		
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
			Aaron Gonzales	11/19/18	0900

Cooler / Blank Temperature ____ °C

ALS Environmental

Sample Acceptance Check Form

Client: Environmental Management Services, Inc. Work order: P1806369

Project: SVE Performance Monitoring / KUHO-18-010

Sample(s) received on: 11/19/18 Date opened: 11/19/18 by: AARON GONZALEZ

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 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
P1806369-001.01	1.0 L Source Can					
P1806369-002.01	1.0 L Source Can					
P1806369-003.01	1.0 L Source 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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE Exhaust** ALS Project ID: P1806369
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1806369-001

Test Code: EPA TO-15 Date Collected: 11/13/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/19/18
Analyst: Wida Ang Date Analyzed: 12/8/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC00344

Initial Pressure (psig): 0.72 Final Pressure (psig): 5.76

Container Dilution Factor: 1.33

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**3.4**	1.7	0.43	**2.0**	1.0	0.25	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.3**	1.7	0.29	**0.47**	0.35	0.059	
74-87-3	Chloromethane	**1.0**	1.7	0.29	**0.48**	0.81	0.14	**J**
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	1.7	0.28	ND	0.24	0.040	
75-01-4	Vinyl Chloride	ND	1.8	0.19	ND	0.69	0.074	
106-99-0	1,3-Butadiene	ND	1.7	0.29	ND	0.78	0.13	
74-83-9	Bromomethane	ND	1.7	0.25	ND	0.43	0.063	
75-00-3	Chloroethane	ND	1.7	0.22	ND	0.64	0.083	
64-17-5	Ethanol	**5.3**	17	1.2	**2.8**	9.0	0.65	**J**
75-05-8	Acetonitrile	**5.0**	1.7	0.43	**3.0**	1.0	0.26	
107-02-8	Acrolein	**0.93**	3.3	0.50	**0.41**	1.5	0.22	**J**
67-64-1	Acetone	**16**	18	4.0	**6.8**	7.6	1.7	**J**
75-69-4	Trichlorofluoromethane (CFC 11)	**1.2**	1.8	0.27	**0.21**	0.31	0.048	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	7.0	0.73	ND	2.8	0.30	
107-13-1	Acrylonitrile	ND	1.7	0.37	ND	0.80	0.17	
75-35-4	1,1-Dichloroethene	**9.0**	1.8	0.25	**2.3**	0.45	0.062	
75-09-2	Methylene Chloride	**16**	1.8	0.50	**4.6**	0.52	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	1.8	0.24	ND	0.56	0.077	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**0.93**	1.8	0.25	**0.12**	0.23	0.033	**J**
75-15-0	Carbon Disulfide	ND	3.7	0.53	ND	1.2	0.17	
156-60-5	trans-1,2-Dichloroethene	ND	1.8	0.25	ND	0.44	0.062	
75-34-3	1,1-Dichloroethane	ND	1.7	0.26	ND	0.43	0.064	
1634-04-4	Methyl tert-Butyl Ether	ND	1.8	0.21	ND	0.50	0.058	
108-05-4	Vinyl Acetate	**5.3**	18	4.0	**1.5**	5.0	1.1	**J**
78-93-3	2-Butanone (MEK)	**2.9**	3.3	0.37	**0.99**	1.1	0.12	**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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE Exhaust** ALS Project ID: P1806369
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1806369-001

Test Code: EPA TO-15 Date Collected: 11/13/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/19/18
Analyst: Wida Ang Date Analyzed: 12/8/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC00344

Initial Pressure (psig): 0.72 Final Pressure (psig): 5.76

Container Dilution Factor: 1.33

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	1.8	0.25	ND	0.44	0.063	
141-78-6	Ethyl Acetate	**2.2**	3.7	0.93	**0.62**	1.0	0.26	**J**
110-54-3	n-Hexane	**1.2**	1.8	0.37	**0.33**	0.51	0.10	**J**
67-66-3	Chloroform	ND	1.8	0.24	ND	0.37	0.048	
109-99-9	Tetrahydrofuran (THF)	ND	1.8	0.22	ND	0.60	0.076	
107-06-2	1,2-Dichloroethane	ND	1.8	0.20	ND	0.44	0.048	
71-55-6	1,1,1-Trichloroethane	**4.1**	1.8	0.22	**0.75**	0.33	0.040	
71-43-2	Benzene	**0.36**	1.7	0.26	**0.11**	0.54	0.080	**J**
56-23-5	Carbon Tetrachloride	**0.38**	1.7	0.25	**0.061**	0.27	0.039	**J**
110-82-7	Cyclohexane	ND	3.3	0.50	ND	0.97	0.14	
78-87-5	1,2-Dichloropropane	ND	1.8	0.22	ND	0.39	0.048	
75-27-4	Bromodichloromethane	ND	1.8	0.26	ND	0.26	0.038	
79-01-6	Trichloroethene	ND	1.8	0.24	ND	0.33	0.045	
123-91-1	1,4-Dioxane	**83**	1.8	0.21	**23**	0.49	0.058	
80-62-6	Methyl Methacrylate	ND	3.7	0.63	ND	0.89	0.15	
142-82-5	n-Heptane	**0.55**	1.8	0.28	**0.13**	0.44	0.069	**J**
10061-01-5	cis-1,3-Dichloropropene	ND	1.9	0.28	ND	0.41	0.061	
108-10-1	4-Methyl-2-pentanone	ND	1.8	0.24	ND	0.43	0.059	
10061-02-6	trans-1,3-Dichloropropene	ND	1.8	0.37	ND	0.39	0.081	
79-00-5	1,1,2-Trichloroethane	ND	1.8	0.18	ND	0.33	0.033	
108-88-3	Toluene	**8.4**	1.8	0.22	**2.2**	0.47	0.057	
591-78-6	2-Hexanone	**0.63**	1.8	0.22	**0.15**	0.44	0.054	**J**
124-48-1	Dibromochloromethane	ND	1.8	0.23	ND	0.21	0.027	
106-93-4	1,2-Dibromoethane	ND	1.8	0.21	ND	0.23	0.027	
123-86-4	n-Butyl Acetate	ND	1.8	0.24	ND	0.38	0.051	

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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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE Exhaust** ALS Project ID: P1806369
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1806369-001

Test Code: EPA TO-15 Date Collected: 11/13/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/19/18
Analyst: Wida Ang Date Analyzed: 12/8/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC00344

Initial Pressure (psig): 0.72 Final Pressure (psig): 5.76

Container Dilution Factor: 1.33

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	**0.42**	1.8	0.40	**0.090**	0.38	0.085	**J**
127-18-4	Tetrachloroethene	**1.4**	1.8	0.23	**0.21**	0.26	0.034	**J**
108-90-7	Chlorobenzene	ND	1.8	0.24	ND	0.38	0.051	
100-41-4	Ethylbenzene	**0.29**	1.7	0.25	**0.067**	0.40	0.057	**J**
179601-23-1	m,p-Xylenes	**0.92**	3.7	0.47	**0.21**	0.84	0.11	**J**
75-25-2	Bromoform	ND	1.8	0.37	ND	0.17	0.035	
100-42-5	Styrene	ND	1.8	0.29	ND	0.41	0.067	
95-47-6	o-Xylene	**0.50**	1.8	0.26	**0.12**	0.41	0.059	**J**
111-84-2	n-Nonane	**0.38**	1.8	0.30	**0.072**	0.34	0.056	**J**
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.8	0.25	ND	0.26	0.036	
98-82-8	Cumene	ND	1.8	0.26	ND	0.36	0.052	
80-56-8	alpha-Pinene	**0.28**	1.7	0.27	**0.050**	0.31	0.049	**J**
103-65-1	n-Propylbenzene	ND	1.8	0.26	ND	0.37	0.052	
622-96-8	4-Ethyltoluene	ND	1.8	0.28	ND	0.36	0.058	
108-67-8	1,3,5-Trimethylbenzene	ND	1.8	0.26	ND	0.36	0.052	
95-63-6	1,2,4-Trimethylbenzene	ND	1.8	0.25	ND	0.36	0.050	
100-44-7	Benzyl Chloride	ND	3.7	0.40	ND	0.71	0.077	
541-73-1	1,3-Dichlorobenzene	ND	1.8	0.27	ND	0.30	0.044	
106-46-7	1,4-Dichlorobenzene	ND	1.8	0.27	ND	0.30	0.045	
95-50-1	1,2-Dichlorobenzene	ND	1.8	0.26	ND	0.30	0.044	
5989-27-5	d-Limonene	**0.89**	1.7	0.37	**0.16**	0.30	0.066	**J**
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.7	0.33	ND	0.18	0.034	
120-82-1	1,2,4-Trichlorobenzene	ND	1.8	0.43	ND	0.24	0.058	
91-20-3	Naphthalene	ND	1.7	0.43	ND	0.32	0.082	
87-68-3	Hexachlorobutadiene	ND	1.8	0.37	ND	0.17	0.034	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
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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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE Carbon 1** ALS Project ID: P1806369
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1806369-002

Test Code: EPA TO-15 Date Collected: 11/13/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/19/18
Analyst: Wida Ang Date Analyzed: 12/8/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.050 Liter(s)
Test Notes:
Container ID: 1SC00636

Initial Pressure (psig): 0.85 Final Pressure (psig): 5.83

Container Dilution Factor: 1.32

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**7.9**	14	3.4	**4.6**	8.0	2.0	**J**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.4**	14	2.3	**0.49**	2.8	0.46	**J**
74-87-3	Chloromethane	ND	13	2.3	ND	6.4	1.1	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	13	2.2	ND	1.9	0.32	
75-01-4	Vinyl Chloride	ND	14	1.5	ND	5.5	0.59	
106-99-0	1,3-Butadiene	ND	14	2.3	ND	6.2	1.1	
74-83-9	Bromomethane	ND	13	2.0	ND	3.4	0.50	
75-00-3	Chloroethane	ND	13	1.7	ND	5.1	0.66	
64-17-5	Ethanol	ND	130	9.8	ND	71	5.2	
75-05-8	Acetonitrile	ND	14	3.4	ND	8.2	2.0	
107-02-8	Acrolein	ND	26	4.0	ND	12	1.7	
67-64-1	Acetone	ND	140	32	ND	60	13	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	14	2.1	ND	2.5	0.38	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	55	5.8	ND	23	2.4	
107-13-1	Acrylonitrile	ND	14	2.9	ND	6.3	1.3	
75-35-4	1,1-Dichloroethene	**100**	14	2.0	**26**	3.6	0.49	
75-09-2	Methylene Chloride	ND	14	4.0	ND	4.1	1.1	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	14	1.9	ND	4.5	0.61	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	14	2.0	ND	1.8	0.26	
75-15-0	Carbon Disulfide	ND	29	4.2	ND	9.3	1.4	
156-60-5	trans-1,2-Dichloroethene	ND	14	2.0	ND	3.5	0.49	
75-34-3	1,1-Dichloroethane	**3.1**	14	2.1	**0.78**	3.4	0.51	**J**
1634-04-4	Methyl tert-Butyl Ether	ND	14	1.7	ND	4.0	0.46	
108-05-4	Vinyl Acetate	ND	140	32	ND	40	9.0	
78-93-3	2-Butanone (MEK)	ND	26	2.9	ND	9.0	0.99	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
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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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE Carbon 1** ALS Project ID: P1806369
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1806369-002

Test Code: EPA TO-15 Date Collected: 11/13/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/19/18
Analyst: Wida Ang Date Analyzed: 12/8/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.050 Liter(s)
Test Notes:
Container ID: 1SC00636

Initial Pressure (psig): 0.85 Final Pressure (psig): 5.83

Container Dilution Factor: 1.32

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	14	2.0	ND	3.5	0.50	
141-78-6	Ethyl Acetate	ND	29	7.4	ND	8.1	2.1	
110-54-3	n-Hexane	ND	14	2.9	ND	4.0	0.82	
67-66-3	Chloroform	**1.9**	14	1.9	**0.39**	2.9	0.38	**J**
109-99-9	Tetrahydrofuran (THF)	ND	14	1.8	ND	4.7	0.60	
107-06-2	1,2-Dichloroethane	ND	14	1.6	ND	3.5	0.38	
71-55-6	1,1,1-Trichloroethane	**23**	14	1.7	**4.3**	2.6	0.32	
71-43-2	Benzene	ND	14	2.0	ND	4.3	0.64	
56-23-5	Carbon Tetrachloride	ND	14	2.0	ND	2.2	0.31	
110-82-7	Cyclohexane	ND	26	4.0	ND	7.7	1.2	
78-87-5	1,2-Dichloropropane	ND	14	1.7	ND	3.1	0.38	
75-27-4	Bromodichloromethane	ND	14	2.0	ND	2.1	0.30	
79-01-6	Trichloroethene	ND	14	1.9	ND	2.6	0.35	
123-91-1	1,4-Dioxane	**1,800**	14	1.7	**490**	3.9	0.46	
80-62-6	Methyl Methacrylate	ND	29	5.0	ND	7.1	1.2	
142-82-5	n-Heptane	ND	14	2.2	ND	3.5	0.55	
10061-01-5	cis-1,3-Dichloropropene	ND	15	2.2	ND	3.3	0.48	
108-10-1	4-Methyl-2-pentanone	ND	14	1.9	ND	3.4	0.47	
10061-02-6	trans-1,3-Dichloropropene	ND	14	2.9	ND	3.1	0.64	
79-00-5	1,1,2-Trichloroethane	ND	14	1.4	ND	2.6	0.26	
108-88-3	Toluene	ND	14	1.7	ND	3.7	0.46	
591-78-6	2-Hexanone	ND	14	1.7	ND	3.5	0.43	
124-48-1	Dibromochloromethane	ND	14	1.8	ND	1.7	0.22	
106-93-4	1,2-Dibromoethane	ND	14	1.6	ND	1.9	0.21	
123-86-4	n-Butyl Acetate	ND	14	1.9	ND	3.0	0.41	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE Carbon 1** ALS Project ID: P1806369
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1806369-002

Test Code: EPA TO-15 Date Collected: 11/13/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/19/18
Analyst: Wida Ang Date Analyzed: 12/8/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.050 Liter(s)
Test Notes:
Container ID: 1SC00636

Initial Pressure (psig): 0.85 Final Pressure (psig): 5.83

Container Dilution Factor: 1.32

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	14	3.2	ND	3.1	0.68	
127-18-4	Tetrachloroethene	**5.9**	14	1.8	**0.87**	2.1	0.27	**J**
108-90-7	Chlorobenzene	ND	14	1.9	ND	3.0	0.41	
100-41-4	Ethylbenzene	ND	14	2.0	ND	3.2	0.46	
179601-23-1	m,p-Xylenes	ND	29	3.7	ND	6.7	0.85	
75-25-2	Bromoform	ND	14	2.9	ND	1.4	0.28	
100-42-5	Styrene	ND	14	2.3	ND	3.3	0.53	
95-47-6	o-Xylene	ND	14	2.0	ND	3.2	0.47	
111-84-2	n-Nonane	ND	14	2.3	ND	2.7	0.45	
79-34-5	1,1,2,2-Tetrachloroethane	ND	14	2.0	ND	2.0	0.28	
98-82-8	Cumene	ND	14	2.0	ND	2.8	0.41	
80-56-8	alpha-Pinene	ND	14	2.2	ND	2.5	0.39	
103-65-1	n-Propylbenzene	ND	14	2.0	ND	2.9	0.41	
622-96-8	4-Ethyltoluene	ND	14	2.2	ND	2.8	0.46	
108-67-8	1,3,5-Trimethylbenzene	ND	14	2.0	ND	2.8	0.41	
95-63-6	1,2,4-Trimethylbenzene	ND	14	2.0	ND	2.8	0.40	
100-44-7	Benzyl Chloride	ND	29	3.2	ND	5.6	0.61	
541-73-1	1,3-Dichlorobenzene	ND	14	2.1	ND	2.4	0.35	
106-46-7	1,4-Dichlorobenzene	ND	14	2.2	ND	2.4	0.36	
95-50-1	1,2-Dichlorobenzene	ND	14	2.1	ND	2.4	0.35	
5989-27-5	d-Limonene	ND	13	2.9	ND	2.4	0.52	
96-12-8	1,2-Dibromo-3-chloropropane	ND	14	2.6	ND	1.4	0.27	
120-82-1	1,2,4-Trichlorobenzene	ND	14	3.4	ND	1.9	0.46	
91-20-3	Naphthalene	ND	13	3.4	ND	2.6	0.65	
87-68-3	Hexachlorobutadiene	ND	14	2.9	ND	1.3	0.27	

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: **Environmental Management Services, Inc.**
Client Sample ID: **SVE Carbon 2** ALS Project ID: P1806369
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1806369-003

Test Code: EPA TO-15 Date Collected: 11/13/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/19/18
Analyst: Wida Ang Date Analyzed: 12/8/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC00681

Initial Pressure (psig): 0.65 Final Pressure (psig): 5.13

Container Dilution Factor: 1.29

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**17**	1.7	0.42	**9.7**	0.97	0.24	
75-71-8	Dichlorodifluoromethane (CFC 12)	**1.9**	1.7	0.28	**0.38**	0.34	0.057	
74-87-3	Chloromethane	**0.37**	1.6	0.28	**0.18**	0.78	0.13	**J**
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	1.6	0.27	ND	0.24	0.039	
75-01-4	Vinyl Chloride	ND	1.7	0.18	ND	0.67	0.072	
106-99-0	1,3-Butadiene	**0.40**	1.7	0.28	**0.18**	0.76	0.13	**J**
74-83-9	Bromomethane	ND	1.6	0.24	ND	0.42	0.061	
75-00-3	Chloroethane	ND	1.6	0.21	ND	0.62	0.081	
64-17-5	Ethanol	**16**	16	1.2	**8.6**	8.7	0.63	**J**
75-05-8	Acetonitrile	ND	1.7	0.42	ND	1.0	0.25	
107-02-8	Acrolein	**0.67**	3.2	0.48	**0.29**	1.4	0.21	**J**
67-64-1	Acetone	**11**	17	3.9	**4.6**	7.3	1.6	**J**
75-69-4	Trichlorofluoromethane (CFC 11)	**0.96**	1.7	0.26	**0.17**	0.30	0.047	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**1.3**	6.8	0.71	**0.53**	2.8	0.29	**J**
107-13-1	Acrylonitrile	ND	1.7	0.35	ND	0.77	0.16	
75-35-4	1,1-Dichloroethene	**14**	1.7	0.24	**3.5**	0.44	0.060	
75-09-2	Methylene Chloride	ND	1.7	0.48	ND	0.50	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	1.7	0.23	ND	0.55	0.074	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**0.31**	1.7	0.25	**0.040**	0.22	0.032	**J**
75-15-0	Carbon Disulfide	ND	3.5	0.52	ND	1.1	0.17	
156-60-5	trans-1,2-Dichloroethene	ND	1.7	0.24	ND	0.43	0.060	
75-34-3	1,1-Dichloroethane	ND	1.7	0.25	ND	0.41	0.062	
1634-04-4	Methyl tert-Butyl Ether	ND	1.7	0.20	ND	0.48	0.056	
108-05-4	Vinyl Acetate	ND	17	3.9	ND	4.9	1.1	
78-93-3	2-Butanone (MEK)	**1.6**	3.2	0.35	**0.53**	1.1	0.12	**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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE Carbon 2** ALS Project ID: P1806369
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1806369-003

Test Code: EPA TO-15 Date Collected: 11/13/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/19/18
Analyst: Wida Ang Date Analyzed: 12/8/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC00681

Initial Pressure (psig): 0.65 Final Pressure (psig): 5.13

Container Dilution Factor: 1.29

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	1.7	0.24	ND	0.43	0.061	
141-78-6	Ethyl Acetate	ND	3.5	0.90	ND	0.98	0.25	
110-54-3	n-Hexane	ND	1.7	0.35	ND	0.49	0.10	
67-66-3	Chloroform	**0.54**	1.7	0.23	**0.11**	0.36	0.047	**J**
109-99-9	Tetrahydrofuran (THF)	**0.34**	1.7	0.22	**0.11**	0.58	0.073	**J**
107-06-2	1,2-Dichloroethane	ND	1.7	0.19	ND	0.42	0.047	
71-55-6	1,1,1-Trichloroethane	**4.7**	1.7	0.21	**0.86**	0.32	0.039	
71-43-2	Benzene	**0.50**	1.7	0.25	**0.16**	0.53	0.078	**J**
56-23-5	Carbon Tetrachloride	**0.28**	1.7	0.24	**0.044**	0.27	0.038	**J**
110-82-7	Cyclohexane	ND	3.2	0.48	ND	0.94	0.14	
78-87-5	1,2-Dichloropropane	**7.1**	1.7	0.21	**1.5**	0.38	0.046	
75-27-4	Bromodichloromethane	ND	1.7	0.25	ND	0.26	0.037	
79-01-6	Trichloroethene	ND	1.7	0.23	ND	0.32	0.043	
123-91-1	1,4-Dioxane	**320**	1.7	0.20	**90**	0.47	0.056	
80-62-6	Methyl Methacrylate	ND	3.5	0.61	ND	0.87	0.15	
142-82-5	n-Heptane	ND	1.7	0.27	ND	0.43	0.067	
10061-01-5	cis-1,3-Dichloropropene	ND	1.8	0.27	ND	0.40	0.059	
108-10-1	4-Methyl-2-pentanone	**6.4**	1.7	0.24	**1.6**	0.42	0.057	
10061-02-6	trans-1,3-Dichloropropene	ND	1.7	0.35	ND	0.38	0.078	
79-00-5	1,1,2-Trichloroethane	ND	1.7	0.17	ND	0.32	0.032	
108-88-3	Toluene	**2.6**	1.7	0.21	**0.69**	0.45	0.056	
591-78-6	2-Hexanone	**0.42**	1.7	0.21	**0.10**	0.43	0.052	**J**
124-48-1	Dibromochloromethane	ND	1.7	0.23	ND	0.20	0.027	
106-93-4	1,2-Dibromoethane	ND	1.7	0.20	ND	0.23	0.026	
123-86-4	n-Butyl Acetate	**0.36**	1.7	0.24	**0.077**	0.37	0.050	**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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **SVE Carbon 2** ALS Project ID: P1806369
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P1806369-003

Test Code: EPA TO-15 Date Collected: 11/13/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/19/18
Analyst: Wida Ang Date Analyzed: 12/8/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC00681

Initial Pressure (psig): 0.65 Final Pressure (psig): 5.13

Container Dilution Factor: 1.29

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	1.7	0.39	ND	0.37	0.083	
127-18-4	Tetrachloroethene	**5.8**	1.7	0.22	**0.86**	0.25	0.033	
108-90-7	Chlorobenzene	ND	1.7	0.23	ND	0.37	0.050	
100-41-4	Ethylbenzene	**2.2**	1.7	0.24	**0.51**	0.39	0.056	
179601-23-1	m,p-Xylenes	**11**	3.5	0.45	**2.6**	0.82	0.10	
75-25-2	Bromoform	ND	1.7	0.35	ND	0.17	0.034	
100-42-5	Styrene	ND	1.7	0.28	ND	0.40	0.065	
95-47-6	o-Xylene	**9.5**	1.7	0.25	**2.2**	0.39	0.057	
111-84-2	n-Nonane	ND	1.7	0.29	ND	0.33	0.055	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.7	0.24	ND	0.25	0.035	
98-82-8	Cumene	ND	1.7	0.25	ND	0.35	0.051	
80-56-8	alpha-Pinene	ND	1.7	0.26	ND	0.30	0.047	
103-65-1	n-Propylbenzene	**0.70**	1.7	0.25	**0.14**	0.35	0.051	**J**
622-96-8	4-Ethyltoluene	**1.2**	1.7	0.27	**0.24**	0.35	0.056	**J**
108-67-8	1,3,5-Trimethylbenzene	**1.5**	1.7	0.25	**0.31**	0.35	0.051	**J**
95-63-6	1,2,4-Trimethylbenzene	**4.3**	1.7	0.24	**0.88**	0.35	0.049	
100-44-7	Benzyl Chloride	ND	3.5	0.39	ND	0.69	0.075	
541-73-1	1,3-Dichlorobenzene	ND	1.7	0.26	ND	0.29	0.043	
106-46-7	1,4-Dichlorobenzene	ND	1.7	0.26	ND	0.29	0.044	
95-50-1	1,2-Dichlorobenzene	ND	1.7	0.25	ND	0.29	0.042	
5989-27-5	d-Limonene	**0.55**	1.6	0.35	**0.099**	0.30	0.064	**J**
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.7	0.32	ND	0.17	0.033	
120-82-1	1,2,4-Trichlorobenzene	ND	1.7	0.42	ND	0.23	0.057	
91-20-3	Naphthalene	ND	1.6	0.42	ND	0.31	0.080	
87-68-3	Hexachlorobutadiene	ND	1.7	0.35	ND	0.16	0.033	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P1806369
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P181207-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Wida Ang Date Analyzed: 12/7/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	ND	0.52	0.13	ND	0.30	0.076	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.52	0.087	ND	0.11	0.018	
74-87-3	Chloromethane	ND	0.50	0.086	ND	0.24	0.042	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.51	0.084	ND	0.073	0.012	
75-01-4	Vinyl Chloride	ND	0.53	0.057	ND	0.21	0.022	
106-99-0	1,3-Butadiene	ND	0.52	0.088	ND	0.24	0.040	
74-83-9	Bromomethane	ND	0.50	0.074	ND	0.13	0.019	
75-00-3	Chloroethane	ND	0.51	0.066	ND	0.19	0.025	
64-17-5	Ethanol	ND	5.1	0.37	ND	2.7	0.20	
75-05-8	Acetonitrile	ND	0.52	0.13	ND	0.31	0.077	
107-02-8	Acrolein	ND	1.0	0.15	ND	0.44	0.065	
67-64-1	Acetone	ND	5.4	1.2	ND	2.3	0.51	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.53	0.081	ND	0.094	0.014	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	0.22	ND	0.85	0.090	
107-13-1	Acrylonitrile	ND	0.52	0.11	ND	0.24	0.051	
75-35-4	1,1-Dichloroethene	ND	0.54	0.074	ND	0.14	0.019	
75-09-2	Methylene Chloride	ND	0.54	0.15	ND	0.16	0.043	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.53	0.072	ND	0.17	0.023	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.53	0.076	ND	0.069	0.0099	
75-15-0	Carbon Disulfide	ND	1.1	0.16	ND	0.35	0.051	
156-60-5	trans-1,2-Dichloroethene	ND	0.53	0.074	ND	0.13	0.019	
75-34-3	1,1-Dichloroethane	ND	0.52	0.078	ND	0.13	0.019	
1634-04-4	Methyl tert-Butyl Ether	ND	0.54	0.063	ND	0.15	0.017	
108-05-4	Vinyl Acetate	ND	5.3	1.2	ND	1.5	0.34	
78-93-3	2-Butanone (MEK)	ND	1.0	0.11	ND	0.34	0.037	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **Method Blank** ALS Project ID: P1806369

Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P181207-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA

Analyst: Wida Ang Date Analyzed: 12/7/18

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.53	0.075	ND	0.13	0.019	
141-78-6	Ethyl Acetate	ND	1.1	0.28	ND	0.31	0.078	
110-54-3	n-Hexane	ND	0.54	0.11	ND	0.15	0.031	
67-66-3	Chloroform	ND	0.54	0.071	ND	0.11	0.015	
109-99-9	Tetrahydrofuran (THF)	ND	0.53	0.067	ND	0.18	0.023	
107-06-2	1,2-Dichloroethane	ND	0.53	0.059	ND	0.13	0.015	
71-55-6	1,1,1-Trichloroethane	ND	0.54	0.066	ND	0.099	0.012	
71-43-2	Benzene	ND	0.52	0.077	ND	0.16	0.024	
56-23-5	Carbon Tetrachloride	ND	0.52	0.074	ND	0.083	0.012	
110-82-7	Cyclohexane	ND	1.0	0.15	ND	0.29	0.044	
78-87-5	1,2-Dichloropropane	ND	0.54	0.066	ND	0.12	0.014	
75-27-4	Bromodichloromethane	ND	0.53	0.077	ND	0.079	0.011	
79-01-6	Trichloroethene	ND	0.53	0.072	ND	0.099	0.013	
123-91-1	1,4-Dioxane	ND	0.53	0.063	ND	0.15	0.017	
80-62-6	Methyl Methacrylate	ND	1.1	0.19	ND	0.27	0.046	
142-82-5	n-Heptane	ND	0.54	0.085	ND	0.13	0.021	
10061-01-5	cis-1,3-Dichloropropene	ND	0.56	0.083	ND	0.12	0.018	
108-10-1	4-Methyl-2-pentanone	ND	0.53	0.073	ND	0.13	0.018	
10061-02-6	trans-1,3-Dichloropropene	ND	0.53	0.11	ND	0.12	0.024	
79-00-5	1,1,2-Trichloroethane	ND	0.54	0.054	ND	0.099	0.0099	
108-88-3	Toluene	ND	0.53	0.065	ND	0.14	0.017	
591-78-6	2-Hexanone	ND	0.54	0.066	ND	0.13	0.016	
124-48-1	Dibromochloromethane	ND	0.54	0.070	ND	0.063	0.0082	
106-93-4	1,2-Dibromoethane	ND	0.54	0.062	ND	0.070	0.0081	
123-86-4	n-Butyl Acetate	ND	0.54	0.073	ND	0.11	0.015	

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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P1806369
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P181207-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Wida Ang Date Analyzed: 12/7/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.54	0.12	ND	0.12	0.026	
127-18-4	Tetrachloroethene	ND	0.53	0.069	ND	0.078	0.010	
108-90-7	Chlorobenzene	ND	0.53	0.071	ND	0.12	0.015	
100-41-4	Ethylbenzene	ND	0.52	0.075	ND	0.12	0.017	
179601-23-1	m,p-Xylenes	ND	1.1	0.14	ND	0.25	0.032	
75-25-2	Bromoform	ND	0.53	0.11	ND	0.051	0.011	
100-42-5	Styrene	ND	0.53	0.086	ND	0.12	0.020	
95-47-6	o-Xylene	ND	0.53	0.077	ND	0.12	0.018	
111-84-2	n-Nonane	ND	0.54	0.089	ND	0.10	0.017	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.53	0.074	ND	0.077	0.011	
98-82-8	Cumene	ND	0.53	0.077	ND	0.11	0.016	
80-56-8	alpha-Pinene	ND	0.52	0.082	ND	0.093	0.015	
103-65-1	n-Propylbenzene	ND	0.54	0.077	ND	0.11	0.016	
622-96-8	4-Ethyltoluene	ND	0.53	0.085	ND	0.11	0.017	
108-67-8	1,3,5-Trimethylbenzene	ND	0.53	0.077	ND	0.11	0.016	
95-63-6	1,2,4-Trimethylbenzene	ND	0.53	0.074	ND	0.11	0.015	
100-44-7	Benzyl Chloride	ND	1.1	0.12	ND	0.21	0.023	
541-73-1	1,3-Dichlorobenzene	ND	0.54	0.080	ND	0.090	0.013	
106-46-7	1,4-Dichlorobenzene	ND	0.54	0.082	ND	0.090	0.014	
95-50-1	1,2-Dichlorobenzene	ND	0.54	0.079	ND	0.090	0.013	
5989-27-5	d-Limonene	ND	0.51	0.11	ND	0.092	0.020	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.52	0.10	ND	0.054	0.010	
120-82-1	1,2,4-Trichlorobenzene	ND	0.53	0.13	ND	0.071	0.018	
91-20-3	Naphthalene	ND	0.51	0.13	ND	0.097	0.025	
87-68-3	Hexachlorobutadiene	ND	0.53	0.11	ND	0.050	0.010	

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: **Environmental Management Services, Inc.**
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Project ID: P1806369

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date(s) Collected: 11/13/18
Analyst: Wida Ang Date(s) Received: 11/19/18
Sample Type: 1.0 L Summa Canister(s) Date(s) Analyzed: 12/7 - 12/8/18
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	P181207-MB	**108**	**98**	**105**	70-130	
Lab Control Sample	P181207-LCS	**108**	**97**	**105**	70-130	
SVE Exhaust	P1806369-001	**115**	**99**	**102**	70-130	
SVE Carbon 1	P1806369-002	**114**	**99**	**103**	70-130	
SVE Carbon 2	P1806369-003	**114**	**99**	**104**	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: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1806369
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P181207-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Wida Ang Date Analyzed: 12/7/18
Sample Type: 1.0 L Summa 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	211	**177**	**84**	53-112	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	**194**	**92**	62-103	
74-87-3	Chloromethane	211	**176**	**83**	51-121	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	211	**182**	**86**	56-111	
75-01-4	Vinyl Chloride	214	**173**	**81**	57-117	
106-99-0	1,3-Butadiene	210	**173**	**82**	53-134	
74-83-9	Bromomethane	212	**175**	**83**	65-110	
75-00-3	Chloroethane	214	**181**	**85**	64-111	
64-17-5	Ethanol	1,020	**835**	**82**	57-124	
75-05-8	Acetonitrile	206	**163**	**79**	57-126	
107-02-8	Acrolein	205	**139**	**68**	62-121	
67-64-1	Acetone	1,060	**746**	**70**	60-113	
75-69-4	Trichlorofluoromethane (CFC 11)	211	**198**	**94**	63-104	
67-63-0	2-Propanol (Isopropyl Alcohol)	413	**360**	**87**	60-124	
107-13-1	Acrylonitrile	207	**173**	**84**	66-125	
75-35-4	1,1-Dichloroethene	218	**181**	**83**	68-107	
75-09-2	Methylene Chloride	217	**176**	**81**	66-105	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	**171**	**79**	63-127	
76-13-1	Trichlorotrifluoroethane (CFC 113)	216	**189**	**88**	59-109	
75-15-0	Carbon Disulfide	218	**188**	**86**	67-109	
156-60-5	trans-1,2-Dichloroethene	214	**182**	**85**	70-115	
75-34-3	1,1-Dichloroethane	216	**186**	**86**	66-106	
1634-04-4	Methyl tert-Butyl Ether	214	**192**	**90**	67-109	
108-05-4	Vinyl Acetate	1,060	**919**	**87**	68-136	
78-93-3	2-Butanone (MEK)	208	**173**	**83**	71-116	

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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1806369
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P181207-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Wida Ang Date Analyzed: 12/7/18
Sample Type: 1.0 L Summa 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	211	**182**	**86**	67-110	
141-78-6	Ethyl Acetate	436	**368**	**84**	64-127	
110-54-3	n-Hexane	216	**195**	**90**	60-115	
67-66-3	Chloroform	217	**191**	**88**	66-105	
109-99-9	Tetrahydrofuran (THF)	216	**177**	**82**	65-110	
107-06-2	1,2-Dichloroethane	215	**201**	**93**	60-110	
71-55-6	1,1,1-Trichloroethane	215	**197**	**92**	64-108	
71-43-2	Benzene	211	**161**	**76**	67-106	
56-23-5	Carbon Tetrachloride	212	**191**	**90**	64-112	
110-82-7	Cyclohexane	416	**353**	**85**	67-110	
78-87-5	1,2-Dichloropropane	216	**185**	**86**	66-112	
75-27-4	Bromodichloromethane	215	**196**	**91**	67-113	
79-01-6	Trichloroethene	213	**188**	**88**	66-108	
123-91-1	1,4-Dioxane	214	**178**	**83**	70-116	
80-62-6	Methyl Methacrylate	431	**377**	**87**	73-118	
142-82-5	n-Heptane	215	**188**	**87**	66-110	
10061-01-5	cis-1,3-Dichloropropene	214	**187**	**87**	75-120	
108-10-1	4-Methyl-2-pentanone	209	**183**	**88**	65-124	
10061-02-6	trans-1,3-Dichloropropene	213	**190**	**89**	77-123	
79-00-5	1,1,2-Trichloroethane	215	**185**	**86**	68-112	
108-88-3	Toluene	212	**174**	**82**	62-111	
591-78-6	2-Hexanone	214	**181**	**85**	59-128	
124-48-1	Dibromochloromethane	213	**187**	**88**	67-123	
106-93-4	1,2-Dibromoethane	216	**186**	**86**	66-122	
123-86-4	n-Butyl Acetate	219	**182**	**83**	64-128	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1806369
Client Project ID: **SVE Performance Monitoring / KUHO-18-010** ALS Sample ID: P181207-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Wida Ang Date Analyzed: 12/7/18
Sample Type: 1.0 L Summa 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	217	**170**	**78**	65-114	
127-18-4	Tetrachloroethene	213	**180**	**85**	55-120	
108-90-7	Chlorobenzene	215	**179**	**83**	61-114	
100-41-4	Ethylbenzene	212	**176**	**83**	64-113	
179601-23-1	m,p-Xylenes	426	**359**	**84**	64-114	
75-25-2	Bromoform	213	**192**	**90**	65-132	
100-42-5	Styrene	212	**176**	**83**	67-124	
95-47-6	o-Xylene	214	**181**	**85**	65-114	
111-84-2	n-Nonane	215	**181**	**84**	64-117	
79-34-5	1,1,2,2-Tetrachloroethane	214	**175**	**82**	66-119	
98-82-8	Cumene	214	**183**	**86**	61-116	
80-56-8	alpha-Pinene	211	**178**	**84**	65-120	
103-65-1	n-Propylbenzene	218	**186**	**85**	63-117	
622-96-8	4-Ethyltoluene	214	**194**	**91**	63-124	
108-67-8	1,3,5-Trimethylbenzene	214	**182**	**85**	60-117	
95-63-6	1,2,4-Trimethylbenzene	215	**189**	**88**	61-122	
100-44-7	Benzyl Chloride	217	**185**	**85**	77-142	
541-73-1	1,3-Dichlorobenzene	216	**191**	**88**	61-125	
106-46-7	1,4-Dichlorobenzene	216	**186**	**86**	59-123	
95-50-1	1,2-Dichlorobenzene	216	**191**	**88**	61-126	
5989-27-5	d-Limonene	211	**174**	**82**	66-124	
96-12-8	1,2-Dibromo-3-chloropropane	209	**185**	**89**	67-138	
120-82-1	1,2,4-Trichlorobenzene	214	**194**	**91**	62-141	
91-20-3	Naphthalene	203	**175**	**86**	62-145	
87-68-3	Hexachlorobutadiene	209	**196**	**94**	49-131	

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.

Calculation of Mass Recovery Per Day and Per Month
SVE system
Kuhlman Electric Corporation
Crystal Springs, MS

OPERATING PARAMETER	UNITS	1,1,1-Trichloroethane	1,1-Dichloroethene	1,4-Dioxane
Constituent concentration	ppmv	**0.007**	**0.029**	**0.67**
enter avg flow rate in ACFM air	cubic ft/min	**301.36**	301.36	301.36
ave flow rate in cubic ft per day	ft3/day	433952	433952	433952
enter avg vapor temperature	degrees F	70	70	70
enter nominal pressure in psig	lb/in2	**0.38**	0.38	0.38
temp in degrees rankin	degrees R	529.67	529.67	529.67
Ru = universal gas constant	psi ft3/(lbmol deg R)	10.73	10.73	10.73
R = specific gas constant air (R=Ru/mw)	(ft3 psi)/(R lbm)	0.37	0.37	0.37
molecular weight of air	lbm/lbmol	29	29	29
molecular weight of constituent	lbm/lbmol	133.4	96.94	88.11
density of air = P/(RT)= (psi R lbm)/(ft3 psi R) =lbm/ft3	lbm/ft3	0.0769	0.0769	0.0769
mass of air recovered per day= flow (ft3/day)*density (lb/ft3)	lbm/day	33389.2	33389.2	33389.2
moles of air recovered per day = mass air/day (lb/day) / mw (lbm/lbmol)	lbmol/ day	1151.35	1151.35	1151.35
moles of constituent recovered per day = ppmv/(10^6)* (lb mol/ day)	lbmol/day	7.59893E-06	3.33892E-05	0.000771406
mass of constituent recovered per day = (lbmol/day) * lbm/lbmol = lb/day	lbm/day	**0.001**	**0.003**	**0.07**
July 2018 Recovery		**0.03**	**0.10**	**2.11**

Calculation of Mass Recovery Per Day and Per Month
SVE system
Kuhlman Electric Corporation
Crystal Springs, MS

OPERATING PARAMETER	UNITS	1,1,1-Trichloroethane	1,1-Dichloroethene	1,4-Dioxane
Constituent concentration	ppmv	**0.006**	**0.029**	**0.72**
enter avg flow rate in ACFM air	cubic ft/min	**299.94**	299.94	299.94
ave flow rate in cubic ft per day	ft3/day	431910	431910	431910
enter avg vapor temperature	degrees F	70	70	70
enter nominal pressure in psig	lb/in2	**0.38**	0.38	0.38
temp in degrees rankin	degrees R	529.67	529.67	529.67
Ru = universal gas constant	psi ft3/(lbmol deg R)	10.73	10.73	10.73
R = specific gas constant air (R=Ru/mw)	(ft3 psi)/(R lbm)	0.37	0.37	0.37
molecular weight of air	lbm/lbmol	29	29	29
molecular weight of constituent	lbm/lbmol	133.4	96.94	88.11
density of air = P/(RT)= (psi R lbm)/(ft3 psi R) =lbm/ft3	lbm/ft3	0.0769	0.0769	0.0769
mass of air recovered per day= flow (ft3/day)*density (lb/ft3)	lbm/day	33232.1	33232.1	33232.1
moles of air recovered per day = mass air/day (lb/day) / mw (lbm/lbmol)	lbmol/ day	1145.93	1145.93	1145.93
moles of constituent recovered per day = ppmv/(10^6)* (lb mol/ day)	lbmol/day	6.9902E-06	3.32321E-05	0.000825073
mass of constituent recovered per day = (lbmol/day) * lbm/lbmol = lb/day	lbm/day	**0.001**	**0.003**	**0.07**
August 2018 Recovery		**0.03**	**0.10**	**2.24**

Calculation of Mass Recovery Per Day and Per Month
SVE system
Kuhlman Electric Corporation
Crystal Springs, MS

OPERATING PARAMETER	UNITS	1,1,1-Trichloroethane	1,1-Dichloroethene	1,4-Dioxane
Constituent concentration	ppmv	**0.006**	**0.029**	**0.72**
enter avg flow rate in ACFM air	cubic ft/min	**297.45**	297.45	297.45
ave flow rate in cubic ft per day	ft3/day	428327	428327	428327
enter avg vapor temperature	degrees F	70	70	70
enter nominal pressure in psig	lb/in2	**0.38**	0.38	0.38
temp in degrees rankin	degrees R	529.67	529.67	529.67
Ru = universal gas constant	psi ft3/(lbmol deg R)	10.73	10.73	10.73
R = specific gas constant air (R=Ru/mw)	(ft3 psi)/(R lbm)	0.37	0.37	0.37
molecular weight of air	lbm/lbmol	29	29	29
molecular weight of constituent	lbm/lbmol	133.4	96.94	88.11
density of air = P/(RT)= (psi R lbm)/(ft3 psi R) =lbm/ft3	lbm/ft3	0.0769	0.0769	0.0769
mass of air recovered per day= flow (ft3/day)*density (lb/ft3)	lbm/day	32956.4	32956.4	32956.4
moles of air recovered per day = mass air/day (lb/day) / mw (lbm/lbmol)	lbmol/ day	1136.43	1136.43	1136.43
moles of constituent recovered per day = ppmv/(10^6)* (lb mol/ day)	lbmol/day	6.93221E-06	3.29564E-05	0.000818228
mass of constituent recovered per day = (lbmol/day) * lbm/lbmol = lb/day	lbm/day	**0.001**	**0.003**	**0.07**
September 2018 Recovery		**0.03**	**0.09**	**2.07**

Calculation of Mass Recovery Per Day and Per Month
SVE system
Kuhlman Electric Corporation
Crystal Springs, MS

OPERATING PARAMETER	UNITS	1,1,1-Trichloroethane	1,1-Dichloroethene	1,4-Dioxane
Constituent concentration	ppmv	**0.006**	**0.029**	**0.72**
enter avg flow rate in ACFM air	cubic ft/min	**296.12**	296.12	296.12
ave flow rate in cubic ft per day	ft3/day	426408	426408	426408
enter avg vapor temperature	degrees F	70	70	70
enter nominal pressure in psig	lb/in2	**0.38**	0.38	0.38
temp in degrees rankin	degrees R	529.67	529.67	529.67
Ru = universal gas constant	psi ft3/(lbmol deg R)	10.73	10.73	10.73
R = specific gas constant air (R=Ru/mw)	(ft3 psi)/(R lbm)	0.37	0.37	0.37
molecular weight of air	lbm/lbmol	29	29	29
molecular weight of constituent	lbm/lbmol	133.4	96.94	88.11
density of air = P/(RT)= (psi R lbm)/(ft3 psi R) =lbm/ft3	lbm/ft3	0.0769	0.0769	0.0769
mass of air recovered per day= flow (ft3/day)*density (lb/ft3)	lbm/day	32808.7	32808.7	32808.7
moles of air recovered per day = mass air/day (lb/day) / mw (lbm/lbmol)	lbmol/ day	1131.34	1131.34	1131.34
moles of constituent recovered per day = ppmv/(10^6)* (lb mol/ day)	lbmol/day	6.90114E-06	3.28087E-05	0.000814561
mass of constituent recovered per day = (lbmol/day) * lbm/lbmol = lb/day	lbm/day	**0.001**	**0.003**	**0.07**
October 2018 Recovery		**0.02**	**0.08**	**1.79**

Calculation of Mass Recovery Per Day and Per Month
SVE system
Kuhlman Electric Corporation
Crystal Springs, MS

OPERATING PARAMETER	UNITS	1,1,1-Trichloroethane	1,1-Dichloroethene	1,4-Dioxane
Constituent concentration	ppmv	**0.001**	**0.002**	**0.02**
enter avg flow rate in ACFM air	cubic ft/min	**302.38**	302.38	302.38
ave flow rate in cubic ft per day	ft3/day	435426	435426	435426
enter avg vapor temperature	degrees F	70	70	70
enter nominal pressure in psig	lb/in2	**0.38**	0.38	0.38
temp in degrees rankin	degrees R	529.67	529.67	529.67
Ru = universal gas constant	psi ft3/(lbmol deg R)	10.73	10.73	10.73
R = specific gas constant air (R=Ru/mw)	(ft3 psi)/(R lbm)	0.37	0.37	0.37
molecular weight of air	lbm/lbmol	29	29	29
molecular weight of constituent	lbm/lbmol	133.4	96.94	88.11
density of air = P/(RT)= (psi R lbm)/(ft3 psi R) =lbm/ft3	lbm/ft3	0.0769	0.0769	0.0769
mass of air recovered per day= flow (ft3/day)*density (lb/ft3)	lbm/day	33502.6	33502.6	33502.6
moles of air recovered per day = mass air/day (lb/day) / mw (lbm/lbmol)	lbmol/ day	1155.26	1155.26	1155.26
moles of constituent recovered per day = ppmv/(10^6)* (lb mol/ day)	lbmol/day	8.66447E-07	2.6571E-06	2.6571E-05
mass of constituent recovered per day = (lbmol/day) * lbm/lbmol = lb/day	lbm/day	**0.000**	**0.000**	**0.00**
November 2018 Recovery		**0.00**	**0.01**	**0.07**

Calculation of Mass Recovery Per Day and Per Month
SVE system
Kuhlman Electric Corporation
Crystal Springs, MS

OPERATING PARAMETER	UNITS	1,1,1-Trichloroethane	1,1-Dichloroethene	1,4-Dioxane
Constituent concentration	ppmv	**0.001**	**0.002**	**0.02**
enter avg flow rate in ACFM air	cubic ft/min	**308.59**	308.59	308.59
ave flow rate in cubic ft per day	ft3/day	444369	444369	444369
enter avg vapor temperature	degrees F	70	70	70
enter nominal pressure in psig	lb/in2	**0.38**	0.38	0.38
temp in degrees rankin	degrees R	529.67	529.67	529.67
Ru = universal gas constant	psi ft3/(lbmol deg R)	10.73	10.73	10.73
R = specific gas constant air (R=Ru/mw)	(ft3 psi)/(R lbm)	0.37	0.37	0.37
molecular weight of air	lbm/lbmol	29	29	29
molecular weight of constituent	lbm/lbmol	133.4	96.94	88.11
density of air = P/(RT)= (psi R lbm)/(ft3 psi R) =lbm/ft3	lbm/ft3	0.0769	0.0769	0.0769
mass of air recovered per day= flow (ft3/day)*density (lb/ft3)	lbm/day	34190.7	34190.7	34190.7
moles of air recovered per day = mass air/day (lb/day) / mw (lbm/lbmol)	lbmol/ day	1178.99	1178.99	1178.99
moles of constituent recovered per day = ppmv/(10^6)* (lb mol/ day)	lbmol/day	8.84243E-07	2.71168E-06	2.71168E-05
mass of constituent recovered per day = (lbmol/day) * lbm/lbmol = lb/day	lbm/day	**0.000**	**0.000**	**0.00**
December 2018 Recovery		**0.00**	**0.01**	**0.07**

Appendix C

Ambient Air Sampling Laboratory

Analytical Results

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

August 20, 2018

Jeremy Van Slyke
Environmental Management Services, Inc.
P.O. Box 15369
Hattiesburg, MS 39404

RE: SVE In Plant Monitoring / KUH0-18-011

Dear Jeremy:

Enclosed are the results of the samples submitted to our laboratory on August 13, 2018. For your reference, these analyses have been assigned our service request number P1804195.

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

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

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 6:19 pm, Aug 24, 2018

Sue Anderson
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: Environmental Management Services, Inc. Service Request No: P1804195
Project: SVE In Plant Monitoring / KUH0-18-011

CASE NARRATIVE

The samples were received intact under chain of custody on August 13, 2018 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 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. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. 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
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1347317
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-005
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272017-8
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: Environmental Management Services, Inc. Service Request: P1804195

Project ID: SVE In Plant Monitoring / KUH0-18-011

Date Received: 8/13/2018

Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans
Air Mon 01-30	P1804195-001	Air	8/7/2018	07:38	1SS00797	-3.12	5.12	X
Air Mon 02-30	P1804195-002	Air	8/7/2018	07:32	1SC01264	-2.24	6.55	X

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

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. P1804195

Company Name & Address (Reporting Information)
Environmental Management Services, Inc.
P.O. Box 15369
Hattiesburg, MS 39404

Project Name: SVE In Plant Monitoring

Project Number: KUHO-18-011

Project Manager: Jeremy Van Slyke

P.O. # / Billing Information: KUHO-18-011 Same As Reporting

Phone: 6015443674 Fax: 6015440504

Email Address for Result Reporting: jvanslyke@env-mgt.com

Sampler (Print & Sign): Jeremy Van Slyke

ALS Contact:

Analysis Method: TO-15

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	TO-15		Comments e.g. Actual Preservative or specific instructions
Air Mon 01-30		8-7-18	0738	15500797	~~OA01048~~ OA01048	30.0	6.5		X		
Air Mon 02-30		8-7-18	0732	ISC01264	OA00252	28.0	5.0		X		

Report Tier Levels - please select

Tier I - Results (Default in not specified) ____ Tier III (Results + QC & Calibration Summaries) ____

Tier II (Results + QC Summaries X 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:
Jeremy Van Slyke	8.8.18	1655	Fed Ex		
Relinquished by: (Signature) Fed Ex	Date:	Time:	Received by: (Signature)	Date: 8/13/18	Time: 0930

Cooler / Blank Temperature ____ °C

5 of 19

ALS Environmental

Sample Acceptance Check Form

Client: Environmental Management Services, Inc. Work order: P1804195

Project: SVE In Plant Monitoring / KUH0-18-011

Sample(s) received on: 8/13/18 Date opened: 8/13/18 by: AARON GONZALEZ

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 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
P1804195-001.01	1.0 L Source Silonite Canister					
P1804195-002.01	1.0 L Source 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: **Environmental Management Services, Inc.**
Client Sample ID: **Air Mon 01-30** ALS Project ID: P1804195
Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P1804195-001

Test Code: EPA TO-15 Date Collected: 8/7/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/13/18
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1SS00797

Initial Pressure (psig): -3.12 Final Pressure (psig): 5.12

Container Dilution Factor: 1.71

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**1,100**	22	5.6	**630**	13	3.2	**D**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.3**	2.2	0.37	**0.47**	0.45	0.075	
74-87-3	Chloromethane	**0.93**	2.1	0.37	**0.45**	1.0	0.18	**J**
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	2.2	0.36	ND	0.31	0.051	
75-01-4	Vinyl Chloride	ND	2.2	0.24	ND	0.87	0.095	
106-99-0	1,3-Butadiene	ND	2.3	0.38	ND	1.0	0.17	
74-83-9	Bromomethane	ND	2.1	0.32	ND	0.55	0.082	
75-00-3	Chloroethane	ND	2.2	0.28	ND	0.83	0.11	
64-17-5	Ethanol	**1,100**	23	1.6	**600**	12	0.84	
75-05-8	Acetonitrile	ND	2.3	0.56	ND	1.4	0.33	
107-02-8	Acrolein	**0.95**	4.7	0.64	**0.42**	2.1	0.28	**J**
67-64-1	Acetone	**380**	23	5.1	**160**	9.5	2.2	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.1**	2.3	0.35	**0.20**	0.40	0.062	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**31**	9.0	0.94	**13**	3.7	0.38	
107-13-1	Acrylonitrile	ND	2.3	0.47	ND	1.0	0.22	
75-35-4	1,1-Dichloroethene	ND	2.3	0.32	ND	0.57	0.080	
75-09-2	Methylene Chloride	ND	2.3	0.64	ND	0.65	0.18	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	2.3	0.31	ND	0.72	0.098	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**0.41**	2.3	0.32	**0.054**	0.30	0.042	**J**
75-15-0	Carbon Disulfide	ND	4.7	0.68	ND	1.5	0.22	
156-60-5	trans-1,2-Dichloroethene	ND	2.3	0.32	ND	0.58	0.080	
75-34-3	1,1-Dichloroethane	ND	2.2	0.33	ND	0.54	0.082	
1634-04-4	Methyl tert-Butyl Ether	ND	2.3	0.27	ND	0.64	0.075	
108-05-4	Vinyl Acetate	ND	23	5.1	ND	6.4	1.5	
78-93-3	2-Butanone (MEK)	**30**	4.7	0.47	**10**	1.6	0.16	

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.
D = The reported result is from a dilution.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **Air Mon 01-30** ALS Project ID: P1804195
Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P1804195-001

Test Code: EPA TO-15 Date Collected: 8/7/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/13/18
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1SS00797

Initial Pressure (psig): -3.12 Final Pressure (psig): 5.12

Container Dilution Factor: 1.71

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	2.3	0.32	ND	0.57	0.081	
141-78-6	Ethyl Acetate	**8.4**	4.7	1.2	**2.3**	1.3	0.33	
110-54-3	n-Hexane	**7.5**	2.3	0.47	**2.1**	0.64	0.13	
67-66-3	Chloroform	ND	2.3	0.30	ND	0.46	0.062	
109-99-9	Tetrahydrofuran (THF)	**9.0**	2.3	0.29	**3.1**	0.77	0.097	
107-06-2	1,2-Dichloroethane	ND	2.3	0.25	ND	0.56	0.062	
71-55-6	1,1,1-Trichloroethane	ND	2.3	0.28	ND	0.42	0.052	
71-43-2	Benzene	**0.53**	2.3	0.33	**0.17**	0.71	0.10	**J**
56-23-5	Carbon Tetrachloride	**0.38**	2.3	0.32	**0.061**	0.36	0.050	**J**
110-82-7	Cyclohexane	**1.5**	4.7	0.64	**0.45**	1.4	0.19	**J**
78-87-5	1,2-Dichloropropane	ND	2.3	0.28	ND	0.49	0.061	
75-27-4	Bromodichloromethane	ND	2.3	0.33	ND	0.34	0.049	
79-01-6	Trichloroethene	ND	2.3	0.31	ND	0.42	0.057	
123-91-1	1,4-Dioxane	**0.66**	2.3	0.27	**0.18**	0.63	0.075	**J**
80-62-6	Methyl Methacrylate	ND	4.7	0.81	ND	1.1	0.20	
142-82-5	n-Heptane	**2.1**	2.3	0.36	**0.50**	0.55	0.089	**J**
10061-01-5	cis-1,3-Dichloropropene	ND	2.4	0.35	ND	0.53	0.078	
108-10-1	4-Methyl-2-pentanone	**20**	2.3	0.31	**5.0**	0.55	0.076	
10061-02-6	trans-1,3-Dichloropropene	ND	2.3	0.47	ND	0.50	0.10	
79-00-5	1,1,2-Trichloroethane	ND	2.3	0.23	ND	0.42	0.042	
108-88-3	Toluene	**94**	2.3	0.28	**25**	0.60	0.074	
591-78-6	2-Hexanone	ND	2.3	0.28	ND	0.55	0.069	
124-48-1	Dibromochloromethane	ND	2.3	0.30	ND	0.27	0.035	
106-93-4	1,2-Dibromoethane	ND	2.3	0.27	ND	0.29	0.035	
123-86-4	n-Butyl Acetate	**55**	2.3	0.31	**12**	0.48	0.066	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Air Mon 01-30** ALS Project ID: P1804195
Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P1804195-001

Test Code: EPA TO-15 Date Collected: 8/7/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/13/18
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1SS00797

Initial Pressure (psig): -3.12 Final Pressure (psig): 5.12

Container Dilution Factor: 1.71

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	**1.0**	2.3	0.51	**0.22**	0.49	0.11	**J**
127-18-4	Tetrachloroethene	**0.56**	2.3	0.29	**0.082**	0.33	0.044	**J**
108-90-7	Chlorobenzene	ND	2.3	0.30	ND	0.49	0.066	
100-41-4	Ethylbenzene	**25**	2.3	0.32	**5.7**	0.52	0.074	
179601-23-1	m,p-Xylenes	**110**	4.7	0.60	**26**	1.1	0.14	
75-25-2	Bromoform	ND	2.3	0.47	ND	0.22	0.045	
100-42-5	Styrene	**2.2**	2.3	0.37	**0.52**	0.53	0.086	**J**
95-47-6	o-Xylene	**59**	2.3	0.33	**14**	0.52	0.076	
111-84-2	n-Nonane	**1.4**	2.3	0.38	**0.26**	0.43	0.073	**J**
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.3	0.32	ND	0.33	0.046	
98-82-8	Cumene	**1.5**	2.3	0.33	**0.31**	0.46	0.067	**J**
80-56-8	alpha-Pinene	**6.2**	2.2	0.35	**1.1**	0.40	0.063	
103-65-1	n-Propylbenzene	**4.6**	2.3	0.33	**0.94**	0.46	0.067	
622-96-8	4-Ethyltoluene	**6.8**	2.2	0.36	**1.4**	0.45	0.074	
108-67-8	1,3,5-Trimethylbenzene	**6.9**	2.2	0.33	**1.4**	0.45	0.067	
95-63-6	1,2,4-Trimethylbenzene	**28**	2.3	0.32	**5.8**	0.46	0.064	
100-44-7	Benzyl Chloride	ND	4.7	0.51	ND	0.91	0.099	
541-73-1	1,3-Dichlorobenzene	ND	2.3	0.34	ND	0.38	0.057	
106-46-7	1,4-Dichlorobenzene	**0.74**	2.3	0.35	**0.12**	0.38	0.058	**J**
95-50-1	1,2-Dichlorobenzene	ND	2.3	0.34	ND	0.38	0.056	
5989-27-5	d-Limonene	**5.3**	2.1	0.47	**0.94**	0.38	0.084	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.3	0.43	ND	0.23	0.044	
120-82-1	1,2,4-Trichlorobenzene	**0.71**	2.4	0.56	**0.096**	0.32	0.075	**J**
91-20-3	Naphthalene	**20**	2.3	0.56	**3.7**	0.43	0.11	
87-68-3	Hexachlorobutadiene	ND	2.3	0.47	ND	0.21	0.044	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
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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: **Environmental Management Services, Inc.**
Client Sample ID: **Air Mon 02-30** ALS Project ID: P1804195
Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P1804195-002

Test Code: EPA TO-15 Date Collected: 8/7/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/13/18
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC01264

Initial Pressure (psig): -2.24 Final Pressure (psig): 6.55

Container Dilution Factor: 1.71

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**240**	2.2	0.56	**140**	1.3	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.2**	2.2	0.37	**0.45**	0.45	0.075	
74-87-3	Chloromethane	**0.86**	2.1	0.37	**0.42**	1.0	0.18	**J**
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	2.2	0.36	ND	0.31	0.051	
75-01-4	Vinyl Chloride	ND	2.2	0.24	ND	0.87	0.095	
106-99-0	1,3-Butadiene	ND	2.3	0.38	ND	1.0	0.17	
74-83-9	Bromomethane	ND	2.1	0.32	ND	0.55	0.082	
75-00-3	Chloroethane	ND	2.2	0.28	ND	0.83	0.11	
64-17-5	Ethanol	**690**	23	1.6	**370**	12	0.84	
75-05-8	Acetonitrile	ND	2.3	0.56	ND	1.4	0.33	
107-02-8	Acrolein	ND	4.7	0.64	ND	2.1	0.28	
67-64-1	Acetone	**550**	23	5.1	**230**	9.5	2.2	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.1**	2.3	0.35	**0.19**	0.40	0.062	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**8.8**	9.0	0.94	**3.6**	3.7	0.38	**J**
107-13-1	Acrylonitrile	ND	2.3	0.47	ND	1.0	0.22	
75-35-4	1,1-Dichloroethene	ND	2.3	0.32	ND	0.57	0.080	
75-09-2	Methylene Chloride	ND	2.3	0.64	ND	0.65	0.18	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	2.3	0.31	ND	0.72	0.098	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**0.40**	2.3	0.32	**0.052**	0.30	0.042	**J**
75-15-0	Carbon Disulfide	ND	4.7	0.68	ND	1.5	0.22	
156-60-5	trans-1,2-Dichloroethene	ND	2.3	0.32	ND	0.58	0.080	
75-34-3	1,1-Dichloroethane	ND	2.2	0.33	ND	0.54	0.082	
1634-04-4	Methyl tert-Butyl Ether	ND	2.3	0.27	ND	0.64	0.075	
108-05-4	Vinyl Acetate	ND	23	5.1	ND	6.4	1.5	
78-93-3	2-Butanone (MEK)	**35**	4.7	0.47	**12**	1.6	0.16	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Air Mon 02-30** ALS Project ID: P1804195
Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P1804195-002

Test Code: EPA TO-15 Date Collected: 8/7/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/13/18
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC01264

Initial Pressure (psig): -2.24 Final Pressure (psig): 6.55

Container Dilution Factor: 1.71

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	2.3	0.32	ND	0.57	0.081	
141-78-6	Ethyl Acetate	**5.3**	4.7	1.2	**1.5**	1.3	0.33	
110-54-3	n-Hexane	**8.7**	2.3	0.47	**2.5**	0.64	0.13	
67-66-3	Chloroform	ND	2.3	0.30	ND	0.46	0.062	
109-99-9	Tetrahydrofuran (THF)	**22**	2.3	0.29	**7.6**	0.77	0.097	
107-06-2	1,2-Dichloroethane	ND	2.3	0.25	ND	0.56	0.062	
71-55-6	1,1,1-Trichloroethane	ND	2.3	0.28	ND	0.42	0.052	
71-43-2	Benzene	**0.40**	2.3	0.33	**0.13**	0.71	0.10	**J**
56-23-5	Carbon Tetrachloride	**0.34**	2.3	0.32	**0.054**	0.36	0.050	**J**
110-82-7	Cyclohexane	**1.6**	4.7	0.64	**0.46**	1.4	0.19	**J**
78-87-5	1,2-Dichloropropane	ND	2.3	0.28	ND	0.49	0.061	
75-27-4	Bromodichloromethane	ND	2.3	0.33	ND	0.34	0.049	
79-01-6	Trichloroethene	ND	2.3	0.31	ND	0.42	0.057	
123-91-1	1,4-Dioxane	ND	2.3	0.27	ND	0.63	0.075	
80-62-6	Methyl Methacrylate	ND	4.7	0.81	ND	1.1	0.20	
142-82-5	n-Heptane	**1.4**	2.3	0.36	**0.35**	0.55	0.089	**J**
10061-01-5	cis-1,3-Dichloropropene	ND	2.4	0.35	ND	0.53	0.078	
108-10-1	4-Methyl-2-pentanone	**12**	2.3	0.31	**3.0**	0.55	0.076	
10061-02-6	trans-1,3-Dichloropropene	ND	2.3	0.47	ND	0.50	0.10	
79-00-5	1,1,2-Trichloroethane	ND	2.3	0.23	ND	0.42	0.042	
108-88-3	Toluene	**27**	2.3	0.28	**7.1**	0.60	0.074	
591-78-6	2-Hexanone	ND	2.3	0.28	ND	0.55	0.069	
124-48-1	Dibromochloromethane	ND	2.3	0.30	ND	0.27	0.035	
106-93-4	1,2-Dibromoethane	ND	2.3	0.27	ND	0.29	0.035	
123-86-4	n-Butyl Acetate	**88**	2.3	0.31	**18**	0.48	0.066	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **Air Mon 02-30** ALS Project ID: P1804195

Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P1804195-002

Test Code: EPA TO-15 Date Collected: 8/7/18

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 8/13/18

Analyst: Raneem Sahtah Date Analyzed: 8/15/18

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)

Test Notes:

Container ID: 1SC01264

Initial Pressure (psig): -2.24 Final Pressure (psig): 6.55

Container Dilution Factor: 1.71

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	**0.62**	2.3	0.51	**0.13**	0.49	0.11	**J**
127-18-4	Tetrachloroethene	**0.46**	2.3	0.29	**0.068**	0.33	0.044	**J**
108-90-7	Chlorobenzene	ND	2.3	0.30	ND	0.49	0.066	
100-41-4	Ethylbenzene	**21**	2.3	0.32	**4.9**	0.52	0.074	
179601-23-1	m,p-Xylenes	**98**	4.7	0.60	**23**	1.1	0.14	
75-25-2	Bromoform	ND	2.3	0.47	ND	0.22	0.045	
100-42-5	Styrene	**1.7**	2.3	0.37	**0.39**	0.53	0.086	**J**
95-47-6	o-Xylene	**46**	2.3	0.33	**11**	0.52	0.076	
111-84-2	n-Nonane	**1.1**	2.3	0.38	**0.20**	0.43	0.073	**J**
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.3	0.32	ND	0.33	0.046	
98-82-8	Cumene	**1.0**	2.3	0.33	**0.21**	0.46	0.067	**J**
80-56-8	alpha-Pinene	**5.0**	2.2	0.35	**0.90**	0.40	0.063	
103-65-1	n-Propylbenzene	**3.1**	2.3	0.33	**0.63**	0.46	0.067	
622-96-8	4-Ethyltoluene	**4.5**	2.2	0.36	**0.92**	0.45	0.074	
108-67-8	1,3,5-Trimethylbenzene	**5.0**	2.2	0.33	**1.0**	0.45	0.067	
95-63-6	1,2,4-Trimethylbenzene	**21**	2.3	0.32	**4.2**	0.46	0.064	
100-44-7	Benzyl Chloride	ND	4.7	0.51	ND	0.91	0.099	
541-73-1	1,3-Dichlorobenzene	ND	2.3	0.34	ND	0.38	0.057	
106-46-7	1,4-Dichlorobenzene	ND	2.3	0.35	ND	0.38	0.058	
95-50-1	1,2-Dichlorobenzene	ND	2.3	0.34	ND	0.38	0.056	
5989-27-5	d-Limonene	**2.7**	2.1	0.47	**0.48**	0.38	0.084	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.3	0.43	ND	0.23	0.044	
120-82-1	1,2,4-Trichlorobenzene	ND	2.4	0.56	ND	0.32	0.075	
91-20-3	Naphthalene	**20**	2.3	0.56	**3.9**	0.43	0.11	
87-68-3	Hexachlorobutadiene	ND	2.3	0.47	ND	0.21	0.044	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P1804195
Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P180815-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	ND	0.52	0.13	ND	0.30	0.076	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.52	0.087	ND	0.11	0.018	
74-87-3	Chloromethane	ND	0.50	0.086	ND	0.24	0.042	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.51	0.084	ND	0.073	0.012	
75-01-4	Vinyl Chloride	ND	0.52	0.057	ND	0.20	0.022	
106-99-0	1,3-Butadiene	ND	0.53	0.088	ND	0.24	0.040	
74-83-9	Bromomethane	ND	0.50	0.074	ND	0.13	0.019	
75-00-3	Chloroethane	ND	0.51	0.066	ND	0.19	0.025	
64-17-5	Ethanol	ND	5.3	0.37	ND	2.8	0.20	
75-05-8	Acetonitrile	ND	0.53	0.13	ND	0.32	0.077	
107-02-8	Acrolein	ND	1.1	0.15	ND	0.48	0.065	
67-64-1	Acetone	ND	5.3	1.2	ND	2.2	0.51	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.53	0.081	ND	0.094	0.014	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	0.22	ND	0.85	0.090	
107-13-1	Acrylonitrile	ND	0.53	0.11	ND	0.24	0.051	
75-35-4	1,1-Dichloroethene	ND	0.53	0.074	ND	0.13	0.019	
75-09-2	Methylene Chloride	ND	0.53	0.15	ND	0.15	0.043	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.53	0.072	ND	0.17	0.023	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.53	0.076	ND	0.069	0.0099	
75-15-0	Carbon Disulfide	ND	1.1	0.16	ND	0.35	0.051	
156-60-5	trans-1,2-Dichloroethene	ND	0.54	0.074	ND	0.14	0.019	
75-34-3	1,1-Dichloroethane	ND	0.51	0.078	ND	0.13	0.019	
1634-04-4	Methyl tert-Butyl Ether	ND	0.54	0.063	ND	0.15	0.017	
108-05-4	Vinyl Acetate	ND	5.3	1.2	ND	1.5	0.34	
78-93-3	2-Butanone (MEK)	ND	1.1	0.11	ND	0.37	0.037	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **Method Blank** ALS Project ID: P1804195

Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P180815-MB

Test Code:	EPA TO-15	Date Collected:	NA
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13	Date Received:	NA
Analyst:	Raneem Sahtah	Date Analyzed:	8/15/18
Sample Type:	1.0 L Silonite Summa Canister	Volume(s) Analyzed:	1.00 Liter(s)
Test Notes:			

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.53	0.075	ND	0.13	0.019	
141-78-6	Ethyl Acetate	ND	1.1	0.28	ND	0.31	0.078	
110-54-3	n-Hexane	ND	0.53	0.11	ND	0.15	0.031	
67-66-3	Chloroform	ND	0.53	0.071	ND	0.11	0.015	
109-99-9	Tetrahydrofuran (THF)	ND	0.53	0.067	ND	0.18	0.023	
107-06-2	1,2-Dichloroethane	ND	0.53	0.059	ND	0.13	0.015	
71-55-6	1,1,1-Trichloroethane	ND	0.54	0.066	ND	0.099	0.012	
71-43-2	Benzene	ND	0.53	0.077	ND	0.17	0.024	
56-23-5	Carbon Tetrachloride	ND	0.53	0.074	ND	0.084	0.012	
110-82-7	Cyclohexane	ND	1.1	0.15	ND	0.32	0.044	
78-87-5	1,2-Dichloropropane	ND	0.53	0.066	ND	0.11	0.014	
75-27-4	Bromodichloromethane	ND	0.53	0.077	ND	0.079	0.011	
79-01-6	Trichloroethene	ND	0.53	0.072	ND	0.099	0.013	
123-91-1	1,4-Dioxane	ND	0.53	0.063	ND	0.15	0.017	
80-62-6	Methyl Methacrylate	ND	1.1	0.19	ND	0.27	0.046	
142-82-5	n-Heptane	ND	0.53	0.085	ND	0.13	0.021	
10061-01-5	cis-1,3-Dichloropropene	ND	0.56	0.083	ND	0.12	0.018	
108-10-1	4-Methyl-2-pentanone	ND	0.53	0.073	ND	0.13	0.018	
10061-02-6	trans-1,3-Dichloropropene	ND	0.53	0.11	ND	0.12	0.024	
79-00-5	1,1,2-Trichloroethane	ND	0.53	0.054	ND	0.097	0.0099	
108-88-3	Toluene	ND	0.53	0.065	ND	0.14	0.017	
591-78-6	2-Hexanone	ND	0.53	0.066	ND	0.13	0.016	
124-48-1	Dibromochloromethane	ND	0.53	0.070	ND	0.062	0.0082	
106-93-4	1,2-Dibromoethane	ND	0.53	0.062	ND	0.069	0.0081	
123-86-4	n-Butyl Acetate	ND	0.53	0.073	ND	0.11	0.015	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **Method Blank** ALS Project ID: P1804195

Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P180815-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA

Analyst: Raneem Sahtah Date Analyzed: 8/15/18

Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.53	0.12	ND	0.11	0.026	
127-18-4	Tetrachloroethene	ND	0.53	0.069	ND	0.078	0.010	
108-90-7	Chlorobenzene	ND	0.53	0.071	ND	0.12	0.015	
100-41-4	Ethylbenzene	ND	0.53	0.075	ND	0.12	0.017	
179601-23-1	m,p-Xylenes	ND	1.1	0.14	ND	0.25	0.032	
75-25-2	Bromoform	ND	0.53	0.11	ND	0.051	0.011	
100-42-5	Styrene	ND	0.53	0.086	ND	0.12	0.020	
95-47-6	o-Xylene	ND	0.53	0.077	ND	0.12	0.018	
111-84-2	n-Nonane	ND	0.53	0.089	ND	0.10	0.017	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.53	0.074	ND	0.077	0.011	
98-82-8	Cumene	ND	0.53	0.077	ND	0.11	0.016	
80-56-8	alpha-Pinene	ND	0.52	0.082	ND	0.093	0.015	
103-65-1	n-Propylbenzene	ND	0.53	0.077	ND	0.11	0.016	
622-96-8	4-Ethyltoluene	ND	0.52	0.085	ND	0.11	0.017	
108-67-8	1,3,5-Trimethylbenzene	ND	0.52	0.077	ND	0.11	0.016	
95-63-6	1,2,4-Trimethylbenzene	ND	0.53	0.074	ND	0.11	0.015	
100-44-7	Benzyl Chloride	ND	1.1	0.12	ND	0.21	0.023	
541-73-1	1,3-Dichlorobenzene	ND	0.54	0.080	ND	0.090	0.013	
106-46-7	1,4-Dichlorobenzene	ND	0.53	0.082	ND	0.088	0.014	
95-50-1	1,2-Dichlorobenzene	ND	0.54	0.079	ND	0.090	0.013	
5989-27-5	d-Limonene	ND	0.50	0.11	ND	0.090	0.020	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.53	0.10	ND	0.055	0.010	
120-82-1	1,2,4-Trichlorobenzene	ND	0.55	0.13	ND	0.074	0.018	
91-20-3	Naphthalene	ND	0.53	0.13	ND	0.10	0.025	
87-68-3	Hexachlorobutadiene	ND	0.53	0.11	ND	0.050	0.010	

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: **Environmental Management Services, Inc.**
Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Project ID: P1804195

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date(s) Collected: 8/7/18
Analyst: Raneem Sahtah Date(s) Received: 8/13/18
Sample Type: 1.0 L Silonite Summa Canister(s) / 1.0 L Summa Canister(s) Date(s) Analyzed: 8/15/18
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	P180815-MB	**100**	**104**	**102**	70-130	
Lab Control Sample	P180815-LCS	**97**	**103**	**104**	70-130	
Air Mon 01-30	P1804195-001	**99**	**102**	**104**	70-130	
Air Mon 02-30	P1804195-002	**100**	**101**	**106**	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: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1804195
Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P180815-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Silonite Summa 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	210	**149**	**71**	54-133	
75-71-8	Dichlorodifluoromethane (CFC 12)	213	**178**	**84**	64-115	
74-87-3	Chloromethane	210	**186**	**89**	47-140	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	211	**203**	**96**	60-112	
75-01-4	Vinyl Chloride	211	**208**	**99**	63-127	
106-99-0	1,3-Butadiene	210	**234**	**111**	57-149	
74-83-9	Bromomethane	210	**188**	**90**	63-132	
75-00-3	Chloroethane	210	**177**	**84**	68-129	
64-17-5	Ethanol	1,040	**966**	**93**	62-131	
75-05-8	Acetonitrile	210	**168**	**80**	56-136	
107-02-8	Acrolein	209	**166**	**79**	60-132	
67-64-1	Acetone	1,050	**921**	**88**	63-124	
75-69-4	Trichlorofluoromethane (CFC 11)	208	**178**	**86**	65-113	
67-63-0	2-Propanol (Isopropyl Alcohol)	422	**374**	**89**	62-135	
107-13-1	Acrylonitrile	212	**197**	**93**	68-138	
75-35-4	1,1-Dichloroethene	213	**182**	**85**	72-118	
75-09-2	Methylene Chloride	213	**187**	**88**	67-116	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	212	**159**	**75**	61-143	
76-13-1	Trichlorotrifluoroethane (CFC 113)	214	**181**	**85**	68-113	
75-15-0	Carbon Disulfide	214	**173**	**81**	68-120	
156-60-5	trans-1,2-Dichloroethene	214	**202**	**94**	71-125	
75-34-3	1,1-Dichloroethane	212	**172**	**81**	68-118	
1634-04-4	Methyl tert-Butyl Ether	213	**171**	**80**	60-123	
108-05-4	Vinyl Acetate	1,060	**1130**	**107**	73-135	
78-93-3	2-Butanone (MEK)	212	**204**	**96**	70-129	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1804195
Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P180815-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Silonite Summa 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	212	**180**	**85**	69-121	
141-78-6	Ethyl Acetate	426	**440**	**103**	66-140	
110-54-3	n-Hexane	213	**184**	**86**	61-124	
67-66-3	Chloroform	212	**190**	**90**	69-113	
109-99-9	Tetrahydrofuran (THF)	212	**165**	**78**	66-121	
107-06-2	1,2-Dichloroethane	212	**188**	**89**	62-120	
71-55-6	1,1,1-Trichloroethane	212	**182**	**86**	65-116	
71-43-2	Benzene	213	**192**	**90**	66-111	
56-23-5	Carbon Tetrachloride	214	**188**	**88**	64-122	
110-82-7	Cyclohexane	425	**384**	**90**	69-115	
78-87-5	1,2-Dichloropropane	212	**175**	**83**	69-121	
75-27-4	Bromodichloromethane	214	**199**	**93**	69-123	
79-01-6	Trichloroethene	212	**198**	**93**	69-112	
123-91-1	1,4-Dioxane	213	**211**	**99**	74-123	
80-62-6	Methyl Methacrylate	424	**414**	**98**	75-125	
142-82-5	n-Heptane	213	**182**	**85**	68-118	
10061-01-5	cis-1,3-Dichloropropene	208	**206**	**99**	74-129	
108-10-1	4-Methyl-2-pentanone	213	**200**	**94**	66-138	
10061-02-6	trans-1,3-Dichloropropene	213	**213**	**100**	75-130	
79-00-5	1,1,2-Trichloroethane	212	**199**	**94**	73-117	
108-88-3	Toluene	211	**190**	**90**	66-114	
591-78-6	2-Hexanone	211	**203**	**96**	58-146	
124-48-1	Dibromochloromethane	212	**211**	**100**	67-130	
106-93-4	1,2-Dibromoethane	211	**225**	**107**	70-127	
123-86-4	n-Butyl Acetate	215	**222**	**103**	62-140	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1804195
Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P180815-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 8/15/18
Sample Type: 1.0 L Silonite Summa 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	212	**181**	**85**	65-121	
127-18-4	Tetrachloroethene	212	**197**	**93**	62-119	
108-90-7	Chlorobenzene	212	**193**	**91**	66-115	
100-41-4	Ethylbenzene	212	**198**	**93**	69-117	
179601-23-1	m,p-Xylenes	424	**414**	**98**	67-117	
75-25-2	Bromoform	212	**223**	**105**	67-135	
100-42-5	Styrene	211	**219**	**104**	70-128	
95-47-6	o-Xylene	211	**204**	**97**	67-118	
111-84-2	n-Nonane	212	**183**	**86**	61-127	
79-34-5	1,1,2,2-Tetrachloroethane	212	**210**	**99**	70-125	
98-82-8	Cumene	212	**206**	**97**	68-116	
80-56-8	alpha-Pinene	213	**201**	**94**	69-122	
103-65-1	n-Propylbenzene	214	**215**	**100**	70-118	
622-96-8	4-Ethyltoluene	211	**225**	**107**	69-124	
108-67-8	1,3,5-Trimethylbenzene	212	**199**	**94**	65-117	
95-63-6	1,2,4-Trimethylbenzene	212	**247**	**117**	67-124	
100-44-7	Benzyl Chloride	212	**246**	**116**	75-142	
541-73-1	1,3-Dichlorobenzene	212	**235**	**111**	70-124	
106-46-7	1,4-Dichlorobenzene	214	**216**	**101**	63-124	
95-50-1	1,2-Dichlorobenzene	214	**246**	**115**	66-125	
5989-27-5	d-Limonene	213	**232**	**109**	64-135	
96-12-8	1,2-Dibromo-3-chloropropane	210	**232**	**110**	73-136	
120-82-1	1,2,4-Trichlorobenzene	218	**258**	**118**	70-141	
91-20-3	Naphthalene	209	**275**	**132**	71-146	
87-68-3	Hexachlorobutadiene	212	**216**	**102**	63-126	

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.

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

September 26, 2018

Jeremy Van Slyke
Environmental Management Services, Inc.
P.O. Box 15369
Hattiesburg, MS 39404

RE: SVE In Plant Monitoring / KUH0-18-011

Dear Jeremy:

Enclosed are the results of the sample submitted to our laboratory on September 12, 2018. For your reference, these analyses have been assigned our service request number P1804739.

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

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

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 1:03 pm, Sep 26, 2018

Sue Anderson
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: Environmental Management Services, Inc. Service Request No: P1804739
Project: SVE In Plant Monitoring / KUH0-18-011

CASE NARRATIVE

The sample was received intact under chain of custody on September 12, 2018 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.

Volatile Organic Compound Analysis

The sample was 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. 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. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. 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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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1347317
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-005
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272018-9
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: Environmental Management Services, Inc. Service Request: P1804739

Project ID: SVE In Plant Monitoring / KUH0-18-011

Date Received: 9/12/2018

Time Received: 09:45

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans
Air Mon 01-30A	P1804739-001	Air	9/6/2018	07:49	1SC00232	-4.05	6.01	X

Air - Chain of Custody Record & Analytical Service Request

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: P1804737

Company Name & Address (Reporting Information)
Environmental Management Services Inc
P.O. Box 15369
Hattiesburg MS 39404

Project Name: SVE In Plant Monitoring

Project Number: KUHO-18-011

Project Manager: Jeremy Van Slyke

P.O. # / Billing Information: KUHO-18-011 Same As Reporting

Phone: 6015443674

Fax: 6015440504

Email Address for Result Reporting: jvanslyke@env-mgt.com

Sampler (Print & Sign): Jeremy Van Slyke

ALS Contact:

Analysis Method: TO-15

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: TO-15		Comments e.g. Actual Preservative or specific instructions
Air Mon 01-30A		9-6-18	0749	1SC00232	0A01049	-30 Hg	-9.5 Hg		X		

Report Tier Levels - please select

Tier I - Results (Default in not specified) _____
Tier II (Results + QC Summaries) X
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:
Jeremy Van Slyke	9.7.18	1255	Fed Ex		
Fed Ex			Ana Gonzalez	9/12/18	0745

Cooler / Blank Temperature _____ °C

ALS Environmental

Sample Acceptance Check Form

Client: Environmental Management Services, Inc. Work order: P1804739

Project: SVE In Plant Monitoring / KUH0-18-011

Sample(s) received on: 9/12/18 Date opened: 9/12/18 by: AARON GONZALEZ

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 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
P1804739-001.01	1.0 L Source 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: **Environmental Management Services, Inc.**
Client Sample ID: **Air Mon 01-30A** ALS Project ID: P1804739
Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P1804739-001

Test Code: EPA TO-15 Date Collected: 9/6/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 9/12/18
Analyst: Anusha Bayyarapu Date Analyzed: 9/25/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC00232

Initial Pressure (psig): -4.05 Final Pressure (psig): 6.01

Container Dilution Factor: 1.94

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**470**	2.5	0.63	**270**	1.5	0.37	
75-71-8	Dichlorodifluoromethane (CFC 12)	**1.8**	2.5	0.42	**0.36**	0.51	0.085	**J**
74-87-3	Chloromethane	**1.8**	2.4	0.42	**0.86**	1.2	0.20	**J**
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	2.5	0.41	ND	0.35	0.058	
75-01-4	Vinyl Chloride	ND	2.6	0.28	ND	1.0	0.11	
106-99-0	1,3-Butadiene	ND	2.5	0.43	ND	1.1	0.19	
74-83-9	Bromomethane	ND	2.4	0.36	ND	0.62	0.092	
75-00-3	Chloroethane	ND	2.5	0.32	ND	0.94	0.12	
64-17-5	Ethanol	**550**	25	1.8	**290**	13	0.95	
75-05-8	Acetonitrile	**1.7**	2.5	0.63	**1.0**	1.5	0.38	**J**
107-02-8	Acrolein	**4.6**	4.9	0.73	**2.0**	2.1	0.32	**J**
67-64-1	Acetone	**270**	26	5.8	**110**	11	2.5	
75-69-4	Trichlorofluoromethane (CFC 11)	**0.93**	2.6	0.39	**0.16**	0.46	0.070	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**20**	10	1.1	**8.0**	4.1	0.43	
107-13-1	Acrylonitrile	ND	2.5	0.53	ND	1.2	0.25	
75-35-4	1,1-Dichloroethene	ND	2.6	0.36	ND	0.66	0.091	
75-09-2	Methylene Chloride	ND	2.6	0.73	ND	0.75	0.21	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	2.6	0.35	ND	0.82	0.11	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**0.41**	2.6	0.37	**0.053**	0.34	0.048	**J**
75-15-0	Carbon Disulfide	**1.2**	5.3	0.78	**0.38**	1.7	0.25	**J**
156-60-5	trans-1,2-Dichloroethene	ND	2.6	0.36	ND	0.65	0.091	
75-34-3	1,1-Dichloroethane	ND	2.5	0.38	ND	0.62	0.094	
1634-04-4	Methyl tert-Butyl Ether	ND	2.6	0.31	ND	0.73	0.085	
108-05-4	Vinyl Acetate	**9.8**	26	5.8	**2.8**	7.3	1.7	**J**
78-93-3	2-Butanone (MEK)	**13**	4.9	0.53	**4.5**	1.6	0.18	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Air Mon 01-30A** ALS Project ID: P1804739
Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P1804739-001

Test Code: EPA TO-15 Date Collected: 9/6/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 9/12/18
Analyst: Anusha Bayyarapu Date Analyzed: 9/25/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC00232

Initial Pressure (psig): -4.05 Final Pressure (psig): 6.01

Container Dilution Factor: 1.94

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	2.6	0.36	ND	0.65	0.092	
141-78-6	Ethyl Acetate	**4.8**	5.3	1.4	**1.3**	1.5	0.38	**J**
110-54-3	n-Hexane	**1.8**	2.6	0.53	**0.50**	0.74	0.15	**J**
67-66-3	Chloroform	ND	2.6	0.34	ND	0.54	0.071	
109-99-9	Tetrahydrofuran (THF)	**0.33**	2.6	0.32	**0.11**	0.87	0.11	**J**
107-06-2	1,2-Dichloroethane	ND	2.6	0.29	ND	0.64	0.071	
71-55-6	1,1,1-Trichloroethane	ND	2.6	0.32	ND	0.48	0.059	
71-43-2	Benzene	**2.3**	2.5	0.37	**0.73**	0.79	0.12	**J**
56-23-5	Carbon Tetrachloride	ND	2.5	0.36	ND	0.40	0.057	
110-82-7	Cyclohexane	**4.2**	4.9	0.73	**1.2**	1.4	0.21	**J**
78-87-5	1,2-Dichloropropane	ND	2.6	0.32	ND	0.57	0.069	
75-27-4	Bromodichloromethane	ND	2.6	0.37	ND	0.38	0.056	
79-01-6	Trichloroethene	ND	2.6	0.35	ND	0.48	0.065	
123-91-1	1,4-Dioxane	ND	2.6	0.31	ND	0.71	0.085	
80-62-6	Methyl Methacrylate	ND	5.3	0.92	ND	1.3	0.23	
142-82-5	n-Heptane	**4.3**	2.6	0.41	**1.0**	0.64	0.10	
10061-01-5	cis-1,3-Dichloropropene	ND	2.7	0.40	ND	0.60	0.089	
108-10-1	4-Methyl-2-pentanone	**33**	2.6	0.35	**8.0**	0.63	0.086	
10061-02-6	trans-1,3-Dichloropropene	ND	2.6	0.53	ND	0.57	0.12	
79-00-5	1,1,2-Trichloroethane	ND	2.6	0.26	ND	0.48	0.048	
108-88-3	Toluene	**74**	2.6	0.32	**20**	0.68	0.084	
591-78-6	2-Hexanone	ND	2.6	0.32	ND	0.64	0.078	
124-48-1	Dibromochloromethane	ND	2.6	0.34	ND	0.31	0.040	
106-93-4	1,2-Dibromoethane	ND	2.6	0.30	ND	0.34	0.039	
123-86-4	n-Butyl Acetate	**33**	2.6	0.35	**6.9**	0.55	0.075	

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ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **Air Mon 01-30A** ALS Project ID: P1804739
Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P1804739-001

Test Code: EPA TO-15 Date Collected: 9/6/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 9/12/18
Analyst: Anusha Bayyarapu Date Analyzed: 9/25/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SC00232

Initial Pressure (psig): -4.05 Final Pressure (psig): 6.01

Container Dilution Factor: 1.94

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	**5.5**	2.6	0.58	**1.2**	0.56	0.12	
127-18-4	Tetrachloroethene	ND	2.6	0.33	ND	0.38	0.049	
108-90-7	Chlorobenzene	ND	2.6	0.34	ND	0.56	0.075	
100-41-4	Ethylbenzene	**22**	2.5	0.36	**5.1**	0.58	0.084	
179601-23-1	m,p-Xylenes	**99**	5.3	0.68	**23**	1.2	0.16	
75-25-2	Bromoform	ND	2.6	0.53	ND	0.25	0.052	
100-42-5	Styrene	**1.1**	2.6	0.42	**0.26**	0.60	0.098	**J**
95-47-6	o-Xylene	**64**	2.6	0.37	**15**	0.59	0.086	
111-84-2	n-Nonane	**11**	2.6	0.43	**2.1**	0.50	0.082	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.6	0.36	ND	0.37	0.052	
98-82-8	Cumene	**2.8**	2.6	0.37	**0.56**	0.52	0.076	
80-56-8	alpha-Pinene	**8.6**	2.5	0.40	**1.5**	0.45	0.071	
103-65-1	n-Propylbenzene	**7.6**	2.6	0.37	**1.5**	0.53	0.076	
622-96-8	4-Ethyltoluene	**9.4**	2.6	0.41	**1.9**	0.52	0.084	
108-67-8	1,3,5-Trimethylbenzene	**13**	2.6	0.37	**2.6**	0.52	0.076	
95-63-6	1,2,4-Trimethylbenzene	**39**	2.6	0.36	**8.0**	0.52	0.073	
100-44-7	Benzyl Chloride	ND	5.3	0.58	ND	1.0	0.11	
541-73-1	1,3-Dichlorobenzene	ND	2.6	0.39	ND	0.44	0.065	
106-46-7	1,4-Dichlorobenzene	**0.43**	2.6	0.40	**0.071**	0.44	0.066	**J**
95-50-1	1,2-Dichlorobenzene	ND	2.6	0.38	ND	0.44	0.064	
5989-27-5	d-Limonene	**4.9**	2.5	0.53	**0.88**	0.44	0.096	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5	0.49	ND	0.26	0.050	
120-82-1	1,2,4-Trichlorobenzene	ND	2.6	0.63	ND	0.35	0.085	
91-20-3	Naphthalene	**8.4**	2.5	0.63	**1.6**	0.47	0.12	
87-68-3	Hexachlorobutadiene	ND	2.6	0.53	ND	0.24	0.050	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
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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: **Environmental Management Services, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P1804739
Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P180925-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: Anusha Bayyarapu Date Analyzed: 9/25/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	ND	0.52	0.13	ND	0.30	0.076	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.52	0.087	ND	0.11	0.018	
74-87-3	Chloromethane	ND	0.50	0.086	ND	0.24	0.042	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.51	0.084	ND	0.073	0.012	
75-01-4	Vinyl Chloride	ND	0.53	0.057	ND	0.21	0.022	
106-99-0	1,3-Butadiene	ND	0.52	0.088	ND	0.24	0.040	
74-83-9	Bromomethane	ND	0.50	0.074	ND	0.13	0.019	
75-00-3	Chloroethane	ND	0.51	0.066	ND	0.19	0.025	
64-17-5	Ethanol	ND	5.1	0.37	ND	2.7	0.20	
75-05-8	Acetonitrile	ND	0.52	0.13	ND	0.31	0.077	
107-02-8	Acrolein	ND	1.0	0.15	ND	0.44	0.065	
67-64-1	Acetone	ND	5.4	1.2	ND	2.3	0.51	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.53	0.081	ND	0.094	0.014	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	0.22	ND	0.85	0.090	
107-13-1	Acrylonitrile	ND	0.52	0.11	ND	0.24	0.051	
75-35-4	1,1-Dichloroethene	ND	0.54	0.074	ND	0.14	0.019	
75-09-2	Methylene Chloride	ND	0.54	0.15	ND	0.16	0.043	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.53	0.072	ND	0.17	0.023	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.53	0.076	ND	0.069	0.0099	
75-15-0	Carbon Disulfide	ND	1.1	0.16	ND	0.35	0.051	
156-60-5	trans-1,2-Dichloroethene	ND	0.53	0.074	ND	0.13	0.019	
75-34-3	1,1-Dichloroethane	ND	0.52	0.078	ND	0.13	0.019	
1634-04-4	Methyl tert-Butyl Ether	ND	0.54	0.063	ND	0.15	0.017	
108-05-4	Vinyl Acetate	ND	5.3	1.2	ND	1.5	0.34	
78-93-3	2-Butanone (MEK)	ND	1.0	0.11	ND	0.34	0.037	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **Method Blank** ALS Project ID: P1804739

Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P180925-MB

Test Code: EPA TO-15 Date Collected: NA

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

Analyst: Anusha Bayyarapu Date Analyzed: 9/25/18

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.53	0.075	ND	0.13	0.019	
141-78-6	Ethyl Acetate	ND	1.1	0.28	ND	0.31	0.078	
110-54-3	n-Hexane	ND	0.54	0.11	ND	0.15	0.031	
67-66-3	Chloroform	ND	0.54	0.071	ND	0.11	0.015	
109-99-9	Tetrahydrofuran (THF)	ND	0.53	0.067	ND	0.18	0.023	
107-06-2	1,2-Dichloroethane	ND	0.53	0.059	ND	0.13	0.015	
71-55-6	1,1,1-Trichloroethane	ND	0.54	0.066	ND	0.099	0.012	
71-43-2	Benzene	ND	0.52	0.077	ND	0.16	0.024	
56-23-5	Carbon Tetrachloride	ND	0.52	0.074	ND	0.083	0.012	
110-82-7	Cyclohexane	ND	1.0	0.15	ND	0.29	0.044	
78-87-5	1,2-Dichloropropane	ND	0.54	0.066	ND	0.12	0.014	
75-27-4	Bromodichloromethane	ND	0.53	0.077	ND	0.079	0.011	
79-01-6	Trichloroethene	ND	0.53	0.072	ND	0.099	0.013	
123-91-1	1,4-Dioxane	ND	0.53	0.063	ND	0.15	0.017	
80-62-6	Methyl Methacrylate	ND	1.1	0.19	ND	0.27	0.046	
142-82-5	n-Heptane	ND	0.54	0.085	ND	0.13	0.021	
10061-01-5	cis-1,3-Dichloropropene	ND	0.56	0.083	ND	0.12	0.018	
108-10-1	4-Methyl-2-pentanone	ND	0.53	0.073	ND	0.13	0.018	
10061-02-6	trans-1,3-Dichloropropene	ND	0.53	0.11	ND	0.12	0.024	
79-00-5	1,1,2-Trichloroethane	ND	0.54	0.054	ND	0.099	0.0099	
108-88-3	Toluene	ND	0.53	0.065	ND	0.14	0.017	
591-78-6	2-Hexanone	ND	0.54	0.066	ND	0.13	0.016	
124-48-1	Dibromochloromethane	ND	0.54	0.070	ND	0.063	0.0082	
106-93-4	1,2-Dibromoethane	ND	0.54	0.062	ND	0.070	0.0081	
123-86-4	n-Butyl Acetate	ND	0.54	0.073	ND	0.11	0.015	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **Method Blank** ALS Project ID: P1804739

Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P180925-MB

Test Code: EPA TO-15 Date Collected: NA

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

Analyst: Anusha Bayyarapu Date Analyzed: 9/25/18

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.54	0.12	ND	0.12	0.026	
127-18-4	Tetrachloroethene	ND	0.53	0.069	ND	0.078	0.010	
108-90-7	Chlorobenzene	ND	0.53	0.071	ND	0.12	0.015	
100-41-4	Ethylbenzene	ND	0.52	0.075	ND	0.12	0.017	
179601-23-1	m,p-Xylenes	ND	1.1	0.14	ND	0.25	0.032	
75-25-2	Bromoform	ND	0.53	0.11	ND	0.051	0.011	
100-42-5	Styrene	ND	0.53	0.086	ND	0.12	0.020	
95-47-6	o-Xylene	ND	0.53	0.077	ND	0.12	0.018	
111-84-2	n-Nonane	ND	0.54	0.089	ND	0.10	0.017	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.53	0.074	ND	0.077	0.011	
98-82-8	Cumene	ND	0.53	0.077	ND	0.11	0.016	
80-56-8	alpha-Pinene	ND	0.52	0.082	ND	0.093	0.015	
103-65-1	n-Propylbenzene	ND	0.54	0.077	ND	0.11	0.016	
622-96-8	4-Ethyltoluene	ND	0.53	0.085	ND	0.11	0.017	
108-67-8	1,3,5-Trimethylbenzene	ND	0.53	0.077	ND	0.11	0.016	
95-63-6	1,2,4-Trimethylbenzene	ND	0.53	0.074	ND	0.11	0.015	
100-44-7	Benzyl Chloride	ND	1.1	0.12	ND	0.21	0.023	
541-73-1	1,3-Dichlorobenzene	ND	0.54	0.080	ND	0.090	0.013	
106-46-7	1,4-Dichlorobenzene	ND	0.54	0.082	ND	0.090	0.014	
95-50-1	1,2-Dichlorobenzene	ND	0.54	0.079	ND	0.090	0.013	
5989-27-5	d-Limonene	ND	0.51	0.11	ND	0.092	0.020	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.52	0.10	ND	0.054	0.010	
120-82-1	1,2,4-Trichlorobenzene	ND	0.53	0.13	ND	0.071	0.018	
91-20-3	Naphthalene	ND	0.51	0.13	ND	0.097	0.025	
87-68-3	Hexachlorobutadiene	ND	0.53	0.11	ND	0.050	0.010	

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: **Environmental Management Services, Inc.**
Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Project ID: P1804739

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date(s) Collected: 9/6/18
Analyst: Anusha Bayyarapu Date(s) Received: 9/12/18
Sample Type: 1.0 L Summa Canister(s) Date(s) Analyzed: 9/25/18
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	P180925-MB	**94**	**96**	**107**	70-130	
Lab Control Sample	P180925-LCS	**90**	**94**	**109**	70-130	
Air Mon 01-30A	P1804739-001	**89**	**90**	**113**	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: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1804739
Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P180925-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: Anusha Bayyarapu Date Analyzed: 9/25/18
Sample Type: 1.0 L Summa 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	211	**162**	**77**	54-133	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	**146**	**70**	64-115	
74-87-3	Chloromethane	211	**148**	**70**	47-140	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	211	**144**	**68**	60-112	
75-01-4	Vinyl Chloride	214	**152**	**71**	63-127	
106-99-0	1,3-Butadiene	210	**150**	**71**	57-149	
74-83-9	Bromomethane	212	**160**	**75**	63-132	
75-00-3	Chloroethane	214	**154**	**72**	68-129	
64-17-5	Ethanol	1,020	**780**	**76**	62-131	
75-05-8	Acetonitrile	206	**153**	**74**	56-136	
107-02-8	Acrolein	205	**163**	**80**	60-132	
67-64-1	Acetone	1,060	**704**	**66**	63-124	
75-69-4	Trichlorofluoromethane (CFC 11)	211	**149**	**71**	65-113	
67-63-0	2-Propanol (Isopropyl Alcohol)	413	**331**	**80**	62-135	
107-13-1	Acrylonitrile	207	**178**	**86**	68-138	
75-35-4	1,1-Dichloroethene	218	**186**	**85**	72-118	
75-09-2	Methylene Chloride	217	**176**	**81**	67-116	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	**200**	**93**	61-143	
76-13-1	Trichlorotrifluoroethane (CFC 113)	216	**172**	**80**	68-113	
75-15-0	Carbon Disulfide	218	**182**	**83**	68-120	
156-60-5	trans-1,2-Dichloroethene	214	**179**	**84**	71-125	
75-34-3	1,1-Dichloroethane	216	**162**	**75**	68-118	
1634-04-4	Methyl tert-Butyl Ether	214	**170**	**79**	60-123	
108-05-4	Vinyl Acetate	1,060	**886**	**84**	73-135	
78-93-3	2-Butanone (MEK)	208	**169**	**81**	70-129	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1804739
Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P180925-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: Anusha Bayyarapu Date Analyzed: 9/25/18
Sample Type: 1.0 L Summa 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	211	**164**	**78**	69-121	
141-78-6	Ethyl Acetate	436	**357**	**82**	66-140	
110-54-3	n-Hexane	216	**140**	**65**	61-124	
67-66-3	Chloroform	217	**163**	**75**	69-113	
109-99-9	Tetrahydrofuran (THF)	216	**180**	**83**	66-121	
107-06-2	1,2-Dichloroethane	215	**151**	**70**	62-120	
71-55-6	1,1,1-Trichloroethane	215	**179**	**83**	65-116	
71-43-2	Benzene	211	**169**	**80**	66-111	
56-23-5	Carbon Tetrachloride	212	**183**	**86**	64-122	
110-82-7	Cyclohexane	416	**346**	**83**	69-115	
78-87-5	1,2-Dichloropropane	216	**182**	**84**	69-121	
75-27-4	Bromodichloromethane	215	**187**	**87**	69-123	
79-01-6	Trichloroethene	213	**174**	**82**	69-112	
123-91-1	1,4-Dioxane	214	**187**	**87**	74-123	
80-62-6	Methyl Methacrylate	431	**383**	**89**	75-125	
142-82-5	n-Heptane	215	**173**	**80**	68-118	
10061-01-5	cis-1,3-Dichloropropene	214	**202**	**94**	74-129	
108-10-1	4-Methyl-2-pentanone	209	**198**	**95**	66-138	
10061-02-6	trans-1,3-Dichloropropene	213	**198**	**93**	75-130	
79-00-5	1,1,2-Trichloroethane	215	**189**	**88**	73-117	
108-88-3	Toluene	212	**156**	**74**	66-114	
591-78-6	2-Hexanone	214	**171**	**80**	58-146	
124-48-1	Dibromochloromethane	213	**185**	**87**	67-130	
106-93-4	1,2-Dibromoethane	216	**181**	**84**	70-127	
123-86-4	n-Butyl Acetate	219	**199**	**91**	62-140	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1804739
Client Project ID: **SVE In Plant Monitoring / KUH0-18-011** ALS Sample ID: P180925-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: Anusha Bayyarapu Date Analyzed: 9/25/18
Sample Type: 1.0 L Summa 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	217	**166**	**76**	65-121	
127-18-4	Tetrachloroethene	213	**168**	**79**	62-119	
108-90-7	Chlorobenzene	215	**162**	**75**	66-115	
100-41-4	Ethylbenzene	212	**165**	**78**	69-117	
179601-23-1	m,p-Xylenes	426	**328**	**77**	67-117	
75-25-2	Bromoform	213	**198**	**93**	67-135	
100-42-5	Styrene	212	**186**	**88**	70-128	
95-47-6	o-Xylene	214	**168**	**79**	67-118	
111-84-2	n-Nonane	215	**172**	**80**	61-127	
79-34-5	1,1,2,2-Tetrachloroethane	214	**175**	**82**	70-125	
98-82-8	Cumene	214	**169**	**79**	68-116	
80-56-8	alpha-Pinene	211	**180**	**85**	69-122	
103-65-1	n-Propylbenzene	218	**174**	**80**	70-118	
622-96-8	4-Ethyltoluene	214	**181**	**85**	69-124	
108-67-8	1,3,5-Trimethylbenzene	214	**168**	**79**	65-117	
95-63-6	1,2,4-Trimethylbenzene	215	**177**	**82**	67-124	
100-44-7	Benzyl Chloride	217	**190**	**88**	75-142	
541-73-1	1,3-Dichlorobenzene	216	**182**	**84**	70-124	
106-46-7	1,4-Dichlorobenzene	216	**178**	**82**	63-124	
95-50-1	1,2-Dichlorobenzene	216	**184**	**85**	66-125	
5989-27-5	d-Limonene	211	**181**	**86**	64-135	
96-12-8	1,2-Dibromo-3-chloropropane	209	**208**	**100**	73-136	
120-82-1	1,2,4-Trichlorobenzene	214	**196**	**92**	70-141	
91-20-3	Naphthalene	203	**179**	**88**	71-146	
87-68-3	Hexachlorobutadiene	209	**193**	**92**	63-126	

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.

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

LABORATORY REPORT

December 21, 2018

Jeremy Van Slyke
Environmental Management Services, Inc.
P.O. Box 15369
Hattiesburg, MS 39404

RE: SVE In Plant Monitoring / KUHO-18-011

Dear Jeremy:

Enclosed are the results of the samples submitted to our laboratory on December 5, 2018. For your reference, these analyses have been assigned our service request number P1806645.

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

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

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 10:51 am, Dec 21, 2018

Sue Anderson
Project Manager

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

Client: Environmental Management Services, Inc. Service Request No: P1806645
Project: SVE In Plant Monitoring / KUHO-18-011

CASE NARRATIVE

The samples were received intact under chain of custody on December 5, 2018 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 and 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. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. 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
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1521096
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-005
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272018-9
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: Environmental Management Services, Inc. Service Request: P1806645

Project ID: SVE In Plant Monitoring / KUHO-18-011

Date Received: 12/5/2018

Time Received: 13:00

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans
Air Mon 01-31	P1806645-001	Air	11/28/2018	07:28	1SC00575	-3.88	5.96	X
Air Mon 02-31	P1806645-002	Air	11/28/2018	07:22	1SS00921	-4.76	5.64	X

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

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: R1806645

Company Name & Address (Reporting Information)
Environmental Management Services, Inc
Po Box 15369
Hattiesburg, MS 39404

Project Name: SVE In Plant Monitoring

Project Number: KUHO-18-011

Project Manager: Jeremy Van Slyke

P.O. # / Billing Information: KUHO-18-011 Same As Reporting

Phone: 601 544 3674 Fax: 6015440504

Email Address for Result Reporting: jvanslyke@env-mgt.com

Sampler (Print & Sign): Jeremy Van Slyke

ALS Contact:

Analysis Method

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	TO-15		Comments e.g. Actual Preservative or specific instructions
Air Mon 01-31		11.28.18	0728	ISC00575	0A00847	-27.0	-8.5	1L	X		
Air Mon 02-31		11.28.18	0722	ISS00921	0A01784	-30.0	-13.0	1L	X		

5 of 25

Report Tier Levels - please select
Tier I - Results (Default in not specified) ____
Tier II (Results + QC Summaries X
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:
Jeremy Van Slyke	11.29.18	1640	Fed Ex		
Relinquished by: (Signature) Fed Ex	Date:	Time:	Received by: (Signature)	Date: 12/5/18	Time: 1500

Cooler / Blank Temperature ____ °C

ALS Environmental

Sample Acceptance Check Form

Client: Environmental Management Services, Inc. Work order: P1806645

Project: SVE In Plant Monitoring / KUHO-18-011

Sample(s) received on: 12/5/18 Date opened: 12/5/18 by: AARON GONZALEZ

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 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
P1806645-001.01	1.0 L Source Can					
P1806645-002.01	1.0 L Source Silonite Canister					

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: **Environmental Management Services, Inc.**
Client Sample ID: **Air Mon 01-31** ALS Project ID: P1806645
Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Sample ID: P1806645-001

Test Code: EPA TO-15 Date Collected: 11/28/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/5/18
Analyst: Lusine Hakobyan Date Analyzed: 12/19 - 12/20/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1SC00575

Initial Pressure (psig): -3.88 Final Pressure (psig): 5.96

Container Dilution Factor: 1.91

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**520**	25	6.2	**300**	14	3.6	**D**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.2**	2.5	0.42	**0.45**	0.50	0.084	**J**
74-87-3	Chloromethane	**0.89**	2.4	0.41	**0.43**	1.2	0.20	**J**
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	2.4	0.40	ND	0.35	0.057	
75-01-4	Vinyl Chloride	ND	2.5	0.27	ND	0.99	0.11	
106-99-0	1,3-Butadiene	ND	2.5	0.42	ND	1.1	0.19	
74-83-9	Bromomethane	ND	2.4	0.35	ND	0.62	0.091	
75-00-3	Chloroethane	ND	2.4	0.32	ND	0.92	0.12	
64-17-5	Ethanol	**590**	24	1.8	**310**	13	0.94	
75-05-8	Acetonitrile	**1.2**	2.5	0.62	**0.72**	1.5	0.37	**J**
107-02-8	Acrolein	**4.1**	4.8	0.72	**1.8**	2.1	0.31	**J**
67-64-1	Acetone	**2,300**	26	5.7	**970**	11	2.4	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.1**	2.5	0.39	**0.20**	0.45	0.069	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**100**	10	1.1	**42**	4.1	0.43	
107-13-1	Acrylonitrile	ND	2.5	0.53	ND	1.1	0.24	
75-35-4	1,1-Dichloroethene	ND	2.6	0.35	ND	0.65	0.089	
75-09-2	Methylene Chloride	**0.72**	2.6	0.72	**0.21**	0.74	0.21	**J**
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	2.5	0.34	ND	0.81	0.11	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**0.46**	2.5	0.36	**0.060**	0.33	0.047	**J**
75-15-0	Carbon Disulfide	**1.3**	5.3	0.76	**0.43**	1.7	0.25	**J**
156-60-5	trans-1,2-Dichloroethene	ND	2.5	0.35	ND	0.64	0.089	
75-34-3	1,1-Dichloroethane	ND	2.5	0.37	ND	0.61	0.092	
1634-04-4	Methyl tert-Butyl Ether	ND	2.6	0.30	ND	0.72	0.083	
108-05-4	Vinyl Acetate	ND	25	5.7	ND	7.2	1.6	
78-93-3	2-Butanone (MEK)	**16**	4.8	0.53	**5.3**	1.6	0.18	

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.
D = The reported result is from a dilution.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Environmental Management Services, Inc.**
Client Sample ID: **Air Mon 01-31** ALS Project ID: P1806645
Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Sample ID: P1806645-001

Test Code: EPA TO-15 Date Collected: 11/28/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/5/18
Analyst: Lusine Hakobyan Date Analyzed: 12/19 - 12/20/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1SC00575

Initial Pressure (psig): -3.88 Final Pressure (psig): 5.96

Container Dilution Factor: 1.91

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	2.5	0.36	ND	0.64	0.090	
141-78-6	Ethyl Acetate	**17**	5.3	1.3	**4.8**	1.5	0.37	
110-54-3	n-Hexane	**3.9**	2.6	0.53	**1.1**	0.73	0.15	
67-66-3	Chloroform	ND	2.6	0.34	ND	0.53	0.069	
109-99-9	Tetrahydrofuran (THF)	**0.87**	2.5	0.32	**0.30**	0.86	0.11	**J**
107-06-2	1,2-Dichloroethane	**0.53**	2.5	0.28	**0.13**	0.63	0.070	**J**
71-55-6	1,1,1-Trichloroethane	ND	2.6	0.32	ND	0.47	0.058	
71-43-2	Benzene	**0.91**	2.5	0.37	**0.29**	0.78	0.12	**J**
56-23-5	Carbon Tetrachloride	**0.36**	2.5	0.35	**0.057**	0.39	0.056	**J**
110-82-7	Cyclohexane	**1.4**	4.8	0.72	**0.40**	1.4	0.21	**J**
78-87-5	1,2-Dichloropropane	ND	2.6	0.32	ND	0.56	0.068	
75-27-4	Bromodichloromethane	ND	2.5	0.37	ND	0.38	0.055	
79-01-6	Trichloroethene	ND	2.5	0.34	ND	0.47	0.064	
123-91-1	1,4-Dioxane	ND	2.5	0.30	ND	0.70	0.084	
80-62-6	Methyl Methacrylate	ND	5.3	0.91	ND	1.3	0.22	
142-82-5	n-Heptane	**1.2**	2.6	0.41	**0.29**	0.63	0.099	**J**
10061-01-5	cis-1,3-Dichloropropene	ND	2.7	0.40	ND	0.59	0.087	
108-10-1	4-Methyl-2-pentanone	**9.4**	2.5	0.35	**2.3**	0.62	0.085	
10061-02-6	trans-1,3-Dichloropropene	ND	2.5	0.53	ND	0.56	0.12	
79-00-5	1,1,2-Trichloroethane	ND	2.6	0.26	ND	0.47	0.047	
108-88-3	Toluene	**170**	2.5	0.31	**46**	0.67	0.082	
591-78-6	2-Hexanone	**0.43**	2.6	0.32	**0.11**	0.63	0.077	**J**
124-48-1	Dibromochloromethane	ND	2.6	0.33	ND	0.30	0.039	
106-93-4	1,2-Dibromoethane	ND	2.6	0.30	ND	0.34	0.039	
123-86-4	n-Butyl Acetate	**200**	2.6	0.35	**42**	0.54	0.073	

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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **Air Mon 01-31** ALS Project ID: P1806645
Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Sample ID: P1806645-001

Test Code: EPA TO-15 Date Collected: 11/28/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/5/18
Analyst: Lusine Hakobyan Date Analyzed: 12/19 - 12/20/18
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1SC00575

Initial Pressure (psig): -3.88 Final Pressure (psig): 5.96

Container Dilution Factor: 1.91

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	2.6	0.57	ND	0.55	0.12	
127-18-4	Tetrachloroethene	**5.2**	2.5	0.33	**0.76**	0.37	0.049	
108-90-7	Chlorobenzene	ND	2.5	0.34	ND	0.55	0.074	
100-41-4	Ethylbenzene	**16**	2.5	0.36	**3.7**	0.57	0.082	
179601-23-1	m,p-Xylenes	**76**	5.3	0.67	**17**	1.2	0.15	
75-25-2	Bromoform	ND	2.5	0.53	ND	0.24	0.051	
100-42-5	Styrene	ND	2.5	0.41	ND	0.59	0.096	
95-47-6	o-Xylene	**26**	2.5	0.37	**6.0**	0.58	0.085	
111-84-2	n-Nonane	**1.1**	2.6	0.42	**0.22**	0.49	0.081	**J**
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.5	0.35	ND	0.37	0.051	
98-82-8	Cumene	**0.80**	2.5	0.37	**0.16**	0.51	0.075	**J**
80-56-8	alpha-Pinene	ND	2.5	0.39	ND	0.45	0.070	
103-65-1	n-Propylbenzene	**2.3**	2.6	0.37	**0.47**	0.52	0.075	**J**
622-96-8	4-Ethyltoluene	**3.1**	2.5	0.41	**0.64**	0.51	0.083	
108-67-8	1,3,5-Trimethylbenzene	**4.0**	2.5	0.37	**0.81**	0.51	0.075	
95-63-6	1,2,4-Trimethylbenzene	**11**	2.5	0.35	**2.3**	0.51	0.072	
100-44-7	Benzyl Chloride	ND	5.3	0.57	ND	1.0	0.11	
541-73-1	1,3-Dichlorobenzene	ND	2.6	0.38	ND	0.43	0.064	
106-46-7	1,4-Dichlorobenzene	ND	2.6	0.39	ND	0.43	0.065	
95-50-1	1,2-Dichlorobenzene	ND	2.6	0.38	ND	0.43	0.063	
5989-27-5	d-Limonene	ND	2.4	0.53	ND	0.44	0.094	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5	0.48	ND	0.26	0.049	
120-82-1	1,2,4-Trichlorobenzene	ND	2.5	0.62	ND	0.34	0.084	
91-20-3	Naphthalene	ND	2.4	0.62	ND	0.46	0.12	
87-68-3	Hexachlorobutadiene	ND	2.5	0.53	ND	0.24	0.049	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Air Mon 02-31** ALS Project ID: P1806645
Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Sample ID: P1806645-002

Test Code: EPA TO-15 Date Collected: 11/28/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/5/18
Analyst: Lusine Hakobyan Date Analyzed: 12/19/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SS00921

Initial Pressure (psig): -4.76 Final Pressure (psig): 5.64

Container Dilution Factor: 2.05

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**200**	2.7	0.67	**110**	1.5	0.39	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.2**	2.7	0.45	**0.44**	0.54	0.090	**J**
74-87-3	Chloromethane	**0.92**	2.6	0.44	**0.44**	1.2	0.21	**J**
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	2.6	0.43	ND	0.37	0.062	
75-01-4	Vinyl Chloride	ND	2.7	0.29	ND	1.1	0.11	
106-99-0	1,3-Butadiene	ND	2.7	0.45	ND	1.2	0.20	
74-83-9	Bromomethane	ND	2.6	0.38	ND	0.66	0.098	
75-00-3	Chloroethane	ND	2.6	0.34	ND	0.99	0.13	
64-17-5	Ethanol	**430**	26	1.9	**230**	14	1.0	
75-05-8	Acetonitrile	**0.96**	2.7	0.67	**0.57**	1.6	0.40	**J**
107-02-8	Acrolein	**2.0**	5.1	0.77	**0.88**	2.2	0.34	**J**
67-64-1	Acetone	**1,900**	28	6.2	**810**	12	2.6	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.1**	2.7	0.42	**0.20**	0.48	0.074	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**120**	11	1.1	**49**	4.4	0.46	
107-13-1	Acrylonitrile	ND	2.7	0.56	ND	1.2	0.26	
75-35-4	1,1-Dichloroethene	ND	2.8	0.38	ND	0.70	0.096	
75-09-2	Methylene Chloride	**2.3**	2.8	0.77	**0.66**	0.80	0.22	**J**
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	2.7	0.37	ND	0.87	0.12	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**0.47**	2.7	0.39	**0.061**	0.35	0.051	**J**
75-15-0	Carbon Disulfide	**1.8**	5.6	0.82	**0.58**	1.8	0.26	**J**
156-60-5	trans-1,2-Dichloroethene	ND	2.7	0.38	ND	0.69	0.096	
75-34-3	1,1-Dichloroethane	ND	2.7	0.40	ND	0.66	0.099	
1634-04-4	Methyl tert-Butyl Ether	ND	2.8	0.32	ND	0.77	0.090	
108-05-4	Vinyl Acetate	ND	27	6.2	ND	7.7	1.7	
78-93-3	2-Butanone (MEK)	**14**	5.1	0.56	**4.9**	1.7	0.19	

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.

Client: **Environmental Management Services, Inc.**
Client Sample ID: **Air Mon 02-31** ALS Project ID: P1806645
Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Sample ID: P1806645-002

Test Code: EPA TO-15 Date Collected: 11/28/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/5/18
Analyst: Lusine Hakobyan Date Analyzed: 12/19/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SS00921

Initial Pressure (psig): -4.76 Final Pressure (psig): 5.64

Container Dilution Factor: 2.05

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	2.7	0.38	ND	0.69	0.097	
141-78-6	Ethyl Acetate	**20**	5.6	1.4	**5.5**	1.6	0.40	
110-54-3	n-Hexane	**4.1**	2.8	0.56	**1.2**	0.79	0.16	
67-66-3	Chloroform	ND	2.8	0.36	ND	0.57	0.075	
109-99-9	Tetrahydrofuran (THF)	**0.81**	2.7	0.34	**0.27**	0.92	0.12	**J**
107-06-2	1,2-Dichloroethane	**3.7**	2.7	0.30	**0.91**	0.67	0.075	
71-55-6	1,1,1-Trichloroethane	ND	2.8	0.34	ND	0.51	0.062	
71-43-2	Benzene	**1.1**	2.7	0.39	**0.35**	0.83	0.12	**J**
56-23-5	Carbon Tetrachloride	ND	2.7	0.38	ND	0.42	0.060	
110-82-7	Cyclohexane	**8.8**	5.1	0.77	**2.6**	1.5	0.22	
78-87-5	1,2-Dichloropropane	ND	2.8	0.34	ND	0.60	0.073	
75-27-4	Bromodichloromethane	ND	2.7	0.39	ND	0.41	0.059	
79-01-6	Trichloroethene	ND	2.7	0.37	ND	0.51	0.069	
123-91-1	1,4-Dioxane	ND	2.7	0.32	ND	0.75	0.090	
80-62-6	Methyl Methacrylate	ND	5.6	0.97	ND	1.4	0.24	
142-82-5	n-Heptane	**1.2**	2.8	0.44	**0.30**	0.68	0.11	**J**
10061-01-5	cis-1,3-Dichloropropene	ND	2.9	0.43	ND	0.63	0.094	
108-10-1	4-Methyl-2-pentanone	**9.7**	2.7	0.37	**2.4**	0.66	0.091	
10061-02-6	trans-1,3-Dichloropropene	ND	2.7	0.56	ND	0.60	0.12	
79-00-5	1,1,2-Trichloroethane	ND	2.8	0.28	ND	0.51	0.051	
108-88-3	Toluene	**56**	2.7	0.33	**15**	0.72	0.088	
591-78-6	2-Hexanone	ND	2.8	0.34	ND	0.68	0.083	
124-48-1	Dibromochloromethane	ND	2.8	0.36	ND	0.32	0.042	
106-93-4	1,2-Dibromoethane	ND	2.8	0.32	ND	0.36	0.041	
123-86-4	n-Butyl Acetate	**270**	2.8	0.37	**57**	0.58	0.079	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Air Mon 02-31** ALS Project ID: P1806645
Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Sample ID: P1806645-002

Test Code: EPA TO-15 Date Collected: 11/28/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/5/18
Analyst: Lusine Hakobyan Date Analyzed: 12/19/18
Sample Type: 1.0 L Silonite Summa Canister Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1SS00921

Initial Pressure (psig): -4.76 Final Pressure (psig): 5.64

Container Dilution Factor: 2.05

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	**0.72**	2.8	0.62	**0.15**	0.59	0.13	**J**
127-18-4	Tetrachloroethene	**4.8**	2.7	0.35	**0.71**	0.40	0.052	
108-90-7	Chlorobenzene	ND	2.7	0.36	ND	0.59	0.079	
100-41-4	Ethylbenzene	**20**	2.7	0.38	**4.6**	0.61	0.089	
179601-23-1	m,p-Xylenes	**92**	5.6	0.72	**21**	1.3	0.17	
75-25-2	Bromoform	ND	2.7	0.56	ND	0.26	0.055	
100-42-5	Styrene	**1.0**	2.7	0.44	**0.23**	0.64	0.10	**J**
95-47-6	o-Xylene	**31**	2.7	0.39	**7.2**	0.63	0.091	
111-84-2	n-Nonane	**1.5**	2.8	0.46	**0.30**	0.53	0.087	**J**
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.7	0.38	ND	0.40	0.055	
98-82-8	Cumene	**0.95**	2.7	0.39	**0.19**	0.55	0.080	**J**
80-56-8	alpha-Pinene	**21**	2.7	0.42	**3.8**	0.48	0.075	
103-65-1	n-Propylbenzene	**2.8**	2.8	0.39	**0.56**	0.56	0.080	**J**
622-96-8	4-Ethyltoluene	**3.7**	2.7	0.44	**0.76**	0.55	0.089	
108-67-8	1,3,5-Trimethylbenzene	**4.5**	2.7	0.39	**0.92**	0.55	0.080	
95-63-6	1,2,4-Trimethylbenzene	**14**	2.7	0.38	**2.9**	0.55	0.077	
100-44-7	Benzyl Chloride	ND	5.6	0.62	ND	1.1	0.12	
541-73-1	1,3-Dichlorobenzene	ND	2.8	0.41	ND	0.46	0.068	
106-46-7	1,4-Dichlorobenzene	ND	2.8	0.42	ND	0.46	0.070	
95-50-1	1,2-Dichlorobenzene	ND	2.8	0.40	ND	0.46	0.067	
5989-27-5	d-Limonene	**2.9**	2.6	0.56	**0.52**	0.47	0.10	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.7	0.51	ND	0.28	0.053	
120-82-1	1,2,4-Trichlorobenzene	ND	2.7	0.67	ND	0.37	0.090	
91-20-3	Naphthalene	ND	2.6	0.67	ND	0.50	0.13	
87-68-3	Hexachlorobutadiene	ND	2.7	0.56	ND	0.25	0.053	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **Method Blank** ALS Project ID: P1806645

Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Sample ID: P181219-MB

Test Code: EPA TO-15 Date Collected: NA

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

Analyst: Lusine Hakobyan Date Analyzed: 12/19/18

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	ND	0.52	0.13	ND	0.30	0.076	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.52	0.087	ND	0.11	0.018	
74-87-3	Chloromethane	ND	0.50	0.086	ND	0.24	0.042	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.51	0.084	ND	0.073	0.012	
75-01-4	Vinyl Chloride	ND	0.53	0.057	ND	0.21	0.022	
106-99-0	1,3-Butadiene	ND	0.52	0.088	ND	0.24	0.040	
74-83-9	Bromomethane	ND	0.50	0.074	ND	0.13	0.019	
75-00-3	Chloroethane	ND	0.51	0.066	ND	0.19	0.025	
64-17-5	Ethanol	ND	5.1	0.37	ND	2.7	0.20	
75-05-8	Acetonitrile	ND	0.52	0.13	ND	0.31	0.077	
107-02-8	Acrolein	ND	1.0	0.15	ND	0.44	0.065	
67-64-1	Acetone	ND	5.4	1.2	ND	2.3	0.51	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.53	0.081	ND	0.094	0.014	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	0.22	ND	0.85	0.090	
107-13-1	Acrylonitrile	ND	0.52	0.11	ND	0.24	0.051	
75-35-4	1,1-Dichloroethene	ND	0.54	0.074	ND	0.14	0.019	
75-09-2	Methylene Chloride	ND	0.54	0.15	ND	0.16	0.043	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.53	0.072	ND	0.17	0.023	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.53	0.076	ND	0.069	0.0099	
75-15-0	Carbon Disulfide	ND	1.1	0.16	ND	0.35	0.051	
156-60-5	trans-1,2-Dichloroethene	ND	0.53	0.074	ND	0.13	0.019	
75-34-3	1,1-Dichloroethane	ND	0.52	0.078	ND	0.13	0.019	
1634-04-4	Methyl tert-Butyl Ether	ND	0.54	0.063	ND	0.15	0.017	
108-05-4	Vinyl Acetate	ND	5.3	1.2	ND	1.5	0.34	
78-93-3	2-Butanone (MEK)	ND	1.0	0.11	ND	0.34	0.037	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **Method Blank** ALS Project ID: P1806645

Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Sample ID: P181219-MB

Test Code: EPA TO-15 Date Collected: NA

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

Analyst: Lusine Hakobyan Date Analyzed: 12/19/18

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.53	0.075	ND	0.13	0.019	
141-78-6	Ethyl Acetate	ND	1.1	0.28	ND	0.31	0.078	
110-54-3	n-Hexane	ND	0.54	0.11	ND	0.15	0.031	
67-66-3	Chloroform	ND	0.54	0.071	ND	0.11	0.015	
109-99-9	Tetrahydrofuran (THF)	ND	0.53	0.067	ND	0.18	0.023	
107-06-2	1,2-Dichloroethane	ND	0.53	0.059	ND	0.13	0.015	
71-55-6	1,1,1-Trichloroethane	ND	0.54	0.066	ND	0.099	0.012	
71-43-2	Benzene	ND	0.52	0.077	ND	0.16	0.024	
56-23-5	Carbon Tetrachloride	ND	0.52	0.074	ND	0.083	0.012	
110-82-7	Cyclohexane	ND	1.0	0.15	ND	0.29	0.044	
78-87-5	1,2-Dichloropropane	ND	0.54	0.066	ND	0.12	0.014	
75-27-4	Bromodichloromethane	ND	0.53	0.077	ND	0.079	0.011	
79-01-6	Trichloroethene	ND	0.53	0.072	ND	0.099	0.013	
123-91-1	1,4-Dioxane	ND	0.53	0.063	ND	0.15	0.017	
80-62-6	Methyl Methacrylate	ND	1.1	0.19	ND	0.27	0.046	
142-82-5	n-Heptane	ND	0.54	0.085	ND	0.13	0.021	
10061-01-5	cis-1,3-Dichloropropene	ND	0.56	0.083	ND	0.12	0.018	
108-10-1	4-Methyl-2-pentanone	ND	0.53	0.073	ND	0.13	0.018	
10061-02-6	trans-1,3-Dichloropropene	ND	0.53	0.11	ND	0.12	0.024	
79-00-5	1,1,2-Trichloroethane	ND	0.54	0.054	ND	0.099	0.0099	
108-88-3	Toluene	ND	0.53	0.065	ND	0.14	0.017	
591-78-6	2-Hexanone	ND	0.54	0.066	ND	0.13	0.016	
124-48-1	Dibromochloromethane	ND	0.54	0.070	ND	0.063	0.0082	
106-93-4	1,2-Dibromoethane	ND	0.54	0.062	ND	0.070	0.0081	
123-86-4	n-Butyl Acetate	ND	0.54	0.073	ND	0.11	0.015	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **Method Blank** ALS Project ID: P1806645

Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Sample ID: P181219-MB

Test Code: EPA TO-15 Date Collected: NA

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

Analyst: Lusine Hakobyan Date Analyzed: 12/19/18

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.54	0.12	ND	0.12	0.026	
127-18-4	Tetrachloroethene	ND	0.53	0.069	ND	0.078	0.010	
108-90-7	Chlorobenzene	ND	0.53	0.071	ND	0.12	0.015	
100-41-4	Ethylbenzene	ND	0.52	0.075	ND	0.12	0.017	
179601-23-1	m,p-Xylenes	ND	1.1	0.14	ND	0.25	0.032	
75-25-2	Bromoform	ND	0.53	0.11	ND	0.051	0.011	
100-42-5	Styrene	ND	0.53	0.086	ND	0.12	0.020	
95-47-6	o-Xylene	ND	0.53	0.077	ND	0.12	0.018	
111-84-2	n-Nonane	ND	0.54	0.089	ND	0.10	0.017	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.53	0.074	ND	0.077	0.011	
98-82-8	Cumene	ND	0.53	0.077	ND	0.11	0.016	
80-56-8	alpha-Pinene	ND	0.52	0.082	ND	0.093	0.015	
103-65-1	n-Propylbenzene	ND	0.54	0.077	ND	0.11	0.016	
622-96-8	4-Ethyltoluene	ND	0.53	0.085	ND	0.11	0.017	
108-67-8	1,3,5-Trimethylbenzene	ND	0.53	0.077	ND	0.11	0.016	
95-63-6	1,2,4-Trimethylbenzene	ND	0.53	0.074	ND	0.11	0.015	
100-44-7	Benzyl Chloride	ND	1.1	0.12	ND	0.21	0.023	
541-73-1	1,3-Dichlorobenzene	ND	0.54	0.080	ND	0.090	0.013	
106-46-7	1,4-Dichlorobenzene	ND	0.54	0.082	ND	0.090	0.014	
95-50-1	1,2-Dichlorobenzene	ND	0.54	0.079	ND	0.090	0.013	
5989-27-5	d-Limonene	ND	0.51	0.11	ND	0.092	0.020	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.52	0.10	ND	0.054	0.010	
120-82-1	1,2,4-Trichlorobenzene	ND	0.53	0.13	ND	0.071	0.018	
91-20-3	Naphthalene	ND	0.51	0.13	ND	0.097	0.025	
87-68-3	Hexachlorobutadiene	ND	0.53	0.11	ND	0.050	0.010	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **Method Blank** ALS Project ID: P1806645

Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Sample ID: P181220-MB

Test Code: EPA TO-15 Date Collected: NA

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

Analyst: Lusine Hakobyan Date Analyzed: 12/20/18

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	ND	0.52	0.13	ND	0.30	0.076	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.52	0.087	ND	0.11	0.018	
74-87-3	Chloromethane	ND	0.50	0.086	ND	0.24	0.042	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.51	0.084	ND	0.073	0.012	
75-01-4	Vinyl Chloride	ND	0.53	0.057	ND	0.21	0.022	
106-99-0	1,3-Butadiene	ND	0.52	0.088	ND	0.24	0.040	
74-83-9	Bromomethane	ND	0.50	0.074	ND	0.13	0.019	
75-00-3	Chloroethane	ND	0.51	0.066	ND	0.19	0.025	
64-17-5	Ethanol	**0.67**	5.1	0.37	**0.36**	2.7	0.20	**J**
75-05-8	Acetonitrile	ND	0.52	0.13	ND	0.31	0.077	
107-02-8	Acrolein	ND	1.0	0.15	ND	0.44	0.065	
67-64-1	Acetone	ND	5.4	1.2	ND	2.3	0.51	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.53	0.081	ND	0.094	0.014	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2.1	0.22	ND	0.85	0.090	
107-13-1	Acrylonitrile	ND	0.52	0.11	ND	0.24	0.051	
75-35-4	1,1-Dichloroethene	ND	0.54	0.074	ND	0.14	0.019	
75-09-2	Methylene Chloride	ND	0.54	0.15	ND	0.16	0.043	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.53	0.072	ND	0.17	0.023	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.53	0.076	ND	0.069	0.0099	
75-15-0	Carbon Disulfide	ND	1.1	0.16	ND	0.35	0.051	
156-60-5	trans-1,2-Dichloroethene	ND	0.53	0.074	ND	0.13	0.019	
75-34-3	1,1-Dichloroethane	ND	0.52	0.078	ND	0.13	0.019	
1634-04-4	Methyl tert-Butyl Ether	ND	0.54	0.063	ND	0.15	0.017	
108-05-4	Vinyl Acetate	ND	5.3	1.2	ND	1.5	0.34	
78-93-3	2-Butanone (MEK)	ND	1.0	0.11	ND	0.34	0.037	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **Method Blank** ALS Project ID: P1806645

Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Sample ID: P181220-MB

Test Code: EPA TO-15 Date Collected: NA

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

Analyst: Lusine Hakobyan Date Analyzed: 12/20/18

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.53	0.075	ND	0.13	0.019	
141-78-6	Ethyl Acetate	ND	1.1	0.28	ND	0.31	0.078	
110-54-3	n-Hexane	ND	0.54	0.11	ND	0.15	0.031	
67-66-3	Chloroform	ND	0.54	0.071	ND	0.11	0.015	
109-99-9	Tetrahydrofuran (THF)	ND	0.53	0.067	ND	0.18	0.023	
107-06-2	1,2-Dichloroethane	ND	0.53	0.059	ND	0.13	0.015	
71-55-6	1,1,1-Trichloroethane	ND	0.54	0.066	ND	0.099	0.012	
71-43-2	Benzene	ND	0.52	0.077	ND	0.16	0.024	
56-23-5	Carbon Tetrachloride	ND	0.52	0.074	ND	0.083	0.012	
110-82-7	Cyclohexane	ND	1.0	0.15	ND	0.29	0.044	
78-87-5	1,2-Dichloropropane	ND	0.54	0.066	ND	0.12	0.014	
75-27-4	Bromodichloromethane	ND	0.53	0.077	ND	0.079	0.011	
79-01-6	Trichloroethene	ND	0.53	0.072	ND	0.099	0.013	
123-91-1	1,4-Dioxane	ND	0.53	0.063	ND	0.15	0.017	
80-62-6	Methyl Methacrylate	ND	1.1	0.19	ND	0.27	0.046	
142-82-5	n-Heptane	ND	0.54	0.085	ND	0.13	0.021	
10061-01-5	cis-1,3-Dichloropropene	ND	0.56	0.083	ND	0.12	0.018	
108-10-1	4-Methyl-2-pentanone	ND	0.53	0.073	ND	0.13	0.018	
10061-02-6	trans-1,3-Dichloropropene	ND	0.53	0.11	ND	0.12	0.024	
79-00-5	1,1,2-Trichloroethane	ND	0.54	0.054	ND	0.099	0.0099	
108-88-3	Toluene	ND	0.53	0.065	ND	0.14	0.017	
591-78-6	2-Hexanone	ND	0.54	0.066	ND	0.13	0.016	
124-48-1	Dibromochloromethane	ND	0.54	0.070	ND	0.063	0.0082	
106-93-4	1,2-Dibromoethane	ND	0.54	0.062	ND	0.070	0.0081	
123-86-4	n-Butyl Acetate	ND	0.54	0.073	ND	0.11	0.015	

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.

Client: **Environmental Management Services, Inc.**

Client Sample ID: **Method Blank** ALS Project ID: P1806645

Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Sample ID: P181220-MB

Test Code: EPA TO-15 Date Collected: NA

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

Analyst: Lusine Hakobyan Date Analyzed: 12/20/18

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.54	0.12	ND	0.12	0.026	
127-18-4	Tetrachloroethene	ND	0.53	0.069	ND	0.078	0.010	
108-90-7	Chlorobenzene	ND	0.53	0.071	ND	0.12	0.015	
100-41-4	Ethylbenzene	ND	0.52	0.075	ND	0.12	0.017	
179601-23-1	m,p-Xylenes	ND	1.1	0.14	ND	0.25	0.032	
75-25-2	Bromoform	ND	0.53	0.11	ND	0.051	0.011	
100-42-5	Styrene	ND	0.53	0.086	ND	0.12	0.020	
95-47-6	o-Xylene	ND	0.53	0.077	ND	0.12	0.018	
111-84-2	n-Nonane	ND	0.54	0.089	ND	0.10	0.017	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.53	0.074	ND	0.077	0.011	
98-82-8	Cumene	ND	0.53	0.077	ND	0.11	0.016	
80-56-8	alpha-Pinene	ND	0.52	0.082	ND	0.093	0.015	
103-65-1	n-Propylbenzene	ND	0.54	0.077	ND	0.11	0.016	
622-96-8	4-Ethyltoluene	ND	0.53	0.085	ND	0.11	0.017	
108-67-8	1,3,5-Trimethylbenzene	ND	0.53	0.077	ND	0.11	0.016	
95-63-6	1,2,4-Trimethylbenzene	ND	0.53	0.074	ND	0.11	0.015	
100-44-7	Benzyl Chloride	ND	1.1	0.12	ND	0.21	0.023	
541-73-1	1,3-Dichlorobenzene	ND	0.54	0.080	ND	0.090	0.013	
106-46-7	1,4-Dichlorobenzene	ND	0.54	0.082	ND	0.090	0.014	
95-50-1	1,2-Dichlorobenzene	ND	0.54	0.079	ND	0.090	0.013	
5989-27-5	d-Limonene	ND	0.51	0.11	ND	0.092	0.020	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.52	0.10	ND	0.054	0.010	
120-82-1	1,2,4-Trichlorobenzene	ND	0.53	0.13	ND	0.071	0.018	
91-20-3	Naphthalene	ND	0.51	0.13	ND	0.097	0.025	
87-68-3	Hexachlorobutadiene	ND	0.53	0.11	ND	0.050	0.010	

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: **Environmental Management Services, Inc.**
Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Project ID: P1806645

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Collected: 11/28/18
Analyst: Lusine Hakobyan Date(s) Received: 12/5/18
Sample Type: 1.0 L Summa Canister(s) Date(s) Analyzed: 12/19 - 12/20/18
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	P181219-MB	**104**	**96**	**87**	70-130	
Method Blank	P181220-MB	**102**	**94**	**88**	70-130	
Lab Control Sample	P181219-LCS	**103**	**92**	**88**	70-130	
Lab Control Sample	P181220-LCS	**102**	**93**	**88**	70-130	
Air Mon 01-31	P1806645-001	**105**	**91**	**89**	70-130	
Air Mon 02-31	P1806645-002	**104**	**91**	**91**	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: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1806645
Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Sample ID: P181219-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 12/19/18
Sample Type: 1.0 L Summa 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	211	**208**	**99**	53-112	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	**187**	**89**	62-103	
74-87-3	Chloromethane	211	**219**	**104**	51-121	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	211	**182**	**86**	56-111	
75-01-4	Vinyl Chloride	214	**215**	**100**	57-117	
106-99-0	1,3-Butadiene	210	**216**	**103**	53-134	
74-83-9	Bromomethane	212	**198**	**93**	65-110	
75-00-3	Chloroethane	214	**203**	**95**	64-111	
64-17-5	Ethanol	1,020	**1240**	**122**	57-124	
75-05-8	Acetonitrile	206	**211**	**102**	57-126	
107-02-8	Acrolein	205	**218**	**106**	62-121	
67-64-1	Acetone	1,060	**1050**	**99**	60-113	
75-69-4	Trichlorofluoromethane (CFC 11)	211	**190**	**90**	63-104	
67-63-0	2-Propanol (Isopropyl Alcohol)	413	**419**	**101**	60-124	
107-13-1	Acrylonitrile	207	**231**	**112**	66-125	
75-35-4	1,1-Dichloroethene	218	**194**	**89**	68-107	
75-09-2	Methylene Chloride	217	**197**	**91**	66-105	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	**214**	**99**	63-127	
76-13-1	Trichlorotrifluoroethane (CFC 113)	216	**179**	**83**	59-109	
75-15-0	Carbon Disulfide	218	**202**	**93**	67-109	
156-60-5	trans-1,2-Dichloroethene	214	**208**	**97**	70-115	
75-34-3	1,1-Dichloroethane	216	**205**	**95**	66-106	
1634-04-4	Methyl tert-Butyl Ether	214	**197**	**92**	67-109	
108-05-4	Vinyl Acetate	1,060	**1050**	**99**	68-136	
78-93-3	2-Butanone (MEK)	208	**215**	**103**	71-116	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1806645
Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Sample ID: P181219-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 12/19/18
Sample Type: 1.0 L Summa 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	211	**207**	**98**	67-110	
141-78-6	Ethyl Acetate	436	**472**	**108**	64-127	
110-54-3	n-Hexane	216	**214**	**99**	60-115	
67-66-3	Chloroform	217	**199**	**92**	66-105	
109-99-9	Tetrahydrofuran (THF)	216	**203**	**94**	65-110	
107-06-2	1,2-Dichloroethane	215	**199**	**93**	60-110	
71-55-6	1,1,1-Trichloroethane	215	**190**	**88**	64-108	
71-43-2	Benzene	211	**191**	**91**	67-106	
56-23-5	Carbon Tetrachloride	212	**189**	**89**	64-112	
110-82-7	Cyclohexane	416	**386**	**93**	67-110	
78-87-5	1,2-Dichloropropane	216	**209**	**97**	66-112	
75-27-4	Bromodichloromethane	215	**206**	**96**	67-113	
79-01-6	Trichloroethene	213	**189**	**89**	66-108	
123-91-1	1,4-Dioxane	214	**219**	**102**	70-116	
80-62-6	Methyl Methacrylate	431	**394**	**91**	73-118	
142-82-5	n-Heptane	215	**193**	**90**	66-110	
10061-01-5	cis-1,3-Dichloropropene	214	**210**	**98**	75-120	
108-10-1	4-Methyl-2-pentanone	209	**225**	**108**	65-124	
10061-02-6	trans-1,3-Dichloropropene	213	**216**	**101**	77-123	
79-00-5	1,1,2-Trichloroethane	215	**198**	**92**	68-112	
108-88-3	Toluene	212	**181**	**85**	62-111	
591-78-6	2-Hexanone	214	**224**	**105**	59-128	
124-48-1	Dibromochloromethane	213	**206**	**97**	67-123	
106-93-4	1,2-Dibromoethane	216	**203**	**94**	66-122	
123-86-4	n-Butyl Acetate	219	**232**	**106**	64-128	

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ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1806645
Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Sample ID: P181219-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 12/19/18
Sample Type: 1.0 L Summa 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	217	**196**	**90**	65-114	
127-18-4	Tetrachloroethene	213	**179**	**84**	55-120	
108-90-7	Chlorobenzene	215	**191**	**89**	61-114	
100-41-4	Ethylbenzene	212	**188**	**89**	64-113	
179601-23-1	m,p-Xylenes	426	**401**	**94**	64-114	
75-25-2	Bromoform	213	**204**	**96**	65-132	
100-42-5	Styrene	212	**197**	**93**	67-124	
95-47-6	o-Xylene	214	**202**	**94**	65-114	
111-84-2	n-Nonane	215	**221**	**103**	64-117	
79-34-5	1,1,2,2-Tetrachloroethane	214	**215**	**100**	66-119	
98-82-8	Cumene	214	**197**	**92**	61-116	
80-56-8	alpha-Pinene	211	**193**	**91**	65-120	
103-65-1	n-Propylbenzene	218	**209**	**96**	63-117	
622-96-8	4-Ethyltoluene	214	**218**	**102**	63-124	
108-67-8	1,3,5-Trimethylbenzene	214	**195**	**91**	60-117	
95-63-6	1,2,4-Trimethylbenzene	215	**219**	**102**	61-122	
100-44-7	Benzyl Chloride	217	**205**	**94**	77-142	
541-73-1	1,3-Dichlorobenzene	216	**202**	**94**	61-125	
106-46-7	1,4-Dichlorobenzene	216	**196**	**91**	59-123	
95-50-1	1,2-Dichlorobenzene	216	**215**	**100**	61-126	
5989-27-5	d-Limonene	211	**237**	**112**	66-124	
96-12-8	1,2-Dibromo-3-chloropropane	209	**212**	**101**	67-138	
120-82-1	1,2,4-Trichlorobenzene	214	**204**	**95**	62-141	
91-20-3	Naphthalene	203	**197**	**97**	62-145	
87-68-3	Hexachlorobutadiene	209	**192**	**92**	49-131	

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ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1806645
Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Sample ID: P181220-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 12/20/18
Sample Type: 1.0 L Summa 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	211	**211**	**100**	53-112	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	**186**	**89**	62-103	
74-87-3	Chloromethane	211	**217**	**103**	51-121	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	211	**179**	**85**	56-111	
75-01-4	Vinyl Chloride	214	**212**	**99**	57-117	
106-99-0	1,3-Butadiene	210	**212**	**101**	53-134	
74-83-9	Bromomethane	212	**197**	**93**	65-110	
75-00-3	Chloroethane	214	**202**	**94**	64-111	
64-17-5	Ethanol	1,020	**1230**	**121**	57-124	
75-05-8	Acetonitrile	206	**211**	**102**	57-126	
107-02-8	Acrolein	205	**215**	**105**	62-121	
67-64-1	Acetone	1,060	**1040**	**98**	60-113	
75-69-4	Trichlorofluoromethane (CFC 11)	211	**188**	**89**	63-104	
67-63-0	2-Propanol (Isopropyl Alcohol)	413	**413**	**100**	60-124	
107-13-1	Acrylonitrile	207	**230**	**111**	66-125	
75-35-4	1,1-Dichloroethene	218	**192**	**88**	68-107	
75-09-2	Methylene Chloride	217	**196**	**90**	66-105	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	**214**	**99**	63-127	
76-13-1	Trichlorotrifluoroethane (CFC 113)	216	**178**	**82**	59-109	
75-15-0	Carbon Disulfide	218	**200**	**92**	67-109	
156-60-5	trans-1,2-Dichloroethene	214	**207**	**97**	70-115	
75-34-3	1,1-Dichloroethane	216	**202**	**94**	66-106	
1634-04-4	Methyl tert-Butyl Ether	214	**194**	**91**	67-109	
108-05-4	Vinyl Acetate	1,060	**1030**	**97**	68-136	
78-93-3	2-Butanone (MEK)	208	**213**	**102**	71-116	

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: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1806645
Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Sample ID: P181220-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 12/20/18
Sample Type: 1.0 L Summa 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	211	**206**	**98**	67-110	
141-78-6	Ethyl Acetate	436	**459**	**105**	64-127	
110-54-3	n-Hexane	216	**210**	**97**	60-115	
67-66-3	Chloroform	217	**196**	**90**	66-105	
109-99-9	Tetrahydrofuran (THF)	216	**201**	**93**	65-110	
107-06-2	1,2-Dichloroethane	215	**195**	**91**	60-110	
71-55-6	1,1,1-Trichloroethane	215	**190**	**88**	64-108	
71-43-2	Benzene	211	**190**	**90**	67-106	
56-23-5	Carbon Tetrachloride	212	**188**	**89**	64-112	
110-82-7	Cyclohexane	416	**384**	**92**	67-110	
78-87-5	1,2-Dichloropropane	216	**208**	**96**	66-112	
75-27-4	Bromodichloromethane	215	**204**	**95**	67-113	
79-01-6	Trichloroethene	213	**187**	**88**	66-108	
123-91-1	1,4-Dioxane	214	**216**	**101**	70-116	
80-62-6	Methyl Methacrylate	431	**387**	**90**	73-118	
142-82-5	n-Heptane	215	**190**	**88**	66-110	
10061-01-5	cis-1,3-Dichloropropene	214	**208**	**97**	75-120	
108-10-1	4-Methyl-2-pentanone	209	**224**	**107**	65-124	
10061-02-6	trans-1,3-Dichloropropene	213	**216**	**101**	77-123	
79-00-5	1,1,2-Trichloroethane	215	**198**	**92**	68-112	
108-88-3	Toluene	212	**181**	**85**	62-111	
591-78-6	2-Hexanone	214	**226**	**106**	59-128	
124-48-1	Dibromochloromethane	213	**208**	**98**	67-123	
106-93-4	1,2-Dibromoethane	216	**205**	**95**	66-122	
123-86-4	n-Butyl Acetate	219	**236**	**108**	64-128	

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

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **Environmental Management Services, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1806645
Client Project ID: **SVE In Plant Monitoring / KUHO-18-011** ALS Sample ID: P181220-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 12/20/18
Sample Type: 1.0 L Summa 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	217	**196**	**90**	65-114	
127-18-4	Tetrachloroethene	213	**179**	**84**	55-120	
108-90-7	Chlorobenzene	215	**191**	**89**	61-114	
100-41-4	Ethylbenzene	212	**189**	**89**	64-113	
179601-23-1	m,p-Xylenes	426	**402**	**94**	64-114	
75-25-2	Bromoform	213	**205**	**96**	65-132	
100-42-5	Styrene	212	**198**	**93**	67-124	
95-47-6	o-Xylene	214	**203**	**95**	65-114	
111-84-2	n-Nonane	215	**222**	**103**	64-117	
79-34-5	1,1,2,2-Tetrachloroethane	214	**216**	**101**	66-119	
98-82-8	Cumene	214	**199**	**93**	61-116	
80-56-8	alpha-Pinene	211	**194**	**92**	65-120	
103-65-1	n-Propylbenzene	218	**214**	**98**	63-117	
622-96-8	4-Ethyltoluene	214	**218**	**102**	63-124	
108-67-8	1,3,5-Trimethylbenzene	214	**198**	**93**	60-117	
95-63-6	1,2,4-Trimethylbenzene	215	**221**	**103**	61-122	
100-44-7	Benzyl Chloride	217	**212**	**98**	77-142	
541-73-1	1,3-Dichlorobenzene	216	**205**	**95**	61-125	
106-46-7	1,4-Dichlorobenzene	216	**198**	**92**	59-123	
95-50-1	1,2-Dichlorobenzene	216	**214**	**99**	61-126	
5989-27-5	d-Limonene	211	**238**	**113**	66-124	
96-12-8	1,2-Dibromo-3-chloropropane	209	**216**	**103**	67-138	
120-82-1	1,2,4-Trichlorobenzene	214	**203**	**95**	62-141	
91-20-3	Naphthalene	203	**196**	**97**	62-145	
87-68-3	Hexachlorobutadiene	209	**190**	**91**	49-131	

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